VIENNA, AUSTRIA
Reed Messe Wien
27-31 August 2011

ABSTRACT BOOK

Inspire... and be inspired

Contains abstracts for:
- Plenary
- Symposia
- Conference Workshops
- Short Communications
- Posters
- AMEE Fringe
- PhD Reports
- Research Papers
- Secrets of Success

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## CONTENTS PAGE

### MONDAY 29TH AUGUST

| 1 | Plenary | 21st Century Medical Learning | 1 |
|  |  |  |  |
| 2A | Symposium | The future of online continuing medical education: Towards more effective approaches | 1 |
| 2B | Symposium | Faculty development: Not only an obligation of medical schools but it also makes good business sense | 1 |
| 2C | Short Communications | Education Environment | 1 |
| 2D | Short Communications | Postgraduate Education 1 | 4 |
| 2E | Short Communications | Workbased Assessment | 7 |
| 2F | Short Communications | Empathy & Ethics | 10 |
| 2G | Short Communications | Pot Pourri | 11 |
| 2H | Short Communications | Stress and the Student in Difficulty | 14 |
| 2I | Research Papers | Selection/Career Choice | 16 |
| 2J | Short Communications | Simulated Patients | 19 |
| 2K | Short Communications | Medical Education Research | 21 |
| 2L | Short Communications | Curriculum Evaluation | 23 |
| 2M | Symposium | Virtual Physiological Human | 26 |
| 2N | Workshop | Informed Self-Assessment and Feedback: implications for teaching and learning | 29 |
| 2O | Workshop | The Power of Mentoring in Medical Education | 29 |
| 2P | Workshop | Dead man talking: a perfect way to explore bioethics using devised theatre | 29 |
| 2R | Workshop | Social Media and Networks in Medical Education | 30 |
| 2S | Workshop | How to successfully implement a global health experience for medical students | 30 |
| 2T | Workshop | Feed-forward, more than the opposite of feed-back? | 30 |
| 2U | Workshop | Teaching CanMEDS competencies in the clinical context | 31 |
| 2V | Workshop | Performance Assessment for Competency-Based Health Professional Education | 31 |
| 2W | Workshop | LCME Accreditation of US and Canadian Medical Schools: From process to Outcome | 31 |
| 2X | Posters | Curriculum Development/Integration | 32 |
| 2Y | Posters | Leadership/Management | 39 |
| 2Z | Posters | Feedback | 46 |
| 2AA | Posters | Reflection/Portfolios | 52 |
| 2BB | Posters | Career Choice/Education Environment | 57 |
| 2DD | Secrets of Success | Secrets of Success 1 | 63 |
| 3A | Symposium | Leadership in Medical Education | 64 |
| 3B | Symposium | Practice and Community-oriented Curriculum Development in Basic Medical Education | 65 |
| 3C | Short Communications | Virtual Patients | 65 |
| 3D | Short Communications | Postgraduate Education 2 | 67 |
| 3E | Short Communications | Written Assessment | 69 |
| 3F | Short Communications | Interprofessional Education | 71 |
| 3G | Short Communications | Research | 73 |
| 3H | Short Communications | Peer Assisted Learning | 75 |
| 3I | Research Papers | Assessment | 77 |
| 3J | Short Communications | Context for Clinical Teaching | 80 |
| 3K | Short Communications | International Dimensions of Medical Education | 82 |
| 3L | Short Communications | Continuing Professional Development 1 | 84 |
| 3M | PhD Reports | PhD Reports 1 | 86 |
3N Workshop Social accountability of medical schools: A new mark of excellence for development and accreditation 89
3O Workshop Publishing the Results of Scholarly Work in Medical Education: The Art of Writing and Getting Published 89
3P Workshop Share and share alike: Using and creating Open Educational Resources – “teaching materials for free?” 90
3R Workshop An assessment “Swap Shop” 90
3S Workshop Standards for PhD Programmes in the Context of Postgraduate Medical Education 90
3T Workshop Work place based assessment of international medical graduates using multiple tools 91
3U Workshop Ethics and law in the curriculum 91
3V Workshop Why is this learner so challenging to work with? Identifying Problems and Facilitating Problem Solving 92
3W Workshop Selecting good future doctors at entry to medical school: an international comparison 92
3X Posters Teaching the Basic Sciences 92
3Y Posters Student Health/Learning Styles 99
3Z Posters Selection 105
3AA Posters Standard Setting/National Exams 110
3BB Posters Simulation 115
3DD Secrets of Success Secrets of Success 2 121
4A Symposium To Share or Not to Share? Illuminating policies and approaches to sharing information about medical students 122
4B Symposium Practice and Community-oriented Curriculum Development in Basic Medical Education (continued) 122
4C Symposium Lifelong learning for health professionals 123
4D AMEE Fringe Fringe 1 123
4E Short Communications Progress Test 124
4F Short Communications Teamwork 126
4G Short Communications Training in surgery 128
4H Short Communications Learning Resources 129
4I Short Communications Professionalism 131
4J Short Communications To lecture or not? 133
4K Short Communications International Medical Graduates 134
4L Short Communications BEME 136
4M Short Communications The Assessment of Teachers 138
4N Workshop Outcomes-Based Course Design: A Pedagogical Approach to Formulating and Writing Learning Outcomes 140
4O Workshop Two Worlds Colliding: The clinician as Qualitative Researcher 140
4P Workshop How can clinical teachers encourage learners’ performance improvement after (multisource) feedback? 141
4R Workshop Enhancing intrinsic motivation in medical students: Using Self-determination theory 141
4S Workshop So, you are in the caring business? 141
4T Workshop Setting up OSCE examinations: Practical Considerations 142
4U Workshop Teaching Medical Error Prevention 142
4V Workshop Engaging clinical teachers 142
4W Workshop How to design and facilitate focus groups for use in medical education: Part 2 143
4X Posters Clinical teaching 1 143
4Y Posters Virtual Patients/eLearning 148
4Z Posters OSCE 156
4AA Posters Postgraduate education 1 161
<table>
<thead>
<tr>
<th>Session Code</th>
<th>Type</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4BB</td>
<td>Posters</td>
<td>Teacher evaluation</td>
<td>168</td>
</tr>
<tr>
<td>4CC</td>
<td>Posters</td>
<td>Student in difficulty</td>
<td>174</td>
</tr>
<tr>
<td>4DD</td>
<td>Secrets of Success</td>
<td>Secrets of Success 3</td>
<td>180</td>
</tr>
</tbody>
</table>

**TUESDAY 30th AUGUST**

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Type</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
<td>Symposia</td>
<td>What is Evidence? Different Perspectives</td>
<td>182</td>
</tr>
<tr>
<td>5B</td>
<td>Symposia</td>
<td>A Calling to Medicine: International Perspectives on Physician careers, Admissions and Professional Development</td>
<td>182</td>
</tr>
<tr>
<td>5C</td>
<td>Short Communications</td>
<td>Learning in the curriculum</td>
<td>182</td>
</tr>
<tr>
<td>5D</td>
<td>Short Communications</td>
<td>The trainee in difficulty</td>
<td>184</td>
</tr>
<tr>
<td>5E</td>
<td>Short Communications</td>
<td>Assessment general</td>
<td>186</td>
</tr>
<tr>
<td>5F</td>
<td>Short Communications</td>
<td>PBL</td>
<td>188</td>
</tr>
<tr>
<td>5G</td>
<td>Short Communications</td>
<td>Reflection and critical thinking</td>
<td>189</td>
</tr>
<tr>
<td>5H</td>
<td>Short Communications</td>
<td>Student characteristics</td>
<td>191</td>
</tr>
<tr>
<td>5I</td>
<td>Research Papers</td>
<td>Clinical teaching and learning</td>
<td>194</td>
</tr>
<tr>
<td>5J</td>
<td>Short Communications</td>
<td>Evaluating simulation</td>
<td>197</td>
</tr>
<tr>
<td>5K</td>
<td>Short Communications</td>
<td>Feedback to students in the clinical setting</td>
<td>199</td>
</tr>
<tr>
<td>5L</td>
<td>Short Communications</td>
<td>Continuing Professional Development 2</td>
<td>201</td>
</tr>
<tr>
<td>5M</td>
<td>Short Communications</td>
<td>Implementing a staff development programme</td>
<td>204</td>
</tr>
<tr>
<td>5N</td>
<td>Workshop</td>
<td>Cross-cultural adaptation of virtual patients (VPs): a cross-Atlantic framework</td>
<td>205</td>
</tr>
<tr>
<td>5O</td>
<td>Workshop</td>
<td>Resolving Collegial Conflict: Who Do I think You Are?</td>
<td>206</td>
</tr>
<tr>
<td>5P</td>
<td>Workshop</td>
<td>Professionalism, Professional Identity, and Socialization: From Theory to Action in Teaching Professionalism</td>
<td>206</td>
</tr>
<tr>
<td>5R</td>
<td>Workshop</td>
<td>Develop a TOSCE! A hands on guide to developing your won Team Observed Structure Clinical Encounter (TOSCE)</td>
<td>206</td>
</tr>
<tr>
<td>5S</td>
<td>Workshop</td>
<td>Integrating research skills and competencies in the medical curriculum. A workshop on finding the right balance</td>
<td>207</td>
</tr>
<tr>
<td>5T</td>
<td>Workshop</td>
<td>Rethinking portfolios as a process: strategies for creating a successful portfolio culture</td>
<td>207</td>
</tr>
<tr>
<td>5U</td>
<td>Workshop</td>
<td>Using Team Based Learning (TBL) in Health Science Education</td>
<td>208</td>
</tr>
<tr>
<td>5V</td>
<td>Workshop</td>
<td>Teaching2Teach (T2T) – Designing and implementing a student-led teaching skills course</td>
<td>208</td>
</tr>
<tr>
<td>5W</td>
<td>Workshop</td>
<td>Medical School Admissions: Navigating Excellence, Prestige and Access in a “Spiky” World</td>
<td>208</td>
</tr>
<tr>
<td>5X</td>
<td>Posters</td>
<td>Postgraduate education 2</td>
<td>209</td>
</tr>
<tr>
<td>5Y</td>
<td>Posters</td>
<td>Teaching and learning</td>
<td>216</td>
</tr>
<tr>
<td>5Z</td>
<td>Posters</td>
<td>eLearning</td>
<td>222</td>
</tr>
<tr>
<td>5AA</td>
<td>Posters</td>
<td>Clinical teaching 2</td>
<td>229</td>
</tr>
<tr>
<td>5BB</td>
<td>Posters</td>
<td>Community based education/Med Ed Research</td>
<td>235</td>
</tr>
<tr>
<td>5DD</td>
<td>Secrets of Success</td>
<td>Secrets of Success 4</td>
<td>240</td>
</tr>
<tr>
<td>6A</td>
<td>Symposia</td>
<td>Viewed through a prism: Professional from the Vantage Point of Patients, Families, Students and Health Professionals in Practice</td>
<td>241</td>
</tr>
<tr>
<td>6B</td>
<td>Symposia</td>
<td>Developments in Medical Education in the European union</td>
<td>242</td>
</tr>
<tr>
<td>6C</td>
<td>Short Communications</td>
<td>The development of an eLearning programme</td>
<td>242</td>
</tr>
<tr>
<td>6D</td>
<td>Short Communications</td>
<td>Training for General Practice</td>
<td>244</td>
</tr>
<tr>
<td>6E</td>
<td>Short Communications</td>
<td>Standard setting</td>
<td>245</td>
</tr>
<tr>
<td>6F</td>
<td>Short Communications</td>
<td>Problem based learning/Team based learning</td>
<td>247</td>
</tr>
<tr>
<td>6G</td>
<td>Short Communications</td>
<td>Educational strategies</td>
<td>249</td>
</tr>
<tr>
<td>6H</td>
<td>Short Communications</td>
<td>Career choice</td>
<td>251</td>
</tr>
<tr>
<td>6I</td>
<td>Research Papers</td>
<td>Simulation</td>
<td>252</td>
</tr>
<tr>
<td>6J</td>
<td>Short Communications</td>
<td>Innovative approaches to teaching and learning</td>
<td>255</td>
</tr>
<tr>
<td>6K</td>
<td>Short Communications</td>
<td>Feedback to students</td>
<td>257</td>
</tr>
<tr>
<td>6L</td>
<td>Short Communications</td>
<td>Transition</td>
<td>258</td>
</tr>
<tr>
<td>6M</td>
<td>PhD Reports</td>
<td>PhD Reports 2</td>
<td>260</td>
</tr>
<tr>
<td>6N</td>
<td>Short Communications</td>
<td>Communication skills</td>
<td>263</td>
</tr>
<tr>
<td>6O</td>
<td>Workshop</td>
<td>‘Writing up’: 3 Principles for Successful Research Papers</td>
<td>264</td>
</tr>
<tr>
<td>6P</td>
<td>Workshop</td>
<td>Constructing problem-based learning cases: hands-on training</td>
<td>265</td>
</tr>
<tr>
<td>6Q</td>
<td>Workshop</td>
<td>Come and Test your Knowledge on the Critical Concepts from the Continuing Medical Education Literature</td>
<td>265</td>
</tr>
<tr>
<td>6R</td>
<td>Workshop</td>
<td>Explaining the medically unexplained: demonstrating and teaching the skills</td>
<td>265</td>
</tr>
<tr>
<td>6S</td>
<td>Workshop</td>
<td>Visioning for the future: how do we prepare our medical students for Leadership and Management in Clinical Practice?</td>
<td>266</td>
</tr>
<tr>
<td>6T</td>
<td>Workshop</td>
<td>Survey design basics: from constructs to scales</td>
<td>266</td>
</tr>
<tr>
<td>6U</td>
<td>Workshop</td>
<td>Using Mind-Body Medicine Skills to Reduce Stress and Promote Wellness in Medical School</td>
<td>266</td>
</tr>
<tr>
<td>6V</td>
<td>Workshop</td>
<td>The definition and assessment of insight in educational planning for healthcare practitioners</td>
<td>267</td>
</tr>
<tr>
<td>6W</td>
<td>Workshop</td>
<td>Designing as assessment program: moving from individual assessment instruments towards a coherent assessment program</td>
<td>267</td>
</tr>
<tr>
<td>6X</td>
<td>Posters</td>
<td>Topics in the curriculum</td>
<td>268</td>
</tr>
<tr>
<td>6Y</td>
<td>Posters</td>
<td>Written Assessment and Progress Test</td>
<td>273</td>
</tr>
<tr>
<td>6Z</td>
<td>Posters</td>
<td>Research/Evidence Based Medicine</td>
<td>280</td>
</tr>
<tr>
<td>6AA</td>
<td>Posters</td>
<td>Student as teacher/Peer Assisted Learning</td>
<td>287</td>
</tr>
<tr>
<td>6BB</td>
<td>Posters</td>
<td>International</td>
<td>293</td>
</tr>
<tr>
<td>6DD</td>
<td>Secrets of Success</td>
<td>Secrets of Success 5</td>
<td>300</td>
</tr>
<tr>
<td>7A</td>
<td>Plenary</td>
<td>Globalisation of Medical Education: an exploration of models of transnational medical education and opportunities and challenges associated with them</td>
<td>302</td>
</tr>
<tr>
<td>7B</td>
<td>Plenary</td>
<td>Transnational collaborative learning for students and faculty – the power of MedEdWorld</td>
<td>302</td>
</tr>
<tr>
<td>7C</td>
<td>Plenary</td>
<td>International Accreditation of Medical Schools</td>
<td>302</td>
</tr>
<tr>
<td>8A</td>
<td>Symposia</td>
<td>The Contribution of the Social Sciences to Medical Education Research</td>
<td>303</td>
</tr>
<tr>
<td>8B</td>
<td>Symposia</td>
<td>Promoting foundational research literacy skills: from research literacy to research capacity in health science students</td>
<td>303</td>
</tr>
<tr>
<td>8C</td>
<td>Short Communications</td>
<td>Management</td>
<td>303</td>
</tr>
<tr>
<td>8D</td>
<td>AMEE Fringe</td>
<td>Fringe 2</td>
<td>306</td>
</tr>
<tr>
<td>8E</td>
<td>Short Communications</td>
<td>Improving the OSCE</td>
<td>307</td>
</tr>
<tr>
<td>8F</td>
<td>Short Communications</td>
<td>Patient Safety</td>
<td>310</td>
</tr>
<tr>
<td>8G</td>
<td>Short Communications</td>
<td>Clinical Reasoning</td>
<td>312</td>
</tr>
<tr>
<td>8H</td>
<td>Short Communications</td>
<td>Student engagement with the curriculum</td>
<td>313</td>
</tr>
<tr>
<td>8I</td>
<td>Research Papers</td>
<td>Postgraduate Education/CME</td>
<td>316</td>
</tr>
<tr>
<td>8J</td>
<td>Short Communications</td>
<td>Clinical teaching and learning</td>
<td>319</td>
</tr>
<tr>
<td>8M</td>
<td>Short Communications</td>
<td>Gender</td>
<td>321</td>
</tr>
<tr>
<td>8N</td>
<td>Short Communications</td>
<td>Communication skills</td>
<td>323</td>
</tr>
<tr>
<td>8O</td>
<td>Workshop</td>
<td>Milestones: Essential Tools for Competency-based Education</td>
<td>325</td>
</tr>
<tr>
<td>8P</td>
<td>Workshop</td>
<td>Studying the medical education learning environment: exploring international perspectives</td>
<td>326</td>
</tr>
<tr>
<td>8R</td>
<td>Workshop</td>
<td>When Mayhem Reigns: Developing Teaching Skills for Hectic Clinical Situations</td>
<td>326</td>
</tr>
<tr>
<td>8S</td>
<td>Workshop</td>
<td>A professional approach to multi-source feedback (MSF) in specialist training – how to qualify feedback facilitators</td>
<td>326</td>
</tr>
<tr>
<td>8T</td>
<td>Workshop</td>
<td>MDcme.ca-Online Continuing Medical Education for Physicians and Other Health Professionals</td>
<td>327</td>
</tr>
<tr>
<td>8U</td>
<td>Workshop</td>
<td>Using the improvement Model to Improve Educational Innovation</td>
<td>327</td>
</tr>
<tr>
<td>8V</td>
<td>Workshop</td>
<td>Structured Approach to Effective Virtual Patient Authoring</td>
<td>327</td>
</tr>
<tr>
<td>8W</td>
<td>Workshop</td>
<td>Causes and remediation of underperformance in medical school</td>
<td>328</td>
</tr>
<tr>
<td>8X</td>
<td>Posters</td>
<td>Outcome Based Education</td>
<td>328</td>
</tr>
<tr>
<td>8Y</td>
<td>Posters</td>
<td>OSCE and Clinical assessment</td>
<td>334</td>
</tr>
<tr>
<td>8Z</td>
<td>Posters</td>
<td>Postgraduate training/Training for General Practice</td>
<td>340</td>
</tr>
<tr>
<td>8AA</td>
<td>Posters</td>
<td>Student characteristics</td>
<td>346</td>
</tr>
<tr>
<td>8BB</td>
<td>Posters</td>
<td>Staff development</td>
<td>352</td>
</tr>
<tr>
<td>8CC</td>
<td>Posters</td>
<td>Curriculum transition/Topics in the curriculum</td>
<td>359</td>
</tr>
<tr>
<td>8DD</td>
<td>Secrets of Success</td>
<td>Secrets of Success 6</td>
<td>366</td>
</tr>
</tbody>
</table>

**WEDNESDAY 31ST AUGUST**

| 9A | Symposia | Delivering the Curriculum of the Future | 368 |
| 9B | Symposia | Gender in Medical Education: An international perspective on what, why and how | 368 |
| 9C | Short Communications | Curriculum management and change | 368 |
| 9D | Short Communications | Junior Doctor as teacher | 371 |
| 9E | Short Communications | Assessment and the OSCE | 373 |
| 9F | Short Communications | Rural Education | 375 |
| 9G | Short Communications | Outcome Based Education | 376 |
| 9H | Short Communications | Peer assessment | 379 |
| 9I | Research Papers | Professionalism/The Teacher | 381 |
| 9J | Short Communications | Simulation in practice | 385 |
| 9K | Short Communications | International collaborations in medical education | 386 |
| 9L | Short Communications | Selection for medicine | 389 |
| 9M | Short Communications | Approaches to staff development | 391 |
| 9N | Workshop | Young medical educator workshop: how to choose a conceptual, theoretical framework for my research project | 393 |
| 9O | Workshop | What faculty need to know to understand interactive testing strategies and create advanced items | 393 |
| 9P | Workshop | A Step-wise Approach to Trainee Performance Problems | 393 |
| 9R | Workshop | Identifying and applying theoretical paradigms to educational research | 394 |
| 9X | Posters | Postgraduate training/Training for surgery | 394 |
| 9Y | Posters | PBL/Critical thinking | 400 |
| 9Z | Posters | Professionalism/Attitudes | 407 |
| 9AA | Posters | Continuing Professional Development/CME | 414 |
| 9BB | Posters | Work based assessment | 422 |
| 9DD | Secrets of Success | Secrets of Success 7 | 427 |
| 10A | Symposia | Using Student Engagement to Improve Medical Education | 428 |
| 10B | Symposia | From departmental based to integrated curricula: a tale of three cities | 429 |
| 10C | Short Communications | Social responsibility of a medical school | 429 |
| 10D | Symposia | IX Ibero-American Session - Globalization and Accreditation in Medical Education: Its Impact in the Americas | 431 |
| 10E | Short Communications | Training for leadership | 431 |
| 10F | Short Communications | Community Oriented Medical Education | 433 |
| 10G | Short Communications | Humanities in medical education | 434 |
| 10H | Short Communications | The curriculum | 436 |
| 10J | Short Communications | Clinical skills training | 438 |
| 10K | Short Communications | Social networking | 440 |
| 10L | Short Communications | Multi Mini Interview | 442 |
| 10M | Short Communications | The roles of the teacher | 443 |
| 10N | Workshop | Making your Mark: How to Create Effective PowerPoint Presentations | 445 |
| 10O | Workshop | How to search, retrieve and repurpose medical educational resources: The M Educator project approach | 445 |
| 10P | Workshop | Using theory in medical education research | 446 |
| 10R | Workshop | Mind maps for thinking and creativity in medical education | 446 |
| 10X | Posters | IPE/Teamwork | 446 |
| 10Y | Posters | Communication skills/Patient safety | 453 |
| 10Z | Posters | Simulated Patients/Simulation | 459 |
| 10AA | Posters | Curriculum evaluation | 465 |
| 10BB | Posters | Clinical teaching 3 | 472 |
| 10DD | Secrets of Success | Secrets of Success 8 | 477 |
| 11A | Plenary | From ‘Knowledge Transfer’ to ‘Knowledge Interaction’ - changing models of research use, influence and impact | 478 |
| 11B | Plenary | Uncovering Evidence and Understanding its Complexity | 479 |
SESSION 1: PLENARY

1A Plenary: 21st century Medical Learning
Donald Clark (LearnDirect, UK)

Medicine prides itself on its evidence based approach but so often fails to apply the same levels of rigour and research to teaching and learning. Donald will argue that the psychology of learning, changes in student expectations and pressures on cost, demand that we use 21st century pedagogies and technology to deliver better learning.

Donald Clark was CEO and original founder of Epic Group plc, which established itself as the leading company in the UK e-learning market, floated on the Stock Market in 1996 and sold in 2005. He is a board member of Ufi LearnDirect (Government agency delivered e-learning to 2.8 million learners), Caspian Learning (learning games), LearningPool (content provider), Brighton Arts Festival, and a school governor. Donald has implemented hundreds of technology based programmes in medical education using simulations, games, virtual patients and a range of e-learning techniques. He has advised on e-learning for HEFCE, IVIMEDS (Worldwide Medical Schools Consortium) World Bank, United Nations and many other public and private sector organisations and is a regular speaker at national and international conferences. Also a regular (and controversial) blogger on e-learning! donald.clark@hotmail.co.uk;
http://donaldclarkplanb.blogspot.com/

SESSION 2: SIMULTANEOUS SESSIONS

2A Symposium: The future of online continuing medical education: Towards more effective approaches
Chair: John Sandars (Medical Education Unit, University of Leeds, UK); Panel: Patricia K Kokotailo (University of Wisconsin School of Medicine and Public Health, USA), Gurmit Singh (School of Education and Medical Education Unit, University of Leeds, UK)

There is increasing interest in the use of online continuing medical education since it has the potential to provide rapidly updated learning resources that can be accessed anytime and anyplace. However, there is often little change in professional practice and very rarely is patient care improved. This symposium will critically explore why current approaches to online continuing medical education may be ineffective in achieving change in improved care and to propose a variety of innovative developments that may have greater potential for success. The critical success factors include a complex mix of educational, technological and contextual factors. All participants will be encouraged to consider their current experience of providing or receiving online continuing medical education and to collaborate in the production of practical guidance that can inform future policy and practice.

2B Symposium: Faculty development: Not only an obligation of medical schools but it also makes good business sense
Chair: Matthew Gwee (National University of Singapore); Panel: Yvonne Steinert (McGill University, Canada), Dujeepa Samarasekera (NUS, Singapore)

Medical teachers today need to acquire new enabling competencies to effectively facilitate student learning of lifelong habits of mind, behaviour and action. Derek Bok (a former President of Harvard University) once said: “Asking faculty members to teach in new ways requires helping them learn how to do so effectively.” This Symposium will examine the: obligation of medical schools to implement faculty development programmes (FDPs); fate of medical schools which do not implement FDPs; expected returns on investment (ROI) from FDPs.

2C Short Communications: Education Environment Featuring the Miriam Friedman Ben David Prize Presentation

2C1 Miriam Friedman Ben David Prize 2010
Role Modelling in Medical Education
Vimmi Passi (Warwick Medical School, UK)

Background: Forming professional and humanitarian physicians for the 21st century is a challenge for medical educators worldwide. This presentation will explore the impact of doctor role modelling in medical education.

Summary of work: Positive doctor role modelling has been defined as that ‘process whereby faculty members exhibit knowledge, attitudes and skills; demonstrate and articulate expert thought processes; and manifest positive professional behaviours and characteristics’. The characteristics of positive role modelling will be highlighted. However, role modelling...
can be positive or negative and the challenge for medical educators worldwide, is to reduce the influence of negative role modelling.

**Summary of results:** Role modelling takes place in three interrelated educational environments which are the formal, informal and hidden curriculum. The informal curriculum is defined as an ‘unspecified, predominantly ad hoc and highly interpersonal form of teaching and learning that takes place among and between faculty and students’. The hidden curriculum has been defined as a ‘set of influences that function at the level of organisational and culture’.

**Conclusions:** Role modelling is undoubtedly important in professional character formation and clinical teachers are consciously or unconsciously influential role models. It is imperative that medical institutions ensure that the educational environment in both undergraduate and postgraduate education supports positive role modelling.

**Background:** Cohorts of students frequently rotate through teaching hospitals. We introduced the Dundee Ready Educational Environment Measure (DREEM) in 2009 to provide continuous evaluation and guide further localised qualitative and quantitative research. We sought to introduce targeted interventions and monitor their impact.

**Summary of work:** 5 student cohorts completed DREEM questionnaires between 2009-2011. Response rate was 165/250. Each time, results were used to design a targeted qualitative and quantitative questionnaire and guide formal feedback sessions.

**Summary of results:** DREEM initially showed problems with the student common room, timetabling and support for stressed students. The room was refurbished, online timetabling and pastoral care systems were introduced. Subsequently, DREEM showed the refurbishment and initial timetabling system were successful. Students felt more supported, though this dipped at exam time. Overall there was a generally less positive attitude around exam times and during a change of faculty. Attitudes were more positive in the cohort better known to faculty.

**Conclusions:** Students and faculty turnaround impact the educational environment. DREEM provides an overview of evolving educational landscapes, allowing continuity of objectives across a changing faculty. By focusing further evaluation, targeted interventions can be implemented and assessed. Thus standards are maintained and improved.

**Take-home messages:** DREEM is useful for evaluating environments with changing needs and rotating faculty.

**2C3 Clinical workplace learning – how to evaluate?**

**M Kelly**, D Bennett*, S O’Flynn†, T Dornan‡ (†Medical Education Unit, Brookfield Health Sciences Complex, University College Cork, Ireland; ‡University of Maastricht, Netherlands)

**Background:** There is a need for tools to measure the quality of clinical learning environments. The Dundee Ready Education Environment Measure (DREEM) is widely used. Another tool, the Manchester Clinical Placement Index (MCPI), with psychometric validity has recently been proposed. Following the introduction of a newly integrated curriculum, we evaluated the clinical learning environment comparing these two tools.

**Summary of work:** With research ethics approval, all year 3 students (n=108) completed DREEM and MCPI at the end clinical attachments. The response rate was 93%. Statistical analysis was by one-way analysis of variance, using SPSS 17.0.

**Summary of results:** Although the variance was similar, the highest and lowest scoring placements differed by 25% with MCPI and 15% with DREEM. Both measures showed significant heterogeneity in the quality of the seven clinical placements, but the ratio of between-group to within-group variance was much higher with MCPI than DREEM (MCPI: F=21; df=6; p<0.001. DREEM: F=9; df=6; p<0.001).

**Conclusions:** MCPI, with eleven items, was better able to discriminate between the quality of seven different clinical workplace learning environments than DREEM, a 50-item scale. MCPI had a more favourable ‘signal-to-noise’ ratio

**Take-home messages:** We suggest MCPI should be considered as a valid measure of clinical workplace learning environments.

**2C4 Quality assessment (monitoring) of medical educational culture in hospital units**

L Mortensen*, B Malling (MEDU Aarhus University, Aarhus University Hospital, HR-education, Noerrereboulevard 1, DK8000 Aarhus C, Denmark)
Background: Educational culture is important for effective learning. To support focus on optimising educational culture amongst doctors in clinical departments, we need tools to assess and monitor this culture.

Summary of work: Based on literature review and the PHEEM inventory, a questionnaire was developed. Content and face validity was established in a pilot study and focus group interviews and construct validity by factor analysis. Reliability was tested by Cronbach’s coefficient alpha for internal consistency. The revised inventory with 39 questions for all and 4 extra questions for trainee doctors was sent to all doctors employed at 45 departments for final validation.

Summary of results: 955 doctors participated, respondentset = 47%. Factor analysis established a three-dimensional structure, with three domains very much like the PHEEM Factors, but with a different factor loading. Reliability and feasibility were high. Mean scores on educational culture were a little above 3.5 (max. score=5). Most departments performed well, but some were identified to be in need of improvement on one or more areas. Data showed higher scores from senior trainers, only small differences across types of hospital, and medical and surgical specialties have the greatest differences in educational culture standards.

Conclusions: A valid, reliable and feasible inventory for assessment of educational culture in hospital departments was developed. A model for future assessment and monitoring is presented. Thereby it should be possible to identify departments in need of improvement and support to improve educational culture and thereby quality of specialist education.

2C5 The Dutch Residency Educational Climate Test: differences in subscale scores due to gender and training status

(Rob Oostenbroek1, Monica de Ridder2 (1): Arts-Assistentenvereniging Asr; 2Department of Surgery and Leerhuis, Albert Schweitzer Hospital, Dordrecht, The Netherlands)

Background: A good learning climate is essential for residents and post-graduates: it facilitates their learning processes. The Dutch Residency Educational Climate Test (D-RECT) is a recently developed instrument to measure the learning climate in the clinical setting (Boor et al., 2011). The aim of this study is (a) to determine the learning climate in a teaching hospital and (b) to verify whether differences occur in subscale scores due to gender and respondents’ training status: post-graduates (not in specialty training) or residents (in specialty training).

Summary of work: The D-RECT was administrated in November 2009 and in November 2010 among respectively 111 and 127 post-graduates and residents. The internal consistency and the outcomes on subscales were determined. ANOVA was used to compare subscale means on gender and training status (p=0.01).

Summary of results: The response in 2009 and 2010 was respectively 74% (n=82) and 71% (n=90). The internal consistency of subscales varied from α=0.72 to α=0.96. Average subscales scores varied from M=3.1 to M=4.5 (range: 1 totally disagree -5 totally agree). For both gender and training status the subscales ‘Feedback’ and ‘Professional relations between attendings’ showed significant differences. Post-graduates and residents respond also significantly different on the subscales: ‘Work is adapted to resident’s competence’. Women had lower subscale scores than men.

Conclusions: The D-RECT is a useful tool to determine the learning climate in the clinical setting. The D-RECT is developed to measure the quality of the learning climate; differences in subscales due to gender can be a threat to validity. More research is needed.

2C6 Events that influence medical students’ perceptions of the learning environment

J Colbert*, R Shochet, R Levine, S Wright (Johns Hopkins School of Medicine, Office of Medical Education Services, Baltimore, USA)

Background: The learning environment (LE) for medical education, encompassing the physical, social and psychological context in which students learn and develop, may play a significant role in students’ professional(1) and moral(2) development. It is important for educators to gain clarity on which LE elements reinforce values and practices of skillfulness, scholarship, humanism, and compassion in physicians-to-be.

Summary of work: 92 graduating Johns Hopkins medical students indicated whether 57 events had no, low, moderate or high impact on their LE. These 57 events represented distinctive experiences or described important relationships for medical students.

Summary of results: Team engagement, making contributions, feeling appreciated, and encounters with inspiring role models and teachers were rated as the most influential LE events. Comparisons based on gender and career choice were analyzed for the top 10 most influential events.

Conclusions: This study is among the first to characterize the relative impact of many common events on medical students’ LE. From a systems perspective, consciously instilling high impact qualities in the LE may prove valuable in helping students’ sense greater coherence between espoused and perceived professional and humanistic values.

Take-home messages: It is important to make sure the LE includes inspiring role models and allows students to
be engaged, make contributions and feel appreciated for their efforts.

2C7 DREEMing in Slovenia – first comparison of students’ educational climate perception between medical schools
B Zdravkovic*, M Zdravkovic (Faculty of Medicine, University of Maribor, Slomskov trg 15, 2000 Maribor, Slovenia)

Background: In Slovenia, there are two medical faculties having two different curricula, one traditional in Ljubljana (MFLJ) and a new one in Maribor (MFMB). We aim to compare students’ perception of educational climate between the schools: Is there statistically significant difference in educational climate perception among final year medical students at MFMB compared to final year students at MFLJ in academic year 2010/2011? We hypothesise: there is no significant difference in mean total DREEM score. Summary of work: DREEM questionnaire was translated, adopted and piloted to maintain its validity. Then 56 MFMB and 46 MFLJ students completely filled physical and online version of the questionnaire, respectively, without notification of intended faculty comparison. Summary of results: Mean total DREEM score is 113.3 (SD=18.7) points for MFLJ and 114.6 (SD=20.5) for MFMB (p>>>0.05). Students commonly reported negative items: poor support system for stressed students, bad timetable, factual learning being overemphasised and not student centred teaching. While being confident to complete the studies, they perceive course organisers as knowledgeable and have good friends in the course. Conclusions: No statistically significant difference exists in mean total DREEM score. Many common positives and negatives exist between the schools. Take-home messages: Educational climate perception is very similar. Enhancement process should be considered.

2D Short Communications: Postgraduate Education 1

2D1 Comparing the US and UK models of postgraduate medical education – training versus service delivery
R Nathavitharana (NYU Internal Medicine Residency Program, New York, NY 10016, USA)

Background: The status of postgraduate medical trainees as students versus employees seems to engender more debate in some countries than others. An example is the recent case of Mayo Federation for Medical Education and Research, et al. v United States, which was eventually resolved by an 8-to-0 Supreme Court ruling that residents were ineligible for the student exemption from FICA taxes. Summary of work: One of the biggest differences between US and UK postgraduate medical education seems to be the emphasis on learning through the continuation of a structured educational program as in the US versus a model which is predominantly based on service delivery as in the UK. Summary of results: To allow more time for educational endeavours, measures have been taken to reduce the number of patients carried per intern and minimise ‘scut’ work in the US. Mandatory attendance at noon conferences, resident reports and grand rounds has also been instituted. Conclusions: The service-based model also offers valuable learning opportunities and some differences between the US and UK undoubtedly pertain to different work hour restrictions. Although further studies regarding outcomes are needed, it would seem that placing more prominence on educational training would benefit postgraduate doctors. Take-home messages: Greater emphasis should be placed on educational training of postgraduates.

2D2 Training Programme Specialty Appraisal
C Cooper*, P Barker, J Corne (East Midlands Healthcare Workforce Deanery (North Centre), Headquarters Office, University of Nottingham, Kings Meadow Campus, Lenton Lane, Nottingham NG7 2NR, UK)

Background: To ensure quality of educational delivery, UK Deaneries generate a large quantity of metrics that can be difficult to harness effectively. An evidenced based Annual Appraisal Process for each of the 25 training programmes in the East Midlands School of Medicine was developed to address this difficulty. Summary of work: The process for appraising each training programme was developed. The performance metrics were allocated to nine domains and objective criteria used to allocate each to a Red/Amber/Green (RAG) rating system. A method of presenting this information to each specialty was developed. A process of feedback, reflection and action planning led by each programme was developed. Summary of results: Nine domains were identified: 1. Engagement with the School; 2. School Policies; 3. Trainee Outcomes; 4. Trainee Feedback; 5. Innovation in Training; 6. Educational Process; 7. Academic Progress; 8. Personal development; 9. GMC trainee and trainer survey dat. 46 metrics were identified and allocated to one of the nine domains and scored using the RAG rating for each specialty. All specialties have completed the appraisal cycle and are now action planning.
Conclusions: Deaneries' metrics have been successfully used as the basis for annual specialty appraisal. This facilitates effective programme-led action planning. Take-home messages: Specialty appraisal based on objective metrics is effective.

2D3  Pilot study: Accelerated learning in anaesthetic training
HO Holdgaard*, C Thygesen, S Ruback, P Charles (University of Aarhus, Center for Medical Education, Aarhus/Skejby, Denmark)

Background: With the purpose to elucidate the possibility for accelerated learning, four residents, in their first year of anaesthetic training, followed a revised curriculum.

Summary of work: The curriculum consisted of skills training for airway management, spinal anaesthesia and insertion of an epidural catheter and simulation based training in general anaesthesia. The skill trained for each procedure was performed in 4 sessions on four consecutive days immediately before the beginning of clinical practice. The simulation based course in general anaesthesia was a 1-day course in week three of the one year curriculum. The skills training were assessed with OSATS and global rating scales for each procedure.

Summary of results: As assessed with an OSCE the residents accelerated their competencies in airway management and general anaesthesia from week 10-12 to 4, spinal anaesthesia from week 10 to 6 and insertion of a epidural catheter from week 20 to 10. Following the simulation based course in airway management, general anaesthesia and spinal anaesthesia the residents seemed more confident with the procedures in clinical practice. It is still too early to get a clear impression about increased confidence in relation to insertion of an epidural catheter.

Conclusions: Accelerated training in basic anaesthetic procedures may be acquired through skills- and simulation based learning. Further randomised studies needs to be performed.

2D4  Supervision of trainees on a general paediatric service: Quantity, the effect on patient management and trainees learning
M van den Boom1, R Pinnock4, J Weller2, P Reed2, B Shulruf2 (1Starship Children's Hospital and Department of Paediatrics; 2Centre for Medical and Health Sciences Research; 3Children's Research Centre, Starship Children’s Hospital, New Zealand)

Background: Supervision is the basis of the apprenticeship model of postgraduate training. This study is the first study to measure the amount, type of and effect of supervision on patient care and education in a paediatric service.

Summary of work: We used a combination of quantitative and qualitative methodology to evaluate supervision. Supervision encounters were timed and questionnaires completed by both trainees and paediatricians at the time of the encounter.

Summary of results: Paediatricians rarely confirm the trainee’s findings, and observation of trainees is rare. On inpatients supervision changed management in 30% of patients on the ward round and in 42% of chart reviews. In clinic management was changed in 48% of the cases when the paediatrician saw the patient but in only 21% of patients where the paediatrician did not see the patient. More changes are made to management and there is a greater impact on understanding and education when paediatricians provide direct supervision in outpatients. Trainees rarely recognise the effect of role modelling.

Conclusions: Paediatricians rarely observe trainees. Supervision results in significant changes to patient care but is less frequent and intense at times when the inpatient service is busiest. Trainees value the educational impact of supervision because of changes to patient assessment and management rather than because of learning professional qualities. Our data should prompt a review of how trainees are supervised in our hospital.

Take-home messages: The quantity, type and effect of supervision is measurable and should be used to develop standards.

2D5  How well are our post graduates prepared for practice? Defining practice by means of tasks and activities
J Pols2, HB Bakker1, P Remmelts2, IS Dijkstra1, JJA Mooij1 (1Wenckebach Institute, University Medical Center Groningen, University of Groningen, The Netherlands; 2Department of Neurosurgery, University Medical Center Groningen, University of Groningen, The Netherlands)

Background: Worldwide great effort is put into the introduction of competency frameworks in Postgraduate Medical Education. These efforts give rise to questions about their effects in terms of outcomes: are post graduates better prepared for practice than before? This calls for an instrument to measure how well young medical specialists are prepared for the tasks and activities they have to perform. As a first step we carried out a task analysis on the practice of medical specialists.

Summary of work: Document analysis and interviews with representatives of all twenty-seven medical specialties resulted in a preliminary inventory of tasks and activities. This inventory was validated by means of a questionnaire among 2500 medical specialists asking them to rate the frequencies in which they perform each task or activity.
**Summary of results:** The initial inventory held 91 tasks and activities. The questionnaire had an overall response of 26% and resulted in one additional task. Broad categories of specialists can be discerned on basis of the task frequencies.

**Conclusions:** The final inventory of tasks and activities of medical specialists appears to be valid and adequately detailed.

**Take-home messages:** An important step has been taken towards research on the outcomes of Postgraduate Medical Education.

**2D6 Improving the quality of postgraduate medical education: Residents provide their supervisors with feedback: (how) does it work? C Fluit*, S Bolhuis1, R Graf2, R Loan3, M Wensing2 (1Radboud University Nijmegen Medical Centre, Institute for Medical Education and Training, 306 IWOO, Postbox 9101, 6500 HB Nijmegen, The Netherlands; 2Radboud University Nijmegen Medical Centre, Scientific Institute for Quality of Healthcare, Nijmegen, The Netherlands))

**Background:** Instruments for evaluating clinical teaching must be valid, and feedback should be provided in an effective way. We developed a method in which residents have a dialogue with their supervisor. We investigated how the dialogue was perceived by them.

**Summary of work:** We evaluated supervisors with the EFFECT questionnaire (Evaluation and Feedback For Effective Clinical Teaching) from pediatrics, pulmonary diseases, radiology and orthopedic surgery of 4 teaching hospitals. Feedback sessions were conducted by 2 residents and a facilitator. Residents received a short feedback training. We interviewed supervisors (n=32) and residents (n=11) and analyzed the data using ATLAS Ti.

**Summary of results:** All residents and supervisors found the dialogue constructive. It gave meaning to the data and residents provided their teachers useful tips and suggestions. The facilitator helped creating a safe environment. The self-assessment forces supervisors to reflect on their teaching behavior. EFFECT covered all important aspects of teaching. Residents learned how to provide feedback, and learned from their supervisors how to receive feedback.

**Conclusions:** The dialogue helped understanding the data, and the feedback was accepted easily. The self-evaluation was useful. The EFFECT questionnaire helped focusing on all important aspects of teaching. Providing feedback was very instructive for residents.

**Take-home messages:** A dialogue between residents and supervisors about their teaching qualities is feasible, highly appreciated and an essential element of the evaluation procedure.

**2D7 Impact of Resident Physician Well-Being on Assessments of Knowledge and Clinical Performance TJ Beckman*, DA Reed, TD Shanafelt, CP West (Mayo Clinic, College of Medicine, Rochester, Minnesota, USA)

**Background:** Relationships between residents’ well-being and assessments of their clinical performance have been little studied. We investigated associations between resident well-being and assessments of their knowledge and clinical performance.

**Summary of work:** We examined assessments by peers, supervisors, and non-physicians; mini-clinical evaluation exercise (mini-CEX) evaluations; and in-training examinations (ITE) of internal medicine residents from 2009-2010. Residents’ characteristics were obtained from validated surveys of empathy, quality-of-life, burnout, fatigue, and depression. Multivariate generalized estimating equations were used to evaluate associations between residents’ well-being and their knowledge and clinical performance. The sample provided 80% power for a Cohen’s effect size of 0.3. Statistical significance was set at p<0.01 to account for multiple comparisons.

**Summary of results:** 202 residents (84%) provided well-being and assessment data. Residents’ Interpersonal Reactivity Index empathy scores were associated with higher peer ratings on “desirability as a physician for a family member” (beta=.022, 95% CI=.006 -.038, p=.007). There were no significant associations between resident ITE or mini-CEX scores and quality-of-life, burnout, fatigue, depression, or empathy.

**Conclusions:** Resident well-being was not associated with knowledge and clinical performance assessments, which supports the validity of these standardized measures. However, the association between resident empathy and peer assessments suggests that ratings may be influenced by interpersonal factors.

**Take-home messages:** Most measures of resident well-being were not associated with assessments of their knowledge and clinical performance.

**2D8 Evaluation of a Training Programme for Specialty Trainees: Improving course quality to strengthen impact Lyn Halley (NHS Education for Scotland, SE Region, The Lister, 11 Hill Square, Edinburgh EH8 9DR, UK)

**Background:** There is evidence to indicate training courses significantly improve communication skills of Health Professionals. New evaluation work of the NES Training Development Support Unit Generic Skills Programme for Specialty Trainees is exploring course effectiveness through examining delegate satisfaction, learning acquired and importantly the impact of the training upon delegates’ attitudes and practice.
Summary of work: The evaluation incorporates 16 courses and a mixed methods approach to collecting/analysing data. Using the Kirkpatrick Model, Level 1 impact (Reaction) is examined using an enhanced pre/post-course evaluation form, Level 2 (Learning) investigated using tests of knowledge and level 3 (behaviour) using a detailed training impact survey and semi-structured interviews. Implications derived from each method are guiding a continuous feedback mechanism of Course Action Sheets and quality improvement Run-Charts to improve content/delivery.

Summary of results: Satisfaction is high with course content/delivery, 80% are rated as Good/Excellent. The course improvement procedure has been effective in increasing satisfaction ratings. Tested knowledge is increasing by up to two thirds. 71% of delegates feel more effective in their role as a result of training.

Conclusions: Courses are exerting a positive impact upon delegate’s knowledge/skills, increasing confidence and raising awareness.

Take-home messages: Continuous Course Improvement Mechanisms though effective when adhered to, can prove challenging to implement and sustain.

2E Short Communications: Work-based Assessment

2E1 How do Assessors Decide? A model to explain differences in assessors’ judgements in MiniCEX assessments in UK foundation doctors
P Yeates*, P O’Neill, K Mann, K Eva (University of Manchester, Manchester Medical School, ATR4, 1st floor, Education Research Centre, University Hospital of South Manchester, Southmoor Road, Manchester, M23 9LT, UK)

Background: In MiniCEX assessments, several studies have suggested that score allocation is inconsistent. This project aimed to compare cognitive processes used in decision making between assessors to understand this idiosyncrasy.

Summary of work: We constructed and validated three videos of performance by a foundation doctor: One “poor”, one “borderline” and one “good”. Consultant physicians thought-aloud whilst observing, judging and scoring the performances, with follow-up interviews. Sampling was purposive, to saturation. Analysis developed a model of inter-assessor differences in cognition.

Summary of results: The model has 3 main parts. Noticing: assessors were differently sensitive to cues in the performance, and thus they “noticed” different aspects whilst observing. Clinical judgement interacted with noticing. Judging: criteria against which assessors judged were very general and sometimes vague; assessors often made judgements relative to the performance of other trainees. Translating: turning judgements into scores and separating domains contained uncertainty. Non-performance factors (e.g. face to face dynamics, prior knowledge of trainee, assessors’ affect) influenced judging and translating.

Conclusions: This model of assessor judgements may offer insight into the cause of inconsistencies between assessors. Confirmation of key components of this model will be sought by non-introspective methods.

Take-home messages: Explanation of inter-assessor differences may help to improve reliability and validity of performance assessment judgements.

2E2 Observed Work Place Based Assessments: Comparative analysis of two studies
P Nesargikar1, A Mainwaring**, G Clark2, A Hassell1, RK McKinley3 (‘Keele School of Medicine; 1 University Hospital of Wales)

Background: Mini-CEX and Directly Observed Procedural skills (DOPS) allow observation and feedback on a trainee’s clinical abilities. The aim of the study was to look for differences between two studies with similar aims.

Summary of work: Results from a semi-structured questionnaire survey from two regions (England & Wales) at differing times (2007, 2010) from the same author were compared.

Summary of results: Answers from 185 foundation trainees (England) were compared with 26 Surgical trainees from Wales. In the Foundation cohort, only 51% were observed during the entire duration of the assessment. 87% received feedback on their assessment, but only 54% had an action plan formulated. Majority of assessors were of junior grade who were not trained in conducting these assessments. In the Welsh cohort, majority (75%) of DOPS assessments were fully observed compared to only 50% in Mini-CEX. 47% received feedback on their assessments, and of these, only 42% had an action plan created. Majority (74%) of the trainees felt that the assessors were trained in conducting these assessments.

Conclusions: Though awareness and assessor training seem to have improved with time, lack of observation and ineffective feedback is rendering the WPBA process suboptimal.

Take-home messages: Complete observation during assessments, and a cultural change is required to make WPBA effective.

2E3 What viewpoints do Case-based Discussion (CbD) and Mini-CEX assess educational outcomes from?
Conclusions: including No 1,2,3,6 items.

Take-home messages: estimated independently.

student's ability and difficulties of each item could be ability a student has. On the statistic bases of IRT, could make it clear what these tools assess and what

with other students over places and years.

of standardised assessment within the workplace.

reliability of the mCEX tool, is based on these concepts and case complexity. Current literature on the

2E4 Undergraduate performance assessment using mCEX in clinical settings without control over assessor specialty or training, clinical case, or clinical context

D Playford*, R Worthington (The University of Western Australia, The Rural Clinical School of Western Australia, Faculty of Medicine, Dentistry and Health Sciences, Western Australia)

Background: Performance assessment is generally conducted by trained assessors using carefully chosen cases to minimize the known impacts of case-specificity and case complexity. Current literature on the reliability of the mCEX tool, is based on these concepts of standardised assessment within the workplace.

Summary of work: Aware of the reported benefits of mCEX in obtaining valuable feedback for trainees, we have employed mCEX as a core clinical assessment for undergraduate medical students living in rural and remote Western Australia for an entire clinical year.

Summary of results: The mCEX tool was used in hospitals, private GP surgeries, and in Aboriginal medical services. The range of cases was enormous. The enthusiasm with which students engaged with the exercise varied, but in 1 year, 75 students generated more than 1,500 individual mCEX. They were assessed by junior medical officers, resident medical officers, consultants and GPs. We report mCEX statistics from this real-world setting, from 2008 to 2010.

Conclusions: In balancing the competing demands of highly standardised, administratively-intensive assessment with real-world priorities, a cohesive assessment community is the means by which acceptable standards can be reached.

Take-home messages: mCEX assessment can be academically useful even in the unstandardised contexts represented by rural and remote medicine.

2E5 Work-place based assessments using iphones in Year 4 medical students

J C Darling*, G.S. Frith, C Murray (Academic Dept of Paediatrics, Obstetrics and Gynaecology, D Floor Clarendon Wing, LGI, Leeds LS1 3EX, UK)

Background: Work-place based assessments (WPBAs) are now common in medical education. Postgraduate assessments are often completed online, but computer availability and the login process often delay this process. With a smartphone platform, assessments could be completed immediately and uploaded to the student's portfolio. This would make feedback more immediate and relevant.

Summary of work: 242 year 4 medical students were issued with iphones including an application for completion and upload of WPBAs. Teachers were asked to complete WPBAs directly on to the phones, but for the first two course modules, paper copies could be completed, and students transcribe these into the phone. Uploaded assessments were anonymised and analysed by course module.

Summary of results: 3408 separate assessments were completed over the first three course modules (mean of 14.1 per student). Ratings of organisation, professionalism, focus, and overall rating were significantly different between course modules, as were ratings for task complexity. Mean number of words assessor feedback and student reflection were also significantly different across the five course modules (assessor mean (median) range: 4.8 (2.0) – 13.0(10.0), student mean (median) range: 8.9 (6.0) – 19.2 (15.0).

Conclusions: There were significant differences across course modules regarding WPBA assessor and student responses.

Take-home messages: WPBAs could be entered and uploaded effectively via the iphone platform.
2E6  Defining and Assessing Competency Standards in Colonoscopy: Where is the Bar?
RE Sedlack (Mayo Clinic, Division of Gastroenterology and Hepatology, Rochester, MN USA)

Background: The aim is to describe methods to assess core endoscopy skills in trainees, establish learning curves for these parameters, define competency thresholds for these skills, and determine the duration of training required to achieve these goals.

Summary of work: In a three year prospective study at the Mayo Clinic, core colonoscopy skills were assessed using the Mayo Colonoscopy Skills Assessment Tool (MCSAT) in GI fellows undergoing training. Average MCSAT item scores and learning curves are described and minimal competence thresholds for each MSCAT item are established.

Summary of results: 41 GI fellows performed 6,635 colonoscopies. 4,103 procedures (62%) were assessed using the MCSAT. Learning curves and competency thresholds are described.

Conclusions: MCSAT core skills scores of 3.5, cecal intubation rates of 85% and intubation times under 16 minutes are recommended as minimal competency criteria for colonoscopy and on average requires 275 procedures to achieve.

Take-home messages: These new competency thresholds require more procedures than previous GI training recommendations suggest and far more than current training requirements in other specialties. In order to ensure patient safety and provide the highest quality of care, all physicians seeking to be privileged in colonoscopy, regardless or their specialty, should be held to a common standard of competency metrics.

2E7  Supervision of assessments: A review of assessments in Foundation Training.
I Ryland*1,2, C Dainty1, S Atkinson1, E Morrissey1, L Brunt1, D Bowen-Jones2 1Mersey Deanery, Regatta Place, Liverpool L3 4BL UK; 2Edge Hill University, Ormskirk, Lancashire, UK)

Background: Assessment is a key component in postgraduate medical training providing evidence of skills and good practice, however for some trainees it may highlight serious deficiencies in their knowledge. In these few cases, assessment provides evidence for formal action to be taken through remedial education and support.

Summary of work: A review of Case-Based Discussions, Mini-CEXs and Direct Observation of Procedural Skills (DOPs) undertaken by Foundation Trainees during a 6-month period was conducted to establish the grade of assessor participating in the process.

Summary of results: A total of 2416 CBDs, 2435 mini-CEX and 5111 DOPs were identified. Median observation time for each CBD and mini-CEX was 15minutes followed by 10minutes of constructive feedback. DOPs, often a short practical assessment, required 10minutes (median) for observation and 5minutes for feedback. Data indicates, though advised who to approach, some trainees have requested inexperienced practitioners to supervise assessments.

Conclusions: Trainees need to select trained and appropriately skilled assessors in order to receive accurate and knowledgeable feedback on their competency or the assessment process will for some become a ‘tick-box’ exercise with no recognition of its’ educational value.

Take-home messages: It is essential that all assessors have an understanding of the content and purpose of assessment and the responsibility required in fulfilling the role.

2E8  The Anaesthetic experience in using Direct Observation of Procedural Skills; trainees’ and trainers’ perspective
N Bindal*1, T Bindal1, D Wall2, H Goodyear2 1Worcestershire Acute Hospitals NHS Trust; 2West Midlands Deanery, UK)

Background: In the UK, workplace based assessments (WBAs) have been part of training for the last 3 years. Carrying out procedures efficiently and safely is of paramount importance in anaesthesia. This regional study explores whether Direct Observation of Procedural Skills (DOPS) have been successfully integrated into anaesthetic training programmes.

Summary of work: 19 and 20-items questionnaires distributed for trainees and consultants respectively.

Summary of results: Response rate was 76% (90/119) of trainees and 64% (129/199) of consultants. Training in using DOPS was 100% for consultants but only 66% for trainees. Both trainees and consultants were knowledgeable on conduct of DOPS assessments. 50% of assessments were being done ad hoc with the remainder mostly being done retrospectively. 19% of consultants (25/129) reported refusing to do a DOPS assessment mostly because they were too busy. Trainee feedback following DOPS was poor. Both trainees and consultants felt that DOPS was not a helpful learning tool (p = 0.001).

Conclusions: DOPS assessments are currently not valued as an educational tool. Emphasis needs to be on how DOPS should be conducted but also on their merits as a learning aid.

Take-home messages: Cultural change in using DOPS assessments is needed to prevent continued detrimental effect on their use as a WBA tool.
2F  Short Communications: Empathy and Ethics

2F1  The Effect of Medical School on Student Development
S Laird*, J George*, S Coon (A. T. Still University of Health Sciences/Kirksville College of Osteopathic Medicine, Academic Affairs, Kirkville, MO, USA)

Background: A study of 641 medical students across four years of medical school determined that there were significant changes in moral reasoning scores and subscale scores of self-interest, maintaining norms, and antisocial (cynicism) as measured by the Defining Issues Test -2 (DIT). During medical school the students’ N2 scores dropped while their antisocial scores rose. These changes were correlated with a decrease in their empathy scores as measured by the Barrett-Lennard Empathy Scale. This study demonstrates a need for addressing the hidden curriculum in the didactic years or face the outcome of less tolerant and empathic medical school graduates.

Summary of work: KCOM administered the Defining Issues Test (DIT-2) and assessed empathy using a modified Barrett-Lennard Scoring Instrument to 172 medical students annually during end of year testing for 3 consecutive years. Students’ responses were evaluated to measure their overall moral reasoning score (N2) and subscales; personal interest, antisocial, and maintaining norms. Students’ empathy was measured through a modified Barrett-Lennard scale. Standardized patients rated the students’ ability to demonstrate empathic behavior during end of year assessment. Inter-rater reliability for Standardized Patient encounters was 0.88 for Empathy Evaluation.

Summary of results: Using Sigma Plot program results showed significant differences between male and female students’ scores on each of the variables. Significance was noted between males and females for maintaining norms in their third year of school and in personal interest for the class, both with a p value of 0.03. There were statistically significant differences between males and females on the antisocial and N2 scores with p values of < 0.003 and <0.001 respectively for all three years. Results demonstrated that students enter medical school with higher self-interest scores and the two scores are comparable to the established norms; however the antisocial scores rose significantly in the second year and plateau during year 3.

Conclusions: DIT-2 and empathy scores show similar patterns indicating that medical students are able to compartmentalize and postpone cognitive moral development rather than continue development of moral reasoning as shown by other professions. The sub-scales indicate students’ self-interest rises in year two and decreases by the end of their third year of medical training. Antisocial scores increased in year two. Results document the impact the second year curriculum has on moral development. Overall, the stress medical students experience because of the curriculum results in lack of continuing moral development, but does not impact their empathy.


2F2  How to measure non-observable aspects of empathy: a qualitative study
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Background: At times empathy is defined as a multidimensional concept or process. Unfortunately, some aspects of empathy still remain unmatched with appropriate measurement methods. This study sought to assess and scrutinize a non-observable aspect of empathy comprising “receptiveness” to patients’ clues.

Summary of work: Mandatory reflection reports on history taking skills of n = 42 second year medical students at the Medical University of Vienna were analyzed regarding spontaneous notices of mainly non-observable aspects of empathy. A qualitative content analysis was conducted.

Summary of results: Almost all students (95%) commented on aspects of empathy. Receptiveness to patients’ clues and/or reaction thereon was noticed scarcely and mostly in context of “satisfactory sections” during an interview, whereas “broader” aspects of empathy (e.g. “showing empathy”, “enhancing patient’s well-being”) were reported more often.

Conclusions: The study allows an overview over topics related to aspects of empathy that are in the center of attention by second year students. In a next step, these results can serve as a basis for development of a less time-consuming measurement as an adequate assessment is always a necessity for developing tailored training programs.

Take-home messages: Drawbacks of standard measurement methods, like bias in self-ratings, can be overcome by using a qualitative approach.

2F3  Critical Incidence Report (CIR) in Medical Students: A 3-year experience
Pimpet Sukumalpaiboon (Sawanpracharak Medical Education Center, Ministry of Public Health Nakhonsawan 60000, Thailand)

Background: CIR is one of the narrative methods that medical students can use to describe incidents that they think are significant to them and is an effective
method leading to better understanding of students’ ethical issues.

**Summary of work:** All three clinical year students attending a compulsory extra-curriculum ethical course were assigned to write a CIR once a year. Data analysis consisted of extracting an ethical dilemma, ethical issues and writing style. Ethical dilemmas were categorized according to underlying themes.

**Summary of results:** Of a total of 175 CIR analyzed, most critical incidents occurred during surgery or medicine rotation. Three-fourths were formal writing and half were subjective writing. The themes of ethical dilemmas included: expression of empathy, difficulty in blending into medical culture, struggle between empathy and being a part of the team. As medical students progressed into the more advanced years they tended to be more reserved but ethical issues are more complex. Teachers with good doctor-patient communication skills and attentive practice were often praised as being their role model. Ethical issues of high concern were abortions and palliative care.

**Conclusions:** The results reflect the ethical dilemma in students which can be used as baseline data to help them cope with medical culture and improve ethical teaching.

**Take-home messages:** CIR is an effective tool to elicit students’ ethical thoughts through writing down their reflection experiences.

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**2F4 Ministry of Ethics – An inexpensive approach to producing an interactive Medical Ethics and Law online resource**

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**Background:** A comprehensive online resource for Medical Ethics and Law (MEL) learning is currently deficient. With the advent of the updated Consensus Statement (2010) set out by the Institute of Medical Ethics in the UK, we aim to address this resource gap through the establishment of an innovative interactive website.

**Summary of work:** MinistryofEthics.co.uk is a student-run, non-profit, free-to-use website developed over a period of two months. It features animated videos covering legal, ethical and clinical aspects of clinical vignettes, a commenting system for sharing questions and answers, and an online resource sharing facility for educators. Generating original content within a short period of time with a limited budget required a strict production system, starting with writing of topic notes by student volunteers, and subsequent peer-reviewing by senior lecturers/professors. Use of freely available web-authoring software and new video making technologies such as Xtranormal, allowed for the creation of animations with voice-overs, all presented on a website specifically designed for enhanced MEL learning.

**Take-home messages:** With an efficient system of content production and use of inexpensive or free software as a front-end platform, educating the masses using conveniently accessible rich-media can be achieved both rapidly and cost-effectively.

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**2F5 Are Undergraduate Medical Ethics and Law Curricula Fit for Purpose? Sheffield and Newcastle F1 doctors’ views**

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**Background:** Little or no work describes using graduate doctor perspectives in the design and implementation of medical ethics and law (MEL) curricula.

**Summary of work:** To determine what ethical issues F1 doctors (in first year of work after graduation) report encountering during clinical practice and what skills and knowledge of MEL were perceived useful, eighteen 1-1 interviews were conducted in Newcastle and Sheffield with F1 doctors. Ethical approval was obtained.

**Summary of results:** Thematic analysis was carried out on transcriptions and saturation of themes was achieved. Themes closely overlapped. End of life care was identified as an area which needed strengthening especially regarding care pathways, conflict with families and educating other healthcare professionals. Some argued that ethics and law curricula should teach interpersonal skills required for ethical behaviour. Some identified ethics and law as a suitable place to develop leadership skills and assume professional responsibility.

**Conclusions:** These data help to inform revision of the ethics and law curriculum to ensure that it is fit for purpose.

**Take-home messages:** Medical Ethics and Law curriculum designers should draw on graduate doctor experiences.
Background: Three years ago, we presented at the Prague AMEE Conference a report on the collaboration between the Faculty of Medicine of the Université de Montréal and the anatomy laboratory of the Université du Québec à Trois-Rivières - a peculiar partnership between the largest medical school in Canada without gross-anatomy facilities and a regional university characterized by the presence of an innovative laboratory to teach human anatomy. We reported that with the creation of the regional medical campus at Trois-Rivières in 2005, some activities for medical students were offered in the anatomy laboratory with great success.

Summary of work: Since then, the demand for additional formation exploded and now optional anatomy labs are integrated all along the medical curriculum for both the main and regional campuses: (I) thematic laboratories, coupled with PBL preclinical courses or as intensive summer course; (II) skill-labs built on Thiel-embalmed cadavers; (III) a one-month cadaver dissection course for clinical years students; (IV) “à-la-carte” formations aimed to accommodate the needs of residents; (V) an increasing offer of professional-workshop for specialists; (VI) finally, we accommodate a continuously growing demand for research projects. We will discuss this highly successful collaboration between our two institutions that illustrates the importance of cadaver dissection in the medical curriculum.

2G2 Prescribing in the Student Assistantship
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Background: The General Medical Council mandates that UK medical students must undertake a “student assistantship”, in which students adopt the role of doctor. Prescribing is a key element of this role, but students cannot legally prescribe. This study explores pre-prescribing (writing instructions on in-patient drug charts prior to countersignature by a doctor) as a method of providing workplace-based prescribing experience.

Summary of work: The pre-prescribing process, developed in discussion with medical, pharmacy and nursing staff, involves protocols, stickers affixed to drug charts, countersigning aide memoires and ward-based information sheets. Following ethical approval, 11 final year medical students pre-prescribed on five medical wards for 2-7 weeks. Students logged pre-prescriptions written and amendments required prior to countersignature. Doctors signed the logs. Adverse events were reported to the project supervisors.

Summary of results: No adverse events were reported. Students completed 336 pre-prescriptions, 7.8% of which required amendment prior to countersignature. Four errors were reported and resulted in changes to the protocol, following which no errors occurred.

Conclusions: This study demonstrates the successful small-scale implementation of the pre-prescribing process. Pre-prescribing will now be extended to hospital wards throughout the Deanery in preparation for the student assistantship.

Take-home messages: Pre-prescribing is a safe method by which medical students can gain experience of workplace-based prescribing.

2G3 Evidence Based Community Health Clerkship-Innovative experiment in integrating preventive & curative medicine in a community clinic: Shifa Experience
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(Community Health Sciences, Shifa College of Medicine, H-8/4, Islamabad, Pakistan)

Background: Undergraduate medical education focuses too much on diagnostics and therapeutics, rather than prevention, in a resource constrained setting such as Pakistan. A new model of integrated Community Health Clerkship (Integration of prevention & curative treatment) was developed and pilot tested in a rural community clinic near Islamabad.

Summary of work: In a 8-week Community Health Clerkship in a rural community clinic the students asked at least 5 questions pertaining to the patients seen. The questions covered biological, preventive, socio-economic, psychological, cultural and ethical aspects of the patients’ problems. Findings were presented in the morning reports.

Summary of results: Total number of research questions asked by students was 105, number of research questions per student was 5, total number of research questions answered was 100, number of questions with practical applicability was 97. There were 40% queries related to prevention, 37% related to treatment, 7% related to association, 6% related to causation, 4% related to diagnostics, 4% related to incidence/prevalence and 2% related to rehabilitation.

Conclusions: The students appreciated the importance of preventive medicine and significance of evidence seeking through Community Health Clerkship.

Take-home messages: Preventive medicine concepts can be easily integrated in a Community Health Clerkship in undergraduate medical education and the evidence generated is applicable to patients in resource constraints settings.

2G4 Modern Medical School Curricula: where has prevention teaching gone?
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(Department of Hygiene and Epidemiology, School of Medicine, University of Ioannina, Greece)
Background: Hippocrates’ quote “prevention is better than cure” is an undisputed axiom which is repeatedly raised in Medicine. However, it is doubtful if prevention is sufficiently and systematically taught in modern medical schools (MeS).

Summary of work: We searched PubMed using the terms: prevention, preventive-medicine, medical-school, teaching or education and curriculum, and did a web-based screen to identify prevention-oriented modules in the curriculums of most European and ten top ranking American MeS identified through the WHO World directory of MeS and Wikipedia.

Summary of results: We tracked 93 relevant papers, published since 1949. All publications steadily support implementation of prevention in the Medical curriculum (AIPM, 2011). We searched the websites of 58 European and 10 American MeS. In 15 we failed to identify on their web-sites accessible teaching curriculum/program. In the rest we identified 2 MeS (3.7%), which included prevention teaching modules during the pre-clinical years and 8 (15%) that had advanced prevention teaching including in the last two years of medical studies.

Conclusions: Systemic teaching of prevention is poorly addressed by most modern Medical Schools.

Take-home messages: Re-evaluation of core curricula is warranted in the prospective of assigning proper and systemic education of medical students on health promotion and disease prevention science and practices.

2G5 Medical Student Attitudes to Including Health Impacts of Climate Change in the Medical School Curriculum: a Qualitative Study
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Background: Climate change has been described by the World Health Organisation as the defining issue for public health during this century. Whilst the literature calls for climate change to be included in health curricula, there is little data about views of students on this topic.

Summary of work: 24 medical students from the University of Newcastle and the University of New England were interviewed in four focus groups to explore their attitudes on the inclusion of “Health impacts of climate change” in medical school curricula.

Summary of results: A range of views were expressed on whether climate change is occurring as a result of human activity. Some proposed both sides of the climate “debate” be presented as part of learning activities. Students’ suggestions on how climate change could be incorporated in the curriculum included problem-based learning, ethical debates and presentations by experts.

Conclusions: Many students considered climate change an important health topic to include in the medical school curricula, but there are concerns about this reducing the coverage of other valued topics.

Take-home messages: Perception of the relative inferiority of scientific evidence derived from studies other than randomised controlled trials may influence the opinion of some students about climate science, and has implications for how epidemiology is presented to students.

2G6 Integrating domestic violence and child abuse in a Family Medicine Course at Damascus Medical School: lessons learned
H Bashour (University of Damascus, Faculty of Medicine and Centre for Medical Education Development, Damascus, Syria)

Background: In 2007, and as a result of national policy, the topic of child protection was integrated into the Family Medicine course for the fifth year medical students at Damascus University Medical School.

Summary of work: The aim of this paper is share the experience of teaching this subject, which includes domestic violence and child abuse, during the last three years since inception, using the Prideaux model of curriculum design.

Summary of results: The paper will reflect both upon the teaching, as aligned to the course educational objectives, and the students’ assessment. Feedback received from the student cohort over these last three years will be discussed, using content analysis, thus reflecting the unusual and unique nature of this course in the Syrian context.

Conclusions: Taking ownership of this “Top-down” and “content-driven” course was not successful in overcoming obstacles. Further work is urgently needed as part of curriculum development.

Take-home messages: A “Top-down” and “content-driven” course on domestic violence and child abuse at our faculty has to be reconsidered and further developed as part of a more comprehensive curriculum development process.

2G7 “The worst thing about death? I would miss everyone!” Third year medical students’ views and feelings on death and dying
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Background: The third-year curriculum of the Erasmus University Medical Center includes a two hour session
on bereavement. In this session we aim to improve students’ understanding of (ab)normal grieving. The study was done in order to improve the introduction of the session: which topics are the most interesting to discuss? We also want to get a better understanding of the cognitive and affective starting point of students.

**Summary of work:** For this study we explored 250 medical students’ views and feelings towards death and dying. For this, we developed a questionnaire consisting of 20 items covering various topics, like the most terrifying aspect of death and if someone ever felt like life wasn’t worth living.

**Summary of results:** We found some topics with large similarities in students’ answers and some topics with large differences. Also, we found that surveying students on death and dying makes most students think more about their own death (29%) or remind them of life being precious (29%). Very few students report fearfulness or being upset (1.7%).

**Conclusions:** We can introduce the topics in the session on which students differ most in order to promote meaningful discussion. The questionnaire on death and dying brings about mostly positive cognitions, with very little negative emotions.

**2H Short Communications: Stress and the Student in Difficulty**

**2H1 Variables associated with academic failure in students of first year medical Universidad Andrés Bello, Vica del Mar Chile**

*P Mc Coll*, O Gárate (Universidad Andrés Bello, Facultad de Medicina, Escuela de Medicina, Sede Viña del Mar, Chile)

**Background:** Several variables including intrinsic motivation, self-esteem, and learning styles have been associated with academic failure.

**Summary of work:** Objective: To establish student-dependent variables that might be associated with academic failure. Cross-sectional study: In the first year, tests were applied to 42 medical students to measure: self-esteem, intrinsic motivation, and learning style. At the end of the semester personal interviews were conducted with students who had failed at least one subject, in order to know which cause that they attributed to academic failure. Chi square statistical analysis was applied; significance level 0.05.

**Summary of results:** Self-esteem: physical, intellectual, emotional relationships with others or self concept; intrinsic motivation and learning styles showed no association with academic failure. Of the 11 students who failed, 2 attributed their failure to family problems and 9 that they had not spent much time studying.

**Conclusions:** In this group the variables studied were not associated with academic failure. The lack of education and family problems were the factors that students identified as the cause.

**Take-home messages:** Scores on the tests applied were generally high; this could explain the results. Increasing the size of the group studied in order to perform multivariate statistical analysis is recommended.

**2H2 Help-Seeking Behavior, Academic Difficulties and Happiness**

*Hong-Im Shin*†, *Woo Taek Jeon*‡ (†Yonsei University, Department of Psychology; ‡Yonsei University, College of Medicine, Department of Medical Education, Seoul, Korea)

**Background:** Medical education is perceived as being very stressful, which leads to declines in subjective well-being in medical students. Therefore, student counseling is becoming an exigent issue. The goal of this study was to investigate the academic difficulties and subjective well-being of medical students to identify their needs with regard to counseling. In addition, we analyzed help-seeking behaviors of students to develop an effective counseling program.

**Summary of work:** We performed a survey (n = 205) to determine the extent to which medical students encounter academic difficulties in their lives in medical school and how they attempt to resolve their problems. In addition, we used the Oxford Happiness Scale to examine the relationships between academic performance, previous help-seeking behavior, and happiness in medical students.

**Summary of results:** Of various types of problems, 62% of medical students perceived learning difficulties to be the most serious issue in medical school. Despite encountering difficulties, more than 67% of students failed to seek help from faculty or their fellow students.

**Conclusions:** There was a significant relationship between happiness score and previous help-seeking behavior. A lack of perceived seriousness was identified as the most significant barrier to seeking help.

**Take-home messages:** Access to counseling programs must be improved for students with apparent academic difficulties who do not seek counseling. Through such programs, students can learn and practice methods of coping with their difficulties and develop medical and professional competence.

**2H3 Do students feel bullied and harassed at medical school by staff and peers? It depends on the definition!**

*Tharani Mahesan, Donna Tooth*, *Helen Graham* (King’s College London School of Medicine, London SE1 9RT, UK)
Summary of work: An audit on bullying and harassment at a large UK medical school with a multiethnic student intake was undertaken with the aim of informing personal tutors.

Summary of results: Of 577 students, 18% had been victims of bullying and harassment. Using a broader definition of bullying and harassment, 66% reported one or more experiences consistent with a qualifying behaviour. 73% of incidents occurred on clinical attachments, 25% during tutorials, and 11% at lectures. Perpetrators included hospital specialists (56%), student peers (49%), nurses (23%) and junior doctors (17%). Most students denied underlying motives but a minority suspected gender or race issues. Over half of students shared the experience with a friend or other student, medical school staff (8%), or did not know whom to report the behaviour (16%). Students were anxious about loss of anonymity if they reported a bullying or harassment incident. Over 80% of students were unaware of the medical school policy on bullying and harassment.

Conclusions: The prevalence of bullying and harassment is considerable but depends on the definition used.

Take-home messages: Medical schools should have a clear policy on bullying and harassment, including when students should report incidents and seek tutor support.

2H4 Development and initial validation of a self-regulated learning microanalysis protocol for struggling medical students
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Background: When medical students are unable to display adequate performance, medical educators typically provide some type of remediation. The goal of this project is to develop a diagnostic and remediation methodology that can be used to help struggling medical students develop basic clinical competence.

Summary of work: Using a novel assessment technique, self-regulated learning (SRL) microanalysis, we developed initial assessment questions from the literature on social-cognitive theory. From this theoretical perspective, SRL is defined as a three-phase cyclical process (forethought->performance->self-reflection) whereby individuals use self-generated feedback about their learning to optimize their strategic pursuit of personal goals.

Summary of results: We created forethought, performance, and self-reflection questions for a diagnostic reasoning task embedded in a second-year course. We then developed interview questions and are currently pilot testing the protocol. In the next phase, we will determine the capability of the protocol to identify qualitative/quantitative performance differences in key self-regulatory processes between struggling students and their high-performing counterparts.

Conclusions: The developed protocol has the potential to enhance our understanding of struggling medical students and provide valuable diagnostic information to help remediate those students.

Take-home messages: During the presentation, we will provide theoretical and empirical support for our SRL model; describe our development process; and present preliminary validation data.

2H5 ‘They can’t see it’: characterising the poorly performing student in the clinical environment
M Bearman*, R Ajwadi*, E Mollay, J Keating (Monash University, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia; University of Dundee, Centre for Medical Education, Dundee UK)

Background: Poorly performing students in the clinical environment consume large amounts of clinical educators’ time and energy. Effective remediation strategies may be contingent on early identification of the learners with deficits.

Summary of work: Three focus groups were conducted with physiotherapy clinical educators (n=26), exploring issues of identifying and working with poorly performing students during clinical education. Interview transcripts were qualitatively analysed.

Summary of results: Clinical educators explicitly described the ‘wrong’ type of student – the learner lacking the necessary attributes to become a good practitioner. The most frequently described profile of concern was the student lacking insight into their performance. There was also an accompanying implicit understanding of the ‘right’ type of student – who could readily relate to the clinical educator and adopt a junior practitioner identity.

Conclusions: Clinical educators identified lack of insight as a key feature of poorly performing students.

Take-home messages: Research into self-assessment supports the clinical educators’ belief that lack of insight into performance is a key indicator of poor progress. An important area for further study is development of effective strategies for clinical educators to work with poor performers.

2H6 Social networks and academic help seeking among first year medical students
**O.B. Nikolaus*, R Hofer, W Pawlina, B Castellani, P.K. Hafferty, F.W. Hafferty (Mayo Medical School, Department of Anatomy, Rochester, MN, USA)**

**Background:** Peer relationships play a large part in the student experience of medical education. However, very little is known about the social and academic networks that are formed as medical students move through their educational experiences. In order to capture one aspect of these networks, we locate students who are at academic risk and locate them within peer-to-peer help networks.

**Summary of work:** A class of first year medical students (n=48) was given individual questionnaires at seven points in time over a four month course in basic anatomy and histology where students were assigned to four person learning teams. Across several questions, students were asked whom they had turned to for academic help both in-class and out-of-class. Answers were analyzed using social network tools (Pajek).

**Summary of results:** Students sought in-class help primarily from within their assigned group, while outside of the classroom, they tended to seek help from within their social networks, with females and URM students evidencing somewhat stronger clustering of these cohorts.

**Conclusions:** While it would seem that students would turn to the “smartest” classmates, or at least course-assigned lab mates to explain course material better, out-of-class help primarily comes from friendship (non-academic) networks.

**Take-home messages:** Social networks trump formal learning groups.

**2H7 Teaching stress-reduction and self-care to medical students through experiential learning**

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**Background:** With increased understanding of the role of behavior in exacerbation of a number of chronic medical conditions it is essential that physicians understand how to help their patients reduce stress and improve self-care, and for their own self-care.

**Summary of work:** Over the past three years, third year students have had an experiential introduction to yoga and mindfulness meditation, in addition to a discussion of their exercise, sleep, and dietary habits. The major themes are 1) the adjustments needed in self-care as a student moves from the pre-clinical to clinical setting, and 2) an experiential understanding of common recommendations made to patients regarding self-care.

**Summary of results:** Most of the students had little or no previous experience with yoga or mindfulness meditation. 85% and 63% of the students reported that they “loved” or “enjoyed” the yoga and mindfulness meditation respectively. Students were significantly more likely to use or recommend yoga or mindfulness to their patients after this one experience.

**Conclusions:** Experiential learning about stress reduction is acceptable and effective for teaching medical students about self-care and recommendations for patients.

**Take-home messages:** An experience of yoga and mindfulness meditation can be effectively used within a medical school curriculum.

### 21 Research Papers: Selection/Career choice

#### 211 The Medical School Retention Game. Admission Testing vs. Highest Grades: One-nil

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**Introduction:** Very few studies have reported on the effect of admission tests on medical school dropout. Recently Urlings-Strop et al. found the relative risk of dropout to be 2.6 times lower for ‘selected students’ than for ‘lottery admitted controls’. The main aim of our study was to evaluate the predictive validity of admission testing versus grade-based admission on dropout.

**Methods:** This prospective cohort study followed 6 cohorts of medical students admitted to the medical school at University of Southern Denmark (USD) in 2002-2007 (N=1544). Half the students were admitted based on highest prior grades (quota 1), while the other half went through a composite non-grade based admission test (quota 2). Educational as well as social predictor variables (doctor parent, origin in the developed world, parenthood, parents live together, parent on benefit, university educated parents) were also examined. The outcome of interest was students’ dropout status 2 years after admission. Multivariate logistic regression analysis was used to model dropout.

**Results:** Quota 2 (admission tested) students had a lower relative risk of dropping out of medical school within 2 years of admission compared to quota 1 students (OR=0.56, CI95% [0.39-0.80]). In addition, Danish students without traditional Gymnasium exams had higher relative risks of dropout (OR=2.49, CI95% [1.52-4.07]), as did students who did not assign a first priority to the program on the national admission form (OR= 1.88, CI95% [1.30-2.74]). None of the
Students described differing levels of support available when writing personal statements, preparing for interviews and obtaining work experience. Students from private schools were more likely to benefit from higher levels of support, often from more than one source.

Discussion and conclusion: While medical schools endeavour to make fair admissions policies, there appears to be an unintended link between a student’s access to support and admissions performance, which helps to explain the phenomenon of academically capable but financially or socially challenged students struggling to obtain medical school places. Worryingly, some academics are unaware of this link, claiming that the lower proportion of students from poorer backgrounds attending medical school reflects a meritocratic admissions system. This legitimisation of current admissions practices promotes and reinforces the idea that the medical profession is reserved for the socially advantaged. Society’s willingness to accept this as a natural occurrence (known to Bourdieu as symbolic violence) is a possible contributor to the low educational aspirations of students from poorer backgrounds. The results presented here indicate the need for medical schools to be made aware of this link to address admissions policies that inadvertently reflect social privilege rather than student potential.


213 Ethnicity and social background as predictors of performance in undergraduate pre-clinical and clinical training
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Introduction: As medical schools are increasingly faced with a more diverse student population, concerns are raised about the impact on academic performance. In general, ethnic minority students are reported to underperform. However, there is some evidence for variation in performance between different ethnic-minority groups. In addition, the role of other socio-demographic variables, such as language spoken at home and parental education, remains unclear. There is a need for studies that adopt a multivariate approach and also take into account the different stages of undergraduate medical training. The aim of this study was to identify socio-demographic factors that predict academic performance throughout medical school.

Conclusion: The main sources of support described were schools, family members and social connections.
Methods: First (n=387; 95%) and fourth-year (n=297; 84%) medical students completed a questionnaire on ethnicity (Dutch, Surinamese/Antillean, Turkish/Moroccan/African, Asian, Western), language spoken at home, rural or urban background, parental education (first-generation university student) and parental profession (medical doctor). Criteria for academic performance were: ‘passed first-year curriculum within one year’ (first-year respondents), and ‘passed all pre-clinical exams within 4 years’ and ‘clerkship grade ≥ 8 (scale 1-10)’ (fourth-year respondents). Age (start medical school), gender and pre-university grade point average (pu-GPA) were included as moderator variables. Data were analysed using stepwise logistic regression.

Results: First-year respondents (31% non-Dutch) passed the first-year curriculum less often when they came from Surinam/Antilles (OR=0.234; p<0.01, reference group Dutch), were first-generation immigrants (OR=0.182; p<0.01), had an urban background (OR=0.562; p<0.05) or had a medical doctor as parent (OR=0.440; p<0.05). Fourth-year respondents (22% non-Dutch) passed the pre-clinical exams less often when they came from Surinam/Antilles (OR=0.116, p<0.01) and more often when they were first-generation university students (OR=2.833, p<0.001). Students from all ethnic groups received less often high clerkship grades than Dutch students (OR=0.334 to 0.453, p<0.05). Western and Turkish/Moroccan/African students performed better when they were first-generation university students. Lower-than-average pu-GPA was associated with lower performance in pre-clinical training and male gender with lower performance in clinical training. Students under 19 passed the pre-clinical exams more often than students aged 19-21 and less often than students above 21.

Discussion and conclusion: Ethnicity and parental education were found to be independent predictors of academic performance throughout medical school, but there were surprising differences between pre-clinical and clinical training. Special attention seems justified for Surinamese/Antillean students as they underperform at all stages. The remarkable finding that the other non-Dutch students, especially first-generation university students, receive lower clerkship grades despite comparable academic performance in pre-clinical training requires further research.


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Introduction: Physicians have various career paths from which to choose with academic medicine among the options. Despite a recent review of the literature to answer the question, “How, when, and why do physicians choose an academic career in medicine?” it remains unanswered. In the review, gender was among the areas identified where large voids in the literature exist, thus supporting the need for further inquiry.

Methods: We conducted a qualitative study focusing on women physicians in academic medicine from seven medical schools in the United States to answer a modified research question on which the literature review¹ was based (i.e., “How, when, and why do [women] physicians choose an academic career in medicine?”). 53 individual phone interviews were conducted with a stratified sample of women physicians in academic medicine based on ethnicity, geographic location, specialty, and academic rank. All recorded interviews were transcribed. Transcripts were qualitatively evaluated by project investigators individually and then collectively to ensure that emerging themes in the data were objectively identified.

Results: Thematic analysis revealed the following:
- Why academic medicine? 5 main themes- Aspects of Academic Health Center Environment (13 subthemes); Fit (4 subthemes); People (7 subthemes); Exposure (4 subthemes) and Clinical Medicine.
- How was the decision to enter academic medicine made? 5 main themes- Change in Specialty; Parental Influence; Dissatisfaction with Former Career; Decision-Making Styles (4 subthemes); Emotionality (2 subthemes).
- When was the decision to enter academic medicine made? 4 main themes- Practicing Physician; Fellowship; Resident; Medical Student.

Discussion and conclusion: Choosing a career in academic medicine appears to be greatly influenced by the environment in which one trains and by people—be it faculty, mentors, role models, family. Having an interest in teaching is a primary theme associated with women choosing a career in academic medicine. Most of the women physicians entering a career in academic medicine chose this career path during fellowship or after. Many of them became more aware of academic medicine as a career path during residency and their decision was solidified during fellowship. For the most
part, students know very little about academic medicine as a career path while in medical school. For many women, entering a career in academic medicine was not necessarily an active, planful decision; rather it was serendipitous or circumstantial.


2J Short Communications: Simulated Patients

2J1 Standardizing standardized patient (SP) and SP trainer performance in variable assessment contexts: methodology and outcomes

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Background: Standardization of SP performance for a high stakes OSCE is vital to the defensibility of candidates’ results. Prior research has shown that our OSCE is defensible for certification purposes. However, there is still error attributable to SP performance, some possibly due to training, which we are seeking to minimize. Distributed country-wide, our trainers have various backgrounds, education, training styles and perspectives, and must prepare SPs to respond to a wide variation in candidate preparation and performance. We observed some differences and gaps between some trainers and our organization in their understanding of standardization and in training outcomes.

Summary of work: To bridge these gaps, we created explicit written standardization strategies, tools and implementation guidelines. The national SP training consultant contacted trainers to invite input and implementation of these refinements.

Summary of results: There were 106 observations with 100 valid observations for itemized scores and 66 valid observations for global ratings. SPs scored students more favorably (mean difference of 2.1) than physician examiners. There was moderate agreement between SPs’ and physician examiners’ global rating (Kappa 0.5).

Conclusions: The defensibility of our OSCE was further enhanced by explicit and in-depth training of SP trainers and SPs.

Take-home messages: Explicitness enhances standardization of SP performance. In depth trainer development and involvement enhances uptake and consistency across contexts.

2J2 The Simulated Patient’s view on teaching – a new perspective

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Background: Simulated patients (SPs) play an important role in medical education. However, no studies explore the quality of teaching from the perspective of the SP.

Summary of work: To attain SP thoughts and feelings we used the retrospective think aloud (rTA) methodology. Therefore, video recordings of teaching sessions were presented to the SPs to perform rTA. Then, audio recordings of the rTA were transcribed and analyzed using qualitative content analysis (QCA).

Summary of results: 27 teaching sessions with 23 different teachers and 11 SPs were analysed. 266 relevant statements were extracted and sorted into six main categories: communication of students (103 statements), actions taken by students (60), clinical teacher (24), atmosphere (22), behaviors of medical students (18), setting (16) and others (7). SPs felt comfortable if actions were appropriately explained (13), the atmosphere was calm (8), they had a clear contact person (7). The SPs did not feel comfortable if actions taken were not properly explained (14), they were excluded from communication (10), the student-doctor did not stay in his role (9), everyone talked at the same time (7).

Conclusions: SPs highly valued a clear structure of the setting and well prepared students. Both issues might be positively influenced by the clinical teacher.

2J3 Simulated Patients and Physician Examiners Emphasize Different Aspects of Communication Skills

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Background: To assess whether SPs and physician examiners focus on different aspects of communication and to compare physician examiners’ assessment of communication skills with that of trained SPs’ and to determine sources of discrepancy, if any.

Summary of work: Trained SPs and physician examiners rated students during a communication skill OSCE. Both physician examiners and SPs provided qualitative comments if they had chosen Borderline or Fail.

Summary of results: There were 106 observations with 100 valid observations for itemized scores and 66 valid observations for global ratings. SPs scored students more favorably (mean difference of 2.1) than physician examiners. There was moderate agreement between SPs’ and physician examiners’ global rating (Kappa 0.5).
coefficient 0.50; 95% CI: 0.31 to 0.68). In cases where SPs gave less favorable ratings, they marked students down for communication processes such as mannerism and information-giving. In contrast, for cases in which physician examiners gave less favorable ratings compared to SPs, the students were penalized for providing factually flawed or irrelevant medical information. This was not detected by the SPs concerned.

Conclusions: SPs and physician examiners apply different perspectives in the assessment of students’ performance in communication skills.

Take-home messages: The findings attest to the merits of employing SPs along with physician examiners for assessment of communication skills in situations where patient-centered attributes are emphasized along with biomedical knowledge.

2J4 Training standardized patients for large scale OSCE examination: Experience in Thailand

S Kobwanthanakun*1, P Yamwong1, W Sumawongse2, B OSCE examination: Experience in Thailand

2J4 Training standardized patients for large scale OSCE examination: Experience in Thailand

S Kobwanthanakun*1, P Yamwong1, W Sumawongse2, B Sathapatayavongs3 (1Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand; 2Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand)

Background: The Council for Medical Accreditation of Thailand has conducted large scale OSCE examinations since 2008. Twelfth to 13 circuits of 36-stations-OSCE were conducted at the same time, 4 times a year. The need to standardize simulated patients (SP) for the examination is critical.

Summary of work: Confidentially, 7 out of 18 medical schools capable to train SP were assigned to train SP for 1-7 stations. Only one medical school was responsible for training each item, and their SPs had to travel to every examination site both in Bangkok and other provinces. Thus, 18-30 SPs (including the understudies) were trained for the same role, depending on the difficulties of their scripts. Twice training sessions by the trainers and among their groups were done and the final dress-rehearsal with the examiners in the morning just before the examination was necessary.

Summary of results: The examiners evaluated the performance of each SP during their practice and information was recorded in the SP database. Most were satisfactory.

Conclusions: Now the Center has more than 400 SPs in the pool.

Take-home messages: Evaluation and information about their attitudes, motivation and skills are necessary for engaging and improving their performance.

2J5 Error variance due to SP portrayal in OSCEs

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Background: We investigated the error variance due to SP portrayal during assessments in OSCEs. SPs variation in portrayal results in different examinees effectively encountering different patients and slightly different patient problems.

Summary of work: Thirty-nine physicians (19 men, 20 women; M age = 41.4 years; SD = 6.6) participated in a 14 station OSCE. Two SPs were trained for each case, resulting in a total of 546 candidate/SP interactions that were video recorded. A generalizability analysis was conducted for facet variance, percentage variance, and Ep2 for the two SPs were calculated.

Summary of results: 14.3%, 20.4%, and 16.7% of the variance was found for the SP facet nested into station with the Ep2 coefficients = 0.82, 0.71, and 0.82 (checklist, global, and total score, respectively). There were significant differences in performance due to SP variation on several stations. Video review of cases revealed differences in SP portrayal to case-critical questions and physical portrayal, spontaneously provided unsolicited or misleading information about irrelevant previous injuries, and portrayed symptoms differently (e.g., coughs).

Conclusions: Performance assessments have substantial error variance due to variation in within and between SP portrayal of cases based on appearance, symptom portrayal and information disclosure.

Take-home messages: Improved SP portrayal in OSCEs can reduce the error variance in assessment.

2J6 Does the body habitus of the standardized patient influence students’ performance in an objective structured clinical examination?

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Background: Prior studies have shown that the SP’s gender and presence of disabilities may affect students’ performance in OSCE. However, the influence of the SPs’ body habitus on students’ performance in a counseling station is not investigated.

Summary of work: At the Lebanese American University of Beirut, two equally trained female SPs, with a BMI of 38 and 24 respectively participated in a counseling station for cardiovascular risk factors. Twenty-four second year medical students were randomly assigned to be with one of the two SPs.

Summary of results: There was no difference in mean student’s scores in the two stations (11.6±2 vs. 11.3 ±2.2, P = 0.73). Additionally, almost all students gave an advice about health diet in general (11 / 12 in both groups) with no specificity regarding the BMI of the SP.
Conclusions: The body habitus of the SPs did not significantly affect students’ performance nor their judgment regarding specific advice for weight loss in an undergraduate OSCE about cardiovascular risk factors, probably because OSCE students apply textbook knowledge without considering SPs as real patients.

2K Short Communications: Medical Education Research

2K1 A Quantitative Analysis of the Evolution of Medical Education Research
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Background: The recent advent of new medical education journals suggests growth of a scholarly field.
Summary of work: MEDLINE retrieval via medical subject headings (MeSH) was used to analyze patterns of medical education research publications from 1966-2009. Changes in numbers of publications and number of journals publishing medical education research were tracked.
Summary of results: The number of medical education articles indexed as the major topic (total=72,751) increased four-fold from 1,014 articles in 1966 to 4,923 in 2009. In 1966, 276 journals published medical education articles; in 2009, 829 did. Over 43 years, 3,869 different journals published at least one medical education article; 20 different journals published 21,983 (30%) medical education articles. From 1966 until the 1980's, there were only 1-3 journals dedicated to medical education; in 2009, MEDLINE indexed 13; new ones are not indexed. Despite an increase in journals in all fields, medical education journals now account for a larger proportion of all journals indexed in MEDLINE than in 1966.
Conclusions: The increase in the number of medical education publications and in the number of journals publishing medical education articles suggests a growing interest in medical education research as a scholarly field.
Take-home messages: Interest in publishing medical education research spread beyond medical education specialty journals.

2K2 A framework for ethical review of education research
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(1University Medical Centre Utrecht, Julius Centre Medical Humanities, Utrecht, Netherlands; 2University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)

Background: Medical education is a rapidly growing domain of research. Along with this volume expansion comes the increased concern for quality, one element of which is ethical conduct. In recent years, medical education journals have developed ethical policies and increasingly require ethical approval by an independent body. In many, but not all countries, institution-based research ethics committees have added the education domain to their portfolio, next to the traditional task of reviewing medical research. Not so in the Netherlands.
Summary of work: In 2010, the Netherlands Association for Medical Education installed a national ethics review board (NVMO-ERB) to specifically review education studies.
Summary of results: A procedure was developed to specifically address the ethics of education studies in health care. Components of the ethical review of medical research were adapted to serve the review education research. A three-stage procedure was devised with room for divergence in the extent in which a project is reviewed.
Conclusions: A domain-specific ethical review board for education research appears feasible and increasing numbers of researchers in the Netherlands find their way to the NVMO-ERB.
Take-home messages: There is room for targeted ethical review of medical education research.

2K3 Creating educational work practices based on evidence - developing an evidence based model for Medical Education Units in hospitals in Queensland, Australia - a qualitative study
L Black*1, V Brazil (Clinical Education & Training Queensland (ClinEdQ), Queensland Medical Education & Training (QMET), Brisbane, Queensland, Australia)

Background: Medical Education Units (MEUs) in Queensland hospitals assist with the education and training of junior doctors (first 3 years post graduate). Accreditation and mandatory training requirements have been driving the process. Increasing numbers of graduating doctors and changes in clinical learning environments have challenged MEUs to review current work practices to achieve optimal educational outcomes.
Summary of work: This qualitative study determined how MEUs are currently using evidence based educational practice, the barriers to this practice and how to improve. One hour semi-structured interviews with Directors of Clinical Training and Medical Education Officers were conducted at seven hospital sites. Data was coded and developed into categories to determine emerging themes.
Summary of results: Results show how MEUs use a structured approach and research for planning education. How research is used as evidence depended on the specific roles and skills of unit staff, use of key stake holders in hospital and university communities and time availability.

Conclusions: Medical Education Units need to develop a culture of research and scholarship to achieve best practice education outcomes. Significant ‘evidence to practice’ gaps currently exist in the work and educational practice of MEUs. Increased collaboration with academic institutions and acquisition of skills in evidence based educational practice are recommended strategies to close this gap.

Take-home messages: Education management needs research. Use evidence for decision making.

2K4 The Importance of Social Presence in Distance-Taught Rural Integrated Clerkships: An Overlooked Factor in the Success of the Future of Medical Education
D Myhre*, J Tworek*, W Woloschuk, W Jackson (University of Calgary, Canada)

Background: Rural integrated clerkship place students distally and then engage distant education strategies and eLearning technologies for curriculum delivery. Many of the distance delivery decisions are technologically and administratively driven, perhaps overlooking continuity and social presence among learners and educators.

Summary of work: Using the community of inquiry model (Garrison, 2000) as a theoretical framework, we analyzed 3 years (mid point and final) of student survey data with respect to social, cognitive and teacher presence.

Summary of results: Data are analyzed using t-tests and Scheffe’s test. Analysis of data already collected points to social presence as the lowest rated of presence.

Conclusions: Social presence needs to be considered when asking students to study at a distance, challenging faculty, administrators and staff to adopt new skill sets for supporting rurally-placed students.

Take-home messages: Treatment effects of randomized trials in ME should be interpreted with the potential risks of bias in mind.

2K5 The risk-of-bias and standards of reporting of published randomized controlled trials of medical education (Med Ed) research

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Background: Controlling bias within randomized trials (RCTs) has been empirically shown to reduce errors in estimates of treatment effects. In theory, the RCT is less susceptible to bias than any other research study design. It is this ‘susceptibility to bias’ that is the focus of this work. We aimed to establish the risk of bias and standard of reporting of RCTs of ME research.

Summary of work: Records were independently assessed until a representative sample (N=150) was achieved. Publications were evaluated in duplicate using the Cochrane risk of bias (ROB) assessment tool and the CONSORT reporting guideline for RCTs.

Summary of results: Reporting of components of the CONSORT guidelines (including, but not limited, to sample size calculation, blinding, baseline characteristics, and sequence generation) are woefully inadequate. Medical education RCTs were predominately rated to be of ‘unclear’ risk of bias.

Conclusions: The Med Ed discipline should strongly consider using CONSORT for improving reporting of RCTs. A proposal for developing an extension for RCTs of education for consideration by the CONSORT consortium is underway. Considerations for risks of bias should be made when interpreting ME RCTs.

Take-home messages: Treatment effects of randomized trials in ME should be interpreted with the potential risks of bias in mind.

2K6 Evidence Informed Continuing Education: Locating the Literature
Laure Perrier (Continuing Education and Professional Development, Faculty of Medicine, University of Toronto, Toronto, Canada)

Background: The RDRB (Research & Development Resource Base) is a searchable database housing research literature and other materials focusing specifically on continuing education for the health professions. This free online database is user-friendly, accessible, and reliable.

Summary of work: There is a daunting amount of information to filter through and identify as relevant for professionals working in the area of continuing education. Medline® adds over half a million publications to their database annually, and the growth and use of the World Wide Web is growing exponentially. The RDRB compiles and houses the continuing education literature through a system of monitoring information sources related to medicine, education, sociology, psychology, and health on a daily basis.
**Summary of results:** This session will be of interest to those seeking relevant and easy-to-access continuing education literature to produce presentations, support planning innovative continuing education strategies, creating research proposals, thinking through a theoretical base for educational activities, or planning needs assessments and evaluations.

**Conclusions:** The RDRB provides "one-stop shopping" for literature related to continuing education for the health professions and houses a comprehensive collection of materials.

**Take-home messages:** This session is designed to focus on familiarizing participants with the RDRB and offer guidance through highlighting key features of the database in order to execute searches related to relevant topics in continuing education for the health professions. Participants will: 1) be introduced to the RDRB; 2) become familiar with the main features of the RDRB; and 3) be offered guidance in executing effective searches to find relevant materials in the continuing education literature.

**2K7 Research quality of AMEE conference poster versus short communication abstracts – no difference?**

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**Background:** Our conference abstract submissions are harder to get accepted for Short Communication (SC) than Poster Presentation (PP). One would assume the research quality of SC abstracts is better. So we aim to address potential technical research quality (TRQ) differences between the two presentation modes: Is there statistically significant difference in TRQ of OSCE abstracts accepted for SC compared to PP at 2007 and 2010 AMEE conferences? We hypothesise: TRQ of SC and PP OSCE abstracts is not the same.

**Summary of work:** We analysed 11SC and 16PP abstracts from 2007 and 12SC and 30PP abstracts from 2010 conference. Inclusion criteria for abstract analysis were: sessions' title includes word “OSCE” and word “OSCE” is in the abstract. We created a 10-point scale to determine abstracts' TRQ. Its validity was assessed on control group: 32 abstracts from AMEE 2010 Research Papers category, reliability by authors' mutual agreement (will be demonstrated). Means equality was resolved by consensus.

**Summary of results:** Both meetings were attended by 990 educators from more than 80 institutions. There were 265 papers (120 oral presentations and 145 posters) from 33 institutions. The types of research were: 206 descriptive, 15 justification and one clarification studies (43 were excluded because they were only opinion pieces).

**Conclusions:** We propose that the papers presented provide a reasonable sample of the type and quality of medical education research performed in our country. The majority of studies belong to the descriptive research category, which do little to advance the discipline. There are few justification studies and almost no clarification papers.

**Take-home messages:** There is a need to increase the quality and methodological sophistication of medical education research in Mexico.

**2K8 Type of research papers in medical education meetings in Mexico: an observational study**

*R Garcia-Durán*, S Morales-López, I Durante-Montiel, M Jiménez, M Sánchez-Mendiola (UNAM Faculty of Medicine, Secretariat of Medical Education, Mexico)

**Background:** Medical education research is a maturing discipline and its classification has recently advanced. There is little information on medical education research in developing countries. UNAM’s Faculty of Medicine in Mexico organizes medical education meetings. We did an observational study of the papers presented at the meetings, to assess the state of medical education research in our country.

**Summary of work:** We reviewed the structured abstracts presented at the 2008 and 2010 UNAM’s meetings, and classified them in 3 categories using Cook’s framework: descriptive “what was done?”, justification “did it work?”, and clarification “how or why it worked?” (Cook D, Bordage G, Schmidt H. Med Educ 2008; 42:128-133). All the abstracts were reviewed by two researchers, disagreement was resolved by consensus.

**Summary of results:** This session will be of interest to those seeking relevant and easy-to-access continuing education literature to produce presentations, support planning innovative continuing education strategies, creating research proposals, thinking through a theoretical base for educational activities, or planning needs assessments and evaluations.

**Conclusions:** AMEE should foster higher TRQ of SC abstracts.

**Take-home messages:** This session is designed to focus on familiarizing participants with the RDRB and offer guidance through highlighting key features of the database in order to execute searches related to relevant topics in continuing education for the health professions. Participants will: 1) be introduced to the RDRB; 2) become familiar with the main features of the RDRB; and 3) be offered guidance in executing effective searches to find relevant materials in the continuing education literature.

**2L Short Communications: Curriculum Evaluation**

**2L1 Using data from the National Student Survey (NSS) to identify areas of wide institutional variation in student ratings of the quality of medical and dental courses**

*Matt Homer*, Godfrey Pell (Institute of Medical Education, Room 7.09 Worsley Building, University of Leeds, Leeds LS2 9JT, UK)

**Background:** The 22-item NSS has been used since 1995 in England, Wales and Northern Ireland to measure final year student views on aspects of the
quality of their degree. It is seen as an increasingly important indicator of institutional quality, and is used alongside other measures to rank institutions in ‘league tables’.

**Summary of work:** Funded by MEDEV, medical and dental student responses from the 2007 and 2009 NSS surveys were analysed to identify items that showed large between-institution differences. Three distinct measures of institutional effect, ranging from mean-based approaches through to multilevel modelling, were compared.

**Summary of results:** The three measures were highly correlated (r ~ 0.85). Items that showed wide variation across both years, and in both medical and dental schools, were questions related to feedback on student work, and organisation of the course (institutional ‘effect size’ ~ 15%).

**Conclusions:** The NSS survey allows the identification of areas where there is large variation in student ratings between institutions. Through national work, and organisation of the course (institutional effect size), it might then allow for good practice in the highly rated institutions to be spread to others.

**Take-home messages:** Simple and complex methods concur on which aspects of NSS survey data show large item-level variation between institutions, these being ratings of feedback and course organisation.

### 2L2 The Validity and Reliability of the Medical Achievement Self-efficacy Scale (MASS)

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**Background:** In this study, we developed a self-efficacy scale in order to assess a medical curriculum holistically, and report the validity and reliability of this Medical Achievement Self-efficacy Scale (MASS).

**Summary of work:** We based the items of MASS on the mean objectives of a medical curriculum, according to the competency frameworks of CanMEDs and The Five Star Doctor for providing universality. The scale was examined by 7 experts for content and face validity. The MASS contains 18 items, to be rated on a five-point Likert scale. We analyzed and revised the items of the scale based on a pilot study with undergraduate medical students at the Catholic University of Leuven (n=94). The main study was conducted with undergraduate medical students at Ghent University (n=1060).

**Summary of results:** The reliability of the scale was high (Cronbach’s α = 0.89). As we expected self-efficacy scores increased over the years (F=39.11, p<0.001).

This result indicated that MASS has discriminant validity. For predictive validity, we used regression analysis and found that self-efficacy scores of students predict their progress test score (F=108.18, p<0.001).

**Conclusions:** The MASS scale has good psychometric properties.

**Take-home messages:** As it is based on CanMEDs-competencies, the MASS is a generic self-efficacy scale, usable for the evaluation of comparable medical curricula.

### 2L3 Self-perceived preparedness of senior medical students in Croatia for standalone medical practice

**M Mihalj**4, I Grizelj1, I Drenjancevic*1, L Puljak2, J Azman3, A Včev H Mihalj1 (1Medical Faculty University Josip Juraj Strossmayer of Osijek, Croatia; 2Medical Faculty University of Split, Croatia; 3Medical Faculty University of Rijeka, Croatia)

**Background:** Medical faculties in Croatia started the process of reforming their curricula in order to harmonize their programs with EU countries. The framework for reforms was given in 2008, when the Clinical Skills and Knowledge Catalogue was introduced at medical faculties all around the country.

**Summary of work:** There are no previous systematic studies evaluating the practical part of medical education in Croatia. Therefore a self-grading survey on 519/710 fourth to sixth year medical students at three out of four medical faculties was carried out to determine their experience and self-perceived competence for basic procedural skills and emergencies.

**Summary of results:** A positive progress in hands-on experience with procedural skills over the undergraduate studies was found, but the majority of students felt they had failed to achieve competences in at least several of the questioned skills. Despite the fact that the airway management and questioned emergencies are being predominantly practiced on models and mannequins, some students still reported no experience.

**Conclusions:** Current clinical skills’ training at all medical faculties has to be improved towards building a structured program that would ensure equal opportunity for each student to acquire basic skills.

**Take-home messages:** Joint work and consistency among guidelines, in agreement with EU guidelines, could be used for the ongoing reform in Croatia. We suggest our survey as a baseline measurement that could be repeated in the future to control the effect of reforms.

### 2L4 Improved quality of clinical rotations: A case-based analysis identified by students’ evaluation
2L5 A case study examining utilization of program evaluation methods to improve residency program performance

H Kromrei*, W Wiese-Rometsch*, M Juzych (Detroit Medical Center, Graduate Medical Education, and Wayne State University School of Medicine, Graduate Medical Education, Detroit, Michigan, USA)

Background: The Accreditation Council for Graduate Medical Education mandates that Graduate Medical Education (GME) programs conduct an annual review to identify program performance deficits. The Ophthalmology Residency Program at the Detroit Medical Center’s Kresge Eye Institute utilized a systematic process to evaluate program performance in multiple domains, determine if program educational objectives were met, and identify opportunities for program improvement.

Summary of work: Eight steps were implemented to evaluate the residency program: enlist professional evaluator; identify stakeholders expectations; develop conceptual program model; develop evaluation questions; identify performance objectives and indicators; identify data sources; select analysis methods; and communicate results and recommendations.

Summary of results: Teams of residents and faculty analyzed data for six performance domains: education; surgical curriculum; leadership; evaluation; remediation; and residency clinic. Teams provided multiple recommendations for program improvement for each domain. Reported benefits of the process included open dialogue, increased resident/faculty involvement, opportunity to systematically analyze program, improved performance, and improved educational opportunities. Challenges included limited time/burden to perform evaluation, lack of data, and unclear expectations.

Conclusions: Utilization of a systematic program evaluation method increased stakeholder investment in the process, facilitated open dialogue regarding program performance, and generated data-driven recommendations for program improvement.

Take-home messages: Program evaluation methods are an effective means for improving GME residency programs.

2L6 The Process of Curriculum Evaluation: the Bachelor curriculum in Veterinary Medicine

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Background: The new veterinary bachelor curriculum was implemented from September 2007 onward. Main objectives are integration of ‘healthy’ and ‘diseased’, thematic approach, interactive learning in small groups and academic training. The first students graduated in September 2010. On top of annual course evaluations, the faculty decided to evaluate the bachelor curriculum as a whole. The evaluation process is described.

Summary of work: Autumn 2010 an evaluation committee was installed, which drew up a detailed scheme for the evaluation process. In June 2011 the conclusions are presented to the Education director.

Summary of results: A questionnaire was developed to map opinions of teachers and students about the overall quality of the curriculum. Quantitative data were enriched with data from consultation of teachers in all 8 departments and of students. Furthermore the committee analyzed the data of study and instruction methods; and communicate results and recommendations.

Conclusions: The mix of perceptions and hard data from analyses lead to well founded conclusions and advises for further development and improvement.
Take-home messages: To achieve supported and accepted conclusions in a curriculum evaluation, a well structured process ensuring clear and various involvement of teachers and students is essential.

2L7 COM:MAND — Supporting the creation, mapping, revision and management of curriculum and learning outcomes
M Begg*, M Hammond, D Dewhurst (University of Edinburgh, College of Medicine and Veterinary Medicine, Learning Technology Section, George Sq, Edinburgh EH8, UK)

Background: The trend in medical education is increasingly to map teaching events to learning outcomes. Moreover, there are increasingly stringent requirements to report on how outcome models from regulators such as GMC are mapped to individual curricula. Currently, curricula data tends to exist in a variety of formats, fractured across institutions, and within the minds of a few individuals. In order to better understand and evaluate curricula, this data must be digitised and stored in a central repository. Disparate experts in curricular subjects can then maintain and analyse curricula data in a new unified and accessible way.

Summary of work: This presentation introduces COM:MAND (Curriculum Outcome Mapping, Management and Delivery) a suite of tools to enable users to create outcome sets, map them against a growing database of governing hierarchical outcome models and update the data and mappings with versioning tools. Mapped data can then be embedded in VLEs via web services enabling educators and students to visualise and build relationships between curricula and delivery.

Summary of results: We detail the positive impact of COMMAND in mapping GMC “Tomorrows Doctors” to the SDMEG “Scottish Doctor”, mapping RCGP competency outcomes to an online training environment, and in supporting curriculum revision in the Edinburgh MBChB.

2L8 Performance assessment of academic departments: first step to university accountability
Rita Rezaee (Shiraz University of Medical Sciences, Education Development Center, Shiraz, Iran)

Background: The global expansion of access to higher education has increased demand for information on academic quality.

Summary of work: This study is a descriptive evaluation research. In this study the researcher used program evaluation theory and management-oriented systems model as evaluation approach. In this approach the CIPP model is applied. This model emphasizes comprehensiveness in evaluation within a larger framework of organizational activities. This theory as a conceptual framework directed the research strategy (what to look for) and helped the researcher to identify the performance dimensions of academic departments and select appropriate performance indicators.

Summary of results: According to the teachers’ and students’ view, the curriculum content of basic sciences and its objectives is clear and useful except students’ view about the department of biochemistry, but the most problematic area in the basic sciences courses (programs) are related to the time organization of the course, type of examinations, and available educational resources.

Conclusions: High pass percentage in these four departments showed that the programs have made a comprehensive impact on students. Consistent high percentage of students, who successfully completed the program, indicated that the process and inputs are stable.

Take-home messages: Higher education systems throughout the world are coming under increasing public and governmental scrutiny with respect to what they do, how well they do it, and at what cost.

2M Symposium: The Virtual Physiological Human (VPH)

2M1 The Virtual Physiological Human: Towards the use of medical avatars for training
Vanessa Diaz-Zuccarini*, Keith McCormack, Michele Spinelli*, Andrew Narracott, Martin Nelson, Bindi Brook, Alejandro Frangi, Jordi Villa-Freixa, Pat Lawford (1University College London, Department of Mechanical Engineering, London, UK; 2The University of Sheffield, Department of Cardiovascular Science, Medical Physics Group, Sheffield, UK; 3Universitat Pompeu Fabra, Information and Communication, Spain)

Background: Major diseases like cancer, neurological and cardiovascular diseases are complex in nature involving environmental, life style, ageing and genetic components. A major challenge for the future how is to integrate the knowledge of all these different components into robust and fully reliable computer models and "in silico" environments that will help the development and testing of new therapies and better disease prediction and prevention tools, in healthcare.

Summary of work: To face this challenge a new generation of multidisciplinary science fields is emerging providing "in silico" multi-scale modelling and simulation in medicine and biology.

Summary of results: The “VPH” initiative consists of a number of projects funded by the EC. We seek to understand what are the needs of students,
researchers and employers in Academia and Industry in this field to develop cutting-edge training.  
**Conclusions:** The future of VPH training will be linked to the development of medical avatars. We will present a number of demonstrators: from cardiovascular diseases to cancer and musculoskeletal modeling that will provide a glimpse of this technology and its potential impact for training purposes.  
**Take-home messages:** We will provide a glimpse of VPH technology and its potential impact for training purposes.

### 2M2 Knowledge management for physiology models: the RICORDO approach

**Background:** The Virtual Physiological Human network represents an active and diverse community of biomedical scientists that studies and teaches human biology by computational means. This diversity is the basis for an impressive breadth of scientific and training approaches, and emergent technologies, as well as potentially shareable resources such as data and models.  
**Summary of work:** The RICORDO FP7 project (http://www.ricordo.eu/) aims at establishing a knowledge management framework for the semantic integration of VPH computational models and data. The framework is based on formal knowledge representation methods, including the use of ontologies, and associated tools.  
**Summary of results:** This approach uses the explicit representation of anatomical and medical knowledge in the management of data and model resource (DMR) annotation. These annotations, which constitute the resource metadata, are statements mapping ontology term identifiers onto resource element identifiers. Ontologies facilitate machine processing, standardisation of resource metadata, as well as reasoning. The resulting method allows the navigation, interoperability and querying of annotation repositories using biomedical knowledge.  
**Conclusions:** This approach makes use of ontologies as: (i) a machine readable source of teaching material, as well as (ii) a means to bridge teaching resources with research models in physiology.  
**Take-home messages:** A demonstration of the RICORDO toolkit is provided in this work.

### 2M3 The osteoporotic Virtual Physiological Human

**Background:** Nearly four million osteoporotic bone fractures cost the European health system more than 30 billion Euro per year. This figure could double by 2050. After the first fracture, the chances of having another one increase by 86%. We need to prevent osteoporotic fractures. The first step is an accurate prediction of the patient-specific risk of fracture that considers not only the skeletal determinants but also the neuromuscular condition.  
**Summary of work:** The aim of VPHOP is to develop a multiscale modelling technology based on conventional diagnostic imaging methods that makes it possible, in a clinical setting, to predict for each patient the strength of his/her bones, how this strength is likely to change over time, and the probability that the he/she will overload his/her bones during daily life.  
**Summary of results:** While the project will be completed only at the end of 2012, preliminary results suggest that is possible to develop effective technologies for the diagnosis, prognosis, and treatment planning of OP fractures based on predictive models.  
**Conclusions:** The various modelling technologies developed during the project will be validated not only in vitro, on animal models, or against retrospective clinical outcomes, but will also be assessed in term of clinical impact and safety on small cohorts of patients enrolled at four different clinical institutions, providing the factual basis for effective clinical and industrial exploitations.  
**Take-home messages:** Integrative, patient-specific models can be used in education as well as in clinical practice.

### 2M4 Patient specific image-based computational modelling for improvement of short- and long-term outcome of vascular access in patients on hemodialysis therapy: the ARCH project

**Background:** To facilitate adequate hemodialysis (HD) therapy a reliable vascular access (VA) is mandatory, however, VA non maturation and complications still represent major limitations in HD treatment. The ARCH project (EU-FP7-ICT n. 224390) aims to develop and validate patient-specific image-based computational modelling tools for VA surgical planning and management of complications.  
**Summary of work:** A generic model of vascular network and topology, and computational tools to simulate hemodynamic changes induced by VA creation have been developed. To calibrate and validate the computational tools, a total of 80 consecutive patients have been enrolled in a clinical...
study, to collect clinical and image data before VA surgery and for two years of followup.

**Summary of results:** Computational tools have been embedded in an integrated infrastructure. A prototype clinical application for patient-specific modeling of pre-operative prediction of VA outcome has been developed.

**Conclusions:** Patient-specific computational modelling could bring a more detailed view on VA outcome, and highlight aspects that didn’t get enough attention in the guidelines so far.

**Take-home messages:** The ARCH patient-specific clinical application could be used in the future for planning surgical interventions and potentially minimize VA related complications.

2M5 **Image-based Multi-scale Physiological Planning for Ablation Cancer Treatment (IMPPACT)**

*R Flanagan (NUMA Engineering Services Ltd, Dundalk, Ireland)*

The IMPPACT project (www.imppact.eu) has developed an intervention planning system, for assisting radiologists to perform the Radiofrequency Ablation (RFA) procedure for the treatment of malignant liver tumours. The consortium is funded by the European Commission FP7 ICT programme. It started in 01/09/2008 and is due to complete on 31/08/2011. Radiofrequency Ablation (RFA) is a minimally invasive form to treat tumours without open surgery, by placing a needle inside the malignancy and destroying it through intensive heating. Though the advantages of this approach are obvious, the intervention is currently hard to plan, almost impossible to monitor or assess, and therefore is not the first choice for treatment.

IMPPACT has developed a set of validated computer tools to help the radiologist plan a patient specific procedure and to also train within an augmented reality simulation environment. These include tools for segmentation and registration of the liver, vessels and tumour from the CT data, solid meshing and computational tools to simulate the heat treatment and rendering and visualisation tools which will interface directly with the clinician.

2M6 **@neuriST: Simulation saves lives, and costs, in cerebral aneurysm**

*A Frangi, P Bijlenga, DR Hose, M Hofmann-Apitius, G Lonsdale, A Arbona, D Rufenacht, K McCormack* *(The University of Sheffield, Department of Cardiovascular Science, Medical Physics Group, Sheffield, UK)*

**Background:** @neuriST is an EC-funded FP6 project completed in 2010, was a multidisciplinary European initiative that brought together neurosurgeons, neuroradiologists, epidemiologists, engineers, biologists and computer scientists from 32 institutions to develop a clinically-useable interface to sophisticated computer simulations that offer personalised risk assessment and treatment of patients with cerebral aneurysm and subarachnoid haemorrhage.

**Summary of work:** Advanced computational models, personalised to each patient, were used to extract haemodynamic and structural measures (blood velocity patterns, wall shear stress etc.) associated in the literature with aneurysm evolution and rupture risk. Additional data was obtained from genetic analyses, identifying SNPs predisposing patients to aneurysm formation and rupture, and treatment options were simulated in models of the patient’s own vasculature, to assist with interventional planning. This large volume of additional data was combined in an automated guideline-driven risk-assessment module, updated with research findings from semantically-driven literature analysis systems, to support clinical decisions. Multiple geographically-separated clinical centres were linked together, and rapid case-processing was achieved via remote computing, allowing clinically-useful delivery of results. Automated systems enabled data transfer to the research domain using programmed data and image anonymisation.

The work begun in @neuriST continues under the care of the European society of interventional neuroradiologists, ESMINT.

2M7 **Risk prediction tool for Oral Cancer: NeoMark project**

*T Poli1, E Martinelli*1, D Ardignij, S.Steger2 (1Azienda Ospedaliero Universitaria di Parma, UO Chirurgia Maxillo Facciale, Parma, Italy; 2MultiMed, Cremona, Italy; 3Fraunhofer IGD, Darmstadt, Germany)*

**Background:** OSCC represents 4% of all cancers and has a recurrence rate of about 25 to 50% within 5 years. Early detection of reoccurrence risk can improve outcome.

**Summary of work:** NeoMark develops algorithms able to identify a bio-profile of Oral Squamous Cell Carcinoma by integrating multiscale and multivariate data from medical images, genomic profile from tissue and circulating cells RNA and other medical parameters collected from patients before and after treatment. A limited number of relevant biomarkers will be identified for early detection of disease reoccurrence and searched in blood RNA by means of Real-Time PCR lab-on-chip device.

**Summary of results:** The NeoMark Platform integrates the following systems: (1) NeoMark Data Management system: allows physicians of different institutions to record patient’s data (clinical & risk factors, tumor and lymph-node data, TNM/histology data, treatment and surgery, post treatment and follow-up, diagnostic images, blood and tissue genomic) and extracts statistics. (2) NeoMark Image Processing Tool: extracts
relevant features from medical images of tumors and lymph nodes by automatically aligning different images and measuring size and volumes. (3) NeoMark Q3 system: performs amplification, quantification and detection of blood RNA via real-time PCR molecular testing based on a disposable Lab-on-Chip, to detect the disease biopsy profile after remission. (4) Disease Reoccurrence Prediction Algorithms: stratify patients by recurrence risk at baseline and exploit patients information at follow-up visits and model the evolution of OSCC, to early predict relapse.

2N Workshop: Informed Self-Assessment and Feedback: Implications for teaching and learning

J Sargeant*1, J Lockyer*2, K Mann*1, H Armson*2
(Dalhousie University, Faculty of Medicine, Halifax, NS, Canada; University of Calgary, Faculty of Medicine, Calgary, AB, Canada)

Background: Self-assessment is foundational to professional performance, yet evidence shows that without external feedback, it is frequently flawed. This has led to use of the term “informed self-assessment”, proposed as a set of activities through which individuals use both external and internal data to conduct an assessment of how they are doing. Performance feedback is critical yet multiple factors influence feedback adoption and use.

Intended Outcomes: Using research findings related to informed self-assessment and conditions influencing the adoption of feedback in clinical settings, the purpose of this workshop is to develop educational strategies to enhance the uptake of external performance feedback. Specifically, the workshop will enable participants to: 1) Discuss an evidence-based model for understanding informed self-assessment; 2) Discuss conditions and approaches that can facilitate informed self-assessment and use of external feedback; 3) Identify and develop practical educational strategies to enhance informed self-assessment and feedback adoption, across the education continuum.

Structure: An interactive workshop using multiple activities to achieve the objectives: discussing own experiences in dyads, applying the model of informed assessment and feedback in triads, small group development and presentation of educational strategies.

Who Should Attend: Educators, clinicians, students, residents, researchers
Level of workshop: Beginner

20 Workshop: The Power of Mentoring in Medical Education

E Mylona*1, W Anderson2, M Newland*3, M Hitchcock4
(Stony Brook University Medical Center, NY, USA; College of Human Medicine Michigan State University, MI, USA; University of Nebraska Medical Center, NE, USA; Keck School of Medicine University of Southern California, CA, USA)

Background: Mentoring has been widely recognized as important for faculty success, having been tied to such important variables as career satisfaction, academic productivity, and time to promotion. While traditional mentoring relationships have been part of the academic culture for centuries, recent innovations have included the conscious development of mentoring programs in medical education. The goal of the workshop is to provide participants with an overview of what is known about mentoring and the options for fostering it in medical education.

Intended Outcomes: At the end of this workshop participants will be able to: 1) discuss the effectiveness of most common models of mentoring; 2) examine assumptions about the cross cultural differences in mentoring; 3) describe the mentoring needs of the new generations; 4) discuss the effectiveness of longitudinal mentoring experiences to faculty and institutions.

Structure: The session will include: 1) Introduction of workshop, speakers and participants; 2) Brief presentation “best practices” from the literature; 3) Participants in small groups will discuss and report back the type of mentoring programs available in their own institution; 4) Problem solving activity: Participants will design effective mentoring programs and career development opportunities that will address the needs of the faculty in their institution; 5) Summary-take home messages; 6) An extensive bibliography will be provided.

Who Should Attend: Faculty at all ranks, Deans, Division Chiefs
Level of workshop: Intermediate

2P Workshop: DEAD MAN TALKING: A PERFECT way to explore bioethics using devised theatre

Melissa McCullough, Anna Newell (Centre for Medical Education, Queen’s University Belfast, Whita Medical Building, 97 Lisburn Road, Belfast BT9 7BL, Northern Ireland, UK)

Background: In 2008, a Scottish theatre director and an American ethicist who had worked in the same University in Belfast for several years (one in
performing arts (the other medicine) met for the first time at a conference in York. That conference, “Widening the Circumference” York St John University, brought together health professionals, educators, students and drama/theatre practitioners to explore how theatre, drama and film can be used in the education and training of healthcare professionals. Over the conference dinner, the two hatched a plan to use theatre to help medical students explore ethics and share that exploration with a public audience. And so DEAD MAN TALKING came into being, and PERFECT followed.

**Intended Outcomes:**
1) To allow participants to engage in a sample of the devised theatre techniques that were used with the medical and drama students in both projects.
2) To show participants scenes from the performances through professional DVD including media coverage and student interviews.
3) To allow workshop participants to explore their own views of the show, including their views on using devised theatre in their work.

**Structure:**
- Introduction: Revisiting the creative process: group activity; Dead Man Talking, the journey, scenes and media; Exploring ethics creatively with the devised process: group activity; PERFECT scenes; Feedback & Close; Q&A.

**Who Should Attend:** All medical educators, especially those with an interest in teaching and learning ethics and law and those interested in ways to tap into their’s and their students’ creativity.

**Level of workshop:** Beginner.

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2R **Workshop: Social Media and Networks in Medical Education**

A M Cunningham*1, N Lafferty*2, A Manca*1
1Cardiff University. Department of Primary Care and Public Health, Cardiff, UK; 2Dundee University, Centre for Academic Clinical Practice, Dundee, UK)

**Background:** Facebook, YouTube and Twitter have seen exceptional growth in the past 5 years. But how can these and other social media tools benefit medical education? The facilitators of this workshop will share their experiences of working with students to introduce these tools to undergraduate medical courses in Cardiff and Dundee. In this workshop we will talk about what worked and what could have worked better.

**Intended Outcomes:** Our aim is to develop a network of educators and students who want to collaborate and share learning on the use of social media in medical education. We will develop public areas to support dissemination of best practice, and also work to establish a research agenda in this new area. The session will be interactive so come prepared to share and learn.

**Structure:** We will give you the opportunity to explore ideas for new ways of learning with students. There will be time for discussion on issues such as: Is a Wordpress blog more useful than a Blackboard module? How social is social bookmarking? Will VLEs be replaced by PLEs? How can social media help medical education researchers? How can we manage and develop our own digital identity?

**Who Should Attend:** Students and educators interested in developing this field.

**Level of workshop:** Intermediate

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2S **Workshop: How to successfully implement a global health experience for medical students**

John W Bachman (Mayo Foundation, Rochester, Minnesota, USA)

**Background:** Mayo Medical School has established a program for students to go on a global elective to Honduras for a week. This workshop will discuss that experience. Students are energized about the concepts of primary care and global health. The students work within a sustainable effort in rural Honduras. As a result of this we will report our experience in how students have used this as a springboard to scientific projects and how it has changed the dynamics of the class. Three fourths of the class have participated.

**Structure:** Be prepared to be a student again. You will experience being in a class room where you know no one but will be getting on a plane in a few days to go to Honduras. You also will experience being on a bus driving to a village with your fellow students. There is much more.

**Who Should Attend:** If you love teaching you should come. It will be a riot. The professor has presented numerous key notes to the AAFP and the STFM. You will leave a better teacher!

**Level of workshop:** Beginner

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2T **Workshop: Feed-forward, more than the opposite of feed-back?**

T Jacobsen, A Baerheim* (University of Bergen, The Department of Public Health and Primary Health Care, Bergen, Norway)

**Background:** Medical communication training is usually based on feedback or debriefing. Both feedback and debriefing are delivered post hoc, initiating reflection on what did happen. The problem with these strategies is that we learners do have difficulties in recalling emotionally and cognitive even recent events.
The feed-forward principle is based on sociocultural learning theory. We move the debriefing into ongoing action, aiming on training anticipation of what to do next in a consultation.

**Intended Outcomes:** By an interactive approach we let the participants experience how feed-forward principle may be utilised as a tool in communication training.

**Structure:** An actress (TJ) provides patient role, and one of the participants starts the consultation as a doctor. A tutor (AB) will provide frequent time-outs, where the participant-in-action and the audience reflect on which possible next steps may be profitable. The participant-in-action may decide on one of the possibilities, or another participant may take her place trying out something else.

**Who Should Attend:** Course organisers, teachers and students working with communication training.

**Level of workshop:** Advanced

### 2U Workshop: Teaching CanMEDS competencies in the clinical context

*Linda Snell*, *Deepak Dath*, *Anna Oswald* (Royal College of Physicians and Surgeons of Canada, CanMEDS and Faculty Development Unit (Clinician Educator), Ottawa, Ontario)

**Background:** CanMEDS, an internationally known competency framework for teaching and assessment in medical education, has been adopted in many disciplines and jurisdictions across all learner levels. To ensure that these competencies are learned in the clinical setting, clinical teachers need be able to identify activities of everyday work that exhibit each CanMEDS Role, then use new, possibly unfamiliar teaching strategies to foster the development of each competency.

**Intended Outcomes:** Participants will be able to describe the CanMEDS framework; identify CanMEDS competencies in daily activities; identify teachable moments where competencies can be taught and learned; describe/demonstrate effective teaching strategies for the clinical context, discuss how the competencies can be taught in an integrated manner.

**Structure:** This is a highly interactive session. Following a brief introduction, participants will take part in exercises to identify CanMEDS competencies in daily activities, define teachable moments and use ‘springboards’ to focus CanMEDS teaching. A brief overview of teaching strategies for difficult competencies will be followed by small group work to practice strategies applicable to participants’ contexts. Closure includes a group discussion about integrating multiple competencies in clinical teaching.

**Who Should Attend:** Clinical teachers, faculty developers, program directors – participants should have a basic knowledge of CanMEDS.

**Level of workshop:** Intermediate

### 2V Workshop: Performance Assessment for Competency-Based Health Professional Education

*Ann Jefferies*, *Brian Simmons*, *Susan Wagner* (University of Toronto, Dept of Paediatrics, Toronto, Ontario, Canada; University of Toronto, Centre for Interprofessional Education and Dept of Speech-Language Pathology, Toronto, Ontario, Canada)

**Background:** Competency-based education frameworks are increasingly common in health professions and several professions share similar core competencies (Verma, 2006). These frameworks emphasize assessing performance in each competency. However, reliable and valid assessment of performance in competencies other than expert may be challenging. The OSCE, a performance-based examination, is often used to assess knowledge and communication but less frequently to assess other competencies, such as collaboration and professionalism.

**Intended Outcomes:** Participants will be able to demonstrate how to incorporate multiple competencies into OSCE stations, describe an assessment tool for assessing core competencies in an OSCE and plan an OSCE blueprint to assess multiple competencies.

**Structure:** Using a competency model based on CanMEDS, this interactive workshop will provide participants with skills to develop OSCE stations and examination blueprints that incorporate multiple competencies. Participants will observe, analyze and score simulated OSCE scenarios and design and discuss OSCE stations that incorporate multiple competencies. Tools to assess these competencies in the OSCE and strategies to provide feedback to candidates about their performance related to each competency will be discussed. Although the workshop uses the CanMEDS framework, the principles learned can be applied to other competency models, to a variety of health professions and to interprofessional education.

**Who Should Attend:** Health profession educators interested in assessment, evaluation, competencies and interprofessional education.

**Level of workshop:** Intermediate

### 2W Workshop: LCME Accreditation of US and Canadian Medical Schools: From Process to Outcome
Background: Accreditation includes regulatory authority, provides opportunities for programmatic quality assurance and improvement, and can serve as an agent of social change. Created in 1942, the Liaison Committee on Medical Education (LCME) is recognized by the U.S. Department of education to accredit M.D.-granting educational programs in the U.S. The LCME collaborates with the Committee on Accreditation of Canadian Medical Schools to accredit medical education programs in Canada.

Intended Outcomes: This workshop will provide an overview on accreditation policies and procedures and an interactive opportunity to simulate the experience of surveyor in applying accreditation standards in determining whether specific areas of a medical education program are in or out of compliance.

Structure: The workshop will include a presentation on the LCME’s history, a program’s preparation for an accreditation survey visit, the development of new standards and interpretation of existing standards, and information about current levels of compliance of U.S. and Canadian medical education programs with the some of the more challenging standards. Participants then will use examples of standards-related information provided to the LCME by medical education programs to determine programmatic compliance or non-compliance.

Who Should Attend: Individuals interested in quality improvement in medical education.

Level of workshop: Beginner.

2X Posters: Curriculum Development / Integration

2X1 Medical Humanities - A review of joint teaching with a University
J P Purday*, C Hauskeller2 (1Peninsula College of Medicine & Dentistry, Medical Humanities, Exeter, UK; 2University of Exeter, Centre for Eugenics, Exeter, UK)

Background: Doctors need excellent knowledge, skills and attitudes. Professionalism and attitude are difficult to teach. Philosophy, sociology and ethics can help teach students gain empathy, compassion, communication and the art of medicine (Evans & Greaves 1999).

Summary of work: Challenges - Students struggle to see the relevance of humanities teaching and combined teaching with a clinician and specialist helps add credibility. New teaching methods and student reasons for absence have improved attendance for workshops. We have used innovative techniques such as podcasts to teach philosophy and sociology. A combined teaching technique has meant discussions are more humanistic. Students are sent details of the workshop and those teaching it up to 1 week in advance. Any podcasts or powerpoint presentations are emailed to the students and are available on an electronic portal. Students are told that they are expected to email an apology if they expect to be absent.

Summary of results: We have surveyed all the students attending the workshops and found that the majority of students (74%) find the workshops useful. Students attendance has increased greatly since we have started advertising the workshop 1 week in advance and asking them to apologise for non-attendance.

Conclusions: Using a joint doctor and humanities university expert, combined with prior notice and the use of podcasts has increased satisfaction and attendance to medical humanities workshops.

Take-home messages: Undergraduate medical humanities workshops can be improved by joint doctor/university specialist teaching.

2X2 'Introducing Gemma' - Integrated teaching based around a fictional adolescent patient
R Bardgett*1,2, C Lenton2, C Heaps2, D Stark2, J Clarke2, S Foster2 (1Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK; 2School of Medicine, University of Leeds, Leeds, UK)

Background: Adolescent health is an area that has often been neglected during traditional undergraduate training, yet it is highly relevant for most clinical specialties. It is important that our undergraduates spend time considering the issues faced by young people and the additional burden that a chronic disease can place upon someone in their teenage years.

Summary of work: Three new ‘Themed’ teaching days for 250 fourth year students were developed and based around the life of a fictional 15 year old, Gemma, with diabetes mellitus. Each day considers a particular theme: Adolescent Health, Teenage Pregnancy and Cancer Care. The format for each day is: keynote lectures, interactive workstations, ethical discussion then mock OSCE sessions, putting the day’s knowledge into practice.

Summary of results: The feedback from the students has been very positive, for instance 87 % of students felt the workstations were relevant and constructive.

Conclusions: Adolescent health is an important area which lends itself to large-scale, teaching days and these were well received by students.

Take-home messages: These integrated ‘Themed’ days encourage students to think about the issues faced by
teenage patients and how their needs may differ from both children and adults. Sessions where adolescent patients, and teenage parents shared their experiences were particular popular with students.

**2X3 The horizontal integration of semiology in pathophysiology**
Sh Tofangchiha*, F Mohseni, M Akbarzade (Army University of Medical Science, Tehran, Iran)

**Background:** The effective integration in the curriculum is a change to increase the quality of medical education. So the aim of this study was horizontal integration of semiology in physiopathology. The main goal of this plan was promote clinical medical education and competencies,

**Summary of work:** It was a qualitative study in 8 steps as follows: 1: familiarize faculty members with the integration process; 2: determining the Executive Council members; 3: develop specific short and long-term goals; 4: determination of methods and course plan; 5: determination of lesson plans; 6: education program developed; 7: review and perspectives of Masters & students after the first implementation to resolve existing deficiencies; 8: Evaluation of the final period.

**Summary of results:** Student satisfaction of the implementation period of 37 students was 92%. For the period.

**Conclusions:** Schemes promoting interdisciplinary partnerships can result in communities of practice leading to improved curricular outcomes. Activity theory illustrates this: clinicians and scientists routinely engage in separate activities within contexts such as the laboratory or ward. Through engaging in the shared activity of medical education new knowledge pathways are created.

**Take-home messages:** Attention should be paid to faculty development schemes and their potential for promoting integration.

**2X5 Improving student learning integration and engagement with biomedical science sessions at the Peninsula Medical School**
R Zamani *, K Brandam2, Luke McGowan2, Sally Holden1, K Gilbert1, S Bull3 (*Peninsula College of Medicine and Dentistry, Universities of Exeter & Plymouth, St. Lukes Campus, Magdalen Rd, Exeter EX1 2LU, UK; 1Peninsula College of Medicine and Dentistry, Universities of Exeter & Plymouth, Plymouth PL4 8AA, UK)

**Background:** Recently, the life science teaching programme at the school was overhauled to promote student-led learning engagement in an integrated learning environment. It led to a significant replacement of quasi-didactic and repetitive teaching with activity-based and student-lead sessions.

**Summary of work:** Thus, the entire annual learning material is presented via an integrated, peer-reviewed and uniform e-study guide (e-SG). This acts as a roadmap of learning experience containing preparatory material, activities for the small-group sessions (often clinically contextualised authentic cases), and post-session resources. It contains features enabling integration of learning both horizontally, across the year, and vertically, through the curriculum. Various text and multimedia e-resources are fully embedded within e-SG. Self-assessment is provided by formative questions for each session.

**Summary of results:** The programmable time-released feature releases quizzes and teaching materials in predetermined time windows and editable windows enable personalisation of e-SG. The embedded tutor
notes enhance facilitators’ preparation and facilitation of their sessions.

**Conclusions:** Student and teacher engagement and satisfaction with this programme have been measured using questionnaires. The learning activities were found to be intellectually stimulating by 70% of student respondents and encouraged students to direct their own learning by 70% facilitators.

**Take-home messages:** In all, the e-SG provides a dynamic, collaborative, and integrated learning and teaching environment.

**2X6** Feasibility and impact of clinical skill training during first term basic science modules of the new medical curriculum at the Charité - Universitätsmedizin Berlin.

H Peters*, O Ahlers, I Brunk, J Hein, T Hitzblech, S Ludwig, A Maaz, P Pelz, J Breckwoldt (Charité - Universitätsmedizin Berlin, Dieter Scheffer Centre for Medical Education, Berlin, Germany)

**Background:** The Charité introduced a new modular curriculum of medicine in 2010. The first term consists of 4 modules, 1 as starting-up and 3 focusing on basic science contents. Goal was to tailor a clinical skills course for this setting.

**Summary of work:** The starting-up module was followed by the modules "Elements of Life", "Biology of the Cell" and "Signal and Information Systems", all 4 weeks each. The starting-up module included brief introduction lectures (4 h anatomy, 2 h physiology), after which groups of 8 students went to various hospital wards for 2.5 h every other week. Each group was trained by one clinician. The structured curriculum focused on defined skills to be trained in each session and elements of living anatomy while giving freedom on what kind of patients to be seen. A detailed manual was provided to both teachers and students.

**Summary of results:** Throughout all modules, clinical skill training was rated among the best teaching elements by the students. The training was evaluated as a high motivation factor for learning of basic science knowledge. All students passed the end-term clinical skill assessment.

**Conclusions:** Early clinical training is feasible, effective and has high motivational impact on basic science learning.

**Take-home messages:** Clinical skill training can be employed to foster learning motivation during early medical student education.

**2X7** The effect of early clinical exposure on the point of view of second-term medical students about medical profession

H Ahmadipour*, M Zahedi (University of Medical Sciences, Community and Preventive Medicine Department, Kerman, Iran)

**Background:** While much of the knowledge and skills of medical students are achieved in the clinical course, in many educational systems, students keep away from clinical environment during first years. This method of teaching is dominant in the current system of medical education in Iran, and can keep students away from real professional environment. Studies show that clinical exposure in the first year of study has a significant role in increasing the satisfaction of education and a positive attitude to the medical profession.

**Summary of work:** This study was an interventional study carried out in the medical school, Kerman. All second semester students were selected through census method. Students’ viewpoint towards the medical profession was evaluated using a questionnaire. The validity of the questionnaire was confirmed by a number of experts and its reliability determined using Alpha Cronbach 0.6. Within two weeks of the course, the questionnaire was completed again. Data were analyzed using spss15.

**Summary of results:** 58% of the students were female and 4% male. Mean and standard deviation of age and the first semester average of the students was 19.12±0.73 and 16.24±1.1, respectively. Attitude toward medical profession increased and dropped in female and male students, respectively. But these changes were not statistically significant.

**Conclusions:** Early clinical exposure courses help students mention patients’ problems while studying basic sciences in the first years of medical training and learn applicable subjects beyond mere theory.

**2X8** Integration of basic and clinical discipline in medical education

Dana Taizhanova*, Murat Teleuov, Rauchan Dosmagambetova (Karaganda State Medical University, Department of Internal Diseases, Karaganda, Kazakhstan)

**Background:** Strategy of educational process in Medical University is directed to introduction and improvement of new technology, development of clinical intention and mastering practical skills, organization and development strategy of integral teaching.

**Summary of work:** Integration of basic and clinical discipline is one of the main directions in medical education.

**Summary of results:** The Council of Medical Education is created in the administration structure of Karaganda State Medical University which coordinates introduction, perfection and monitoring of innovation activity. Role of basic discipline in the creation matrix of knowledge is defined, and it is necessary to master the skills. Clinical skills are universed vertically, ranged
according to degree of complexity, determined by steps of their mastery. Systematic realization of discussion of current problematic questions are practiced in order to realize the role in the basic discipline and define “claims” of clinical discipline. Some conditions are founded to solve clinical situations for students of the 4th and 6th courses and they need knowledge of basic discipline.

Conclusions: Teaching is based on the integration of basic and clinical disciplines, shows high satisfaction of students who approached the maximum of their doctoral practice and lets them define their professional development from the beginning stage of education.

Take-home messages: Basic and clinical discipline are integrated effectively by the Council of Medical Education.

2X9 Innovative Curriculum integrating Human Growth and Development across all Lifestages

A Mookerjee*, C Cagande, W Graessle, V Rajput* (Cooper Medical School of Rowan University, Medical Education, 401 Haddon Avenue, Room 390, Camden, New Jersey, USA)

Background: There is a void in integrating the life stages of infancy to adulthood to geriatric in the medical school curriculum. There is a need for medical students to be mindful of the biopsychosocial and cultural determinants in different stages of life.

Summary of work: We developed the Lifestages course, using sociocultural, economic and psychological parameters, and noted its impact on health outcomes. We implemented this course using the Case Based Learning (CBL) model. Using a curriculum matrix, we integrated learning objectives in the following domains: Cognitive and Emotional development; Growth and Aging; Sexuality and Hormonal changes; Reaction to stressors; Ethical and Moral instincts; Domestic and Institutional Abuse; Suffering and End of Life.

Summary of results: 1) Integrate the common links in the different stages of life, 2) Understand the normal and interpret the abnormal. 3) Identify CBL as a method to teach Lifestages curriculum by partnering across biomedical and clinical departments.

Conclusions: The Lifestages course enables vertical and longitudinal integration of medical school curriculum in early phase of medical student development. Using CBL, the biopsychosocial and cultural aspects of Lifestages can be taught in an innovative curriculum.

2X10 Evaluation and comparison of students’ opinion toward revised medical basic sciences in old and new curriculum in Isfahan University of Medical Science

Z Teimouri Jervekani*, S Mozafarpour, F Dehghani, V Ashoorion, S Sirous (Isfahan University of Medical Science, Education Development Centre, Isfahan, Iran)

Background: Basic sciences are the first introductory course in the medical training program in Iran which includes five semesters. Isfahan Medical School revised the basic science curriculum to solve the problem of imbalanced courses by rearranging the subject matters in each semester. This study is aimed at comparing the students’ opinion participating in two different curricula.

Summary of work: The subjects included all 120 students involved in curricula. Data-gathering tool was a self-administered questionnaire. Students’ opinions about curriculum were assessed by a 5-point (strongly-disagree, strongly-agree) Likert scale. Their viewpoints towards the burden of courses were evaluated by closed ended questions for each 5 semester.

Summary of results: In general, New curriculum has been considered more satisfactory (2.95±0.48 vs. 2.78±0.68; P=0.002). Majority (61.4%) of the students in the 1st semester in new curriculum rated burden of courses suitable vs. 1.7% of respondents in the former curriculum. (P-value=.000). Regarding burden of courses we found significant differences with more suitability in the 4th semester in new curriculum and the 3rd semester in old curriculum (P-value<.05).

Conclusions: The students’ opinions toward the basic sciences curriculum were more positive in new curriculum. However, curriculum revision should be conducted periodically to resolve the current problems.

Take-home messages: Minor changes in curriculum lead to great effects.

Acknowledgement: We would like to thank National Elite Foundation.

2X11 Outcome of a traditional versus a PBL-curriculum in medicine

T Schaefer*, HH Rusche (Ruhr-University Bochum, Centre for Medical Education, Bochum, Germany)

Background: Based on the Bochum catalogue of learning objects the Medical Faculty of the Ruhr-University Bochum developed and implemented a new curriculum, characterized by horizontal and vertical integration of basic science and clinical objectives, an emphasis on communication skills, ethics and health economy, new forms of assessment (Modified Essay Question Tests, Objective Structured Clinical Examinations, Progress Tests and Triple Jump Exercises).

Summary of work: Since 2003 students have been able to apply for the new curriculum and were then randomly assigned to either the 42 places in the new or to the 260 places in the classical curriculum.

Summary of results: From the 2003 cohort, 73.8% of the new curriculum, and 37.3% of the randomized
control group successfully finished their studies. Their mean scores were 240.3 versus 242.5 points (of 320, n.s.). From the 2004 cohort, also 73.8% of the new, and 23.2% of the control group already passed the written state examination. Their scores were 235.4 versus 247.2 points (n.s.).

**Conclusions:** A larger proportion of students in the integrated curriculum passed the state exam by achieving similar scores compared with the control group in the classical curriculum, so far.

**Take-home messages:** An integrated PBL curriculum may encourage students to adhere to the faculty and finish the studies fast.

### 2X12 Meaningfulness through Informal Curriculum

**M Yakubovskyy*, S Fox, L Golub (Mykhaylo Yakubovskyy, Ross University School of Medicine, 630, US Highway 1, North Brunswick, NJ 08902, USA)**

**Background:** Formal medical education deficiencies compromise achieving competencies associated with exemplary medical practice. Such deficiencies can be addressed, in part, by implementing extracurricular activities. This study represents an attempt to determine the perceived impact of extracurricular Pathology activities (Pathology Club Conferences and Reviews, clinicopathologic conferences, etc.) on a group of second-year medical students.

**Summary of work:** Students anonymously completed a questionnaire addressing the perceived impact of extracurricular Pathology activities in which they participated. The survey was followed up with a focus group discussion involving a self-selected sample of participants.

**Summary of results:** The questionnaire and focus group results indicated that extracurricular Pathology activities positively influenced students’ attitude toward studying Pathology, enhanced comprehension of information, assisted in integrating Pathology with other medical disciplines, and provided incentive to go beyond required course material. These activities represented a challenge with a positive emotional valence that contributed to a greater sense of personal meaningfulness regarding the medical school experience. Students identified improved self-confidence and perception of self-worth as additional outcomes.

**Conclusions:** Extracurricular involvement provides students with self-affirming experiences that result in a greater sense of membership in the medical community.

**Take-home messages:** An informal curriculum can fundamentally impact the subjective experience of medical training.

### 2X13 Undergraduate Medical Education Program Curriculum Renewal: A Case-Based Spiral Approach; The Journey & The Future

**Mary Wells*, Juanita Barrett*, Penny Hansen, Sharon Peters (Faculty of Medicine, Memorial University of Newfoundland, St. John’s, NL, Canada)**

**Background:** Memorial University of Newfoundland (MUN) initiated plans for renewal of its Medical Doctor (MD) Program in 2008, with five principal design features: 1) Spiral sequence with 4 Phases: Health and its Promotion, Disruptions to Health/ Disease Prevention, Diagnosis/ Investigation of Illness/ Disease, Integration into Practice; 2) Presenting features; 3 Objectives; 4) Core curriculum/ options (e.g. research); 5) Longitudinal series academic half days.

**Summary of work:** The approach to develop this curriculum includes: Leadership and Project teams; Facilitated Working Group (family physicians, specialists, biomedical scientists, students/residents); and Ongoing communication. The process involves: Skeleton cases for each phase; Mapping of competencies and learning objectives to phases and cases; Teaching/ learning and assessment methods assignment; Creation of a database to support the complex mapping.

**Summary of results:** Competency and objectives mapping, and Phase 1 skeleton cases are in final stages, with present curriculum objectives review/ revision and data base design well underway.

**Conclusions:** Leadership, facilitation, participation, and technology are essential in developing a case-based spiral curriculum.

**Take-home messages:** Leadership, facilitation, participation, and technology are essential in developing a case-based spiral curriculum.

### 2X14 Social networks in curriculum development – Changes and challenges for medical education and clinical daily routine

**Stephanie Keil*, Sophie Niedermaier1, Christian Lottspeich1, Ralf Schmidmaier1, Matthias Siebeck2, Martin Reincke1 (1Medical Education Unit, Medizinische Klinik - Innenstadt, Klinikum der Universität München, Ziemssenstrasse 1, 80336 Munich, Germany; 2Chirurgische Klinik und Poliklinik – Innenstadt, Klinikum der Universität München, Nussbaumstrasse 20, 80336 Munich, Germany)**

**Background:** Developing our curriculum we intended to involve a larger number of staff members and thus created a new social network. Analyzing this new network we were particularly interested in two aspects: Is there an association between individual ego-networks and one’s declarative knowledge in medical education? To what extent did the network structure
change concerning the relationships in the didactical work group and in the clinical daily routine.

Summary of work: We are conducting semi-structured interviews with faculty members involved in our curricular development. These interviews include background questions on time spent teaching, previous didactical training, professional expertise as well as declarative knowledge about medical education. These background data will be combined with questions on the ego-network. Its status will be surveyed for different points in time: at the beginning of the curriculum development process, at start of the new curriculum and after one year.

Summary of results: We expect the relationships in the ego-networks to become stronger over time. We also suppose that the networks of medical education and daily clinical routine will overlap more at the second point of conduction. Overall we suspect staff members with broader networks to have gained more knowledge about medical education than staff members with smaller networks.

2X15 Complexity structured curriculum
G Coggi*1, L Montagna1, S Visioli2 (1International Medical School, Istituto Clinico Humanitas; 2University of Milan and Istituto Clinico Humanitas, Italy)

Background: The growth of medical information and the multifaceted complexity of health care system suggest the need for a “complexity structured curriculum” aimed to acquisition of the skill to react adequately to non-linear situation involving apparently unrelated areas.

Summary of work: Following a thoughtful definition of the indispensable core medical and scientific learning curriculum, attention is given, via multidisciplinary teaching, to reflective thinking and writing, storytelling, personnel management, multiculturalism, integrate cultural competence, work organization, cost/benefits, etc. The aim is the acquisition of a new skill, i.e. management of patients and actors of the “health process” with a comprehensive approach and in a complex context.

Summary of results: The results, so far limited to first year students, and evaluated through questionnaires and personal interviews, show the development of a more open minded approach to the study of basic sciences and a higher, earlier consciousness of doctor’s role in Society.

Conclusions: Students entering the medical school in 2012 shall practice medicine no earlier than 2020: a complexity structured curriculum should make them able to manage complexity of patients and health problems today still unpredictable and unforeseen.

Take-home messages: The concept of complexity should become a new basic pillar of medical education and curriculum planning.

2X16 Modernizing undergraduate medical education in Georgia
Z Vadachkoria, R Beriaishvili, G Simonia* (Tbilisi State Medical University, Department of Medical Education, Research and Strategic Development, 33 Vazha Pshavela ave, 0177, Tbilisi, Georgia)

Background: Since 2005 Georgia joined the Bologna process, however the lack of clear and agreed strategy for medical education reform and insufficient awareness of European standards of medical education appear to be the main shortcomings of current medical education system in the country.

Summary of work: Benchmarking and identifying gaps in existing undergraduate medical education in Georgia revealed the following problems: a) medical curricula in medical schools are subject-oriented with sequence of basic disciplines (first 2 years) followed by pre-clinical (3rd year) and clinical subjects (5th - 6th years); b) outdated methods of teaching and learning resulting in failure to develop independent thinking and to gain attitudes to life-long learning.

Summary of results: Based on study results, plan of modernization of undergraduate medical education in Georgia implies: a) Development of general blueprint of integrated undergraduate medical curriculum based on TUNING/MEDINE outcomes; b) Training of teachers, c) Piloting innovated curriculum in target medical schools followed by implementation of fully integrated curricula in the rest of medical schools after completion of piloting.

Conclusions: New model of undergraduate medical education in line with relevant European standards is elaborated in Georgia.

Take-home messages: Elaborated national medical education model in Georgia might become a best practice for medical schools in other Post-Soviet countries.

2X17 Making educational reforms sustainable: reflection and evaluation
Q Wang*, YQ Lu (Fudan University, Shanghai Medical College, 138 Yixueyuan Road, Shanghai 200032, China)

Background: Along with the scientific, socio-economic and cultural development of the society, medical education reforms are being carried out in medical schools nationwide in China. Curricular integration, PBL model adoption and competency-based assessment systems construction are among the hotspots. But differences and confusion generated in practice because of concept misunderstanding, teaching resource restraints, resistance from different groups of stakeholders and so on.

Summary of work: Data regarding curriculum formats, models of PBL implementation and assessment tools
used in eight-year MD programs from ten top medical schools in China were collected by literature review and narrative inquiry. Different models and outcomes were compared; the existing problems and the factors behind them were analyzed.

**Summary of results:** There are major differences in the way of curricular delivery, PBL implementation and student assessment among different schools. Little evidence and reference concerning the effectiveness of educational reforms could be found.

**Conclusions:** The effectiveness of the current educational reforms in many schools remains unevaluated. There is an urgent need for developing objective evaluation mechanisms to optimize the educational reform outcomes.

**Take-home messages:** Rational reflection, objective evaluation and ongoing modification are crucial to the sustainable development of medical education reforms.

2X18 Medical Education in Ecuador: Inserting longitudinal curriculum and community medicine

*R Farfan (Espiritu Santo University, Faculty of Medical Sciences, Samborondon-Guayaquil, Ecuador)*

**Background:** Medical Education in Ecuador is mainly focusing on theorist model. As a consequence graduated medical students are showing a deficiency in clinical and surgical knowledge and a poor commitment with their community problems.

**Summary of work:** Our program has three main axes: 1. A longitudinal curriculum based on competences and the integration of basic sciences with clinical sciences; 2. Insertion of community health across the entire medical education; 3. Insertion of research activities and medical simulation across the curriculum.

**Summary of results:** We have already reached the following goals within our project: 1. Establishing a new curriculum for first and second year of medical school. 2. Inserting PBL and Case discussion in our classes. 3. Inserting simulation programs for basic sciences students. 4. Integrating basic sciences with clinical sciences.

**Conclusions:** 1. The importance of preventive medicine and community health in medical education; 2. Disruptive medicine as an important tool for medical education; 3. Enhancing critical thinking, creativeness and research in medical students.

**Take-home messages:** 1. Should lectures and one way transmission of medical knowledge be maintained? 2. Medical student early contact with real and simulated patients has a benefit for them? 3. Should medical courses be taught with a textbook, or we should use open options with multiple texts and the web?

2X19 Using ontology technology for curriculum mapping across medical schools

*Nataliya V Pronina (Crimea State Medical University, 6200 MD Maastricht, The Netherlands)*

**Background:** All medical schools in the Netherlands are currently struggling to adapt their local curriculum databases to the national framework for undergraduate medical education (Raamplan 2009). It is clear that a joined effort could help out, but local needs are too diverse to allow a single system to be feasible.

**Summary of work:** Techniques developed for the Semantic Web are investigated and applied. We used Protegé to build and link ontologies for the national framework, progress test metadata and the Maastricht new educational curriculum. We used RTFapi to build a sample web-based interface for teachers and students.

**Summary of results:** We were successful in translating the national framework into a clear and machine-readable ontology. The ontology is linked to an ontology for progress testing metadata. These two ontologies are published on a website for use by other medical schools. We also created an ontology for the new curriculum at Maastricht Medical School.

**Conclusions:** The linked set of ontologies allowed us to present and query our curriculum data in a reusable and flexible way.

**Take-home messages:** Ontology technology allows for the development of reusable ontologies that can be applied across medical schools and can at the same time be linked to local-tailored ontologies for use within a school.

2X20 Theoretical disciplines teaching strategy: the facing to medicine

*Nataliya V Pronina (Crimea State Medical University, 5/7 Lenina boulevard, 95006 Simferopol, Ukraine)*

**Background:** Medical students are not involved into medicine from the beginning starting in the first year study from biology, chemistry and physics. The medicine orientated teaching strategy is required to motivate students to succeed these theoretical disciplines.

**Summary of work:** The experience revealed effectiveness of emphasizing physical principles of diagnostics and treatments taken from medicine cutting edge and the arranging students study in a form of graduated investigations. The current tutorials exercises supported by real laboratory investigations and by computer interactive models were the lowest level investigations of physical factors influence the human organism or how physical processes inside a human organism reflects its state or a particular organ condition. The modules’ final tests were structured as investigations students carried out using computerized physical models of physiological processes.
Summary of results: The fifty percent rise in students’ scores was achieved after approach described above was employed.

Conclusions: The first year students study medically accentuated content and its arrangement as students’ laboratory and virtual investigations excluded the gap between theoretical and clinical disciplines.

Take-home messages: The first year students study tutors’ role is to train medical students to apply and use theoretical fundamentals as necessary tool for medical practices and investigations.

2X21 Experts’ discussions to improve process management in developing a new modular curriculum at the Charité - Universitätsmedizin Berlin
A Maaz, T Hitzblech, O Ahlers, J Breckwoldt, S Ludwig, I Brunk, J Hein, H Peters (Presenter: O Wendt) (Charité Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum, Projektsteuerung Modellstudiengang Medizin, Invalidenstrasse 80-83, 10117 Berlin, Germany)

Background: The Charité has introduced a new modular curriculum of medicine in 2010. The curriculum is based on a modular, consistently interdisciplinary structure. Its term-wise implementation is preceded by an interdisciplinary planning process for each module, involving varying sets of pre-clinical and clinical departments. This process is complex due to restricted structural, financial and human resources and frequent discussions among the parties. Continuous quality improvement measures have been introduced to allow short-term optimizations of the project management.

Summary of work: After a set of modules is designed, the process itself is reflected in a structured manner. Status-consistent group of professors, academic staff and students involved are interviewed separately to generate independent reviews and recommendations for improvements.

Summary of results: The experts’ know-how is made transparent and distributed among all participants of the forthcoming module design groups. It produces important recommendations to improve future planning process. Feedback by students, preclinical and clinical representatives proved to be valuable in the development of a national curriculum for future medical education.

Conclusions: The Charité has implemented an instrument that effectively supports continuous improvement of the design process for the new modular curriculum.

Take-home messages: Experts discussions are a valuable instrument to improve continuously the design and implementation of new medical curricula.

2Y Posters: Leadership/Management

2Y1 Standardizing a supportive leadership behavior (SLB) questionnaire for Iranian medical education leaders: Factor analysis
Mandana Shirazi*, Seyed Jamal Mirmoosavi, Ahmad Sabouri Kashani (Tehran University of Medical Sciences (TUMS), Educational Development Center, Director of Development Unit, Iran)

Background: An important aspect of leadership often neglected by managers is the supportive leadership.

Summary of work: This cross sectional-correlation study based on a secondary analysis of the data collected from 685 nurses at 25 of TUMS hospitals evaluated the psychometric properties of an Iranian version of SLB. A 40-item questionnaire, mainly extracted and translated from Ohio State, Developmental Leadership, and Hersey and Blanchard’s Situational Theory Questionnaires, with some new questions based on experts’ views were developed. This was retranslated into English and sent to Gerry Larsson, an authority in the field, to get his approval. Content validity was achieved by experts consensus and reliability by a test-retest with a 10 day interval.

Summary of results: Kaiser-Meyer-Olkin measure showed 95% of variance was caused by the underlying 5 factors with eigenvalues of 15.31, 3.99, 2.69, 1.48, and 1.38. Although they accounted for 62% of the variability in the original variable, cumulative variability explained by them was about 56%. Consistent with the theoretical conceptualization of the instrument, the 5-factor solution was accepted: building up teamwork, leading coaching, demonstrating respect, recognition, and dictator leadership. The internal consistency of all the factors was 0.90. Discriminate validity was also established. Farsi SLB questionnaire was valid and reliable enough to be confidently used in the Iranian context.

Conclusions: Regardless of the strength of a tool, it should be standardized for every new context.

Take-home messages: Supportive leadership behaviour questionnaire is valid tool in Iranian context.

2Y2 Incorporating leadership education early in postgraduate medical training: a local experience
S Fossey*, J Nawrocki (Brighton Sussex University Hospitals Trust, Brighton, United Kingdom)

Background: Emphasis on the importance of clinical leadership within recent NHS health care reviews has led to the development of a national curriculum for clinical leadership training. To further develop clinical leadership training at an earlier stage, our trust have pioneered a clinical leadership course for foundation trainees.
**Summary of work:** Using questionnaires and semi-structured interviews the authors evaluate the development of leadership abilities and trainee experience. It is hoped that our local initiative will aid in the wider development of leadership education of more junior clinical trainees.

**Summary of results:** Data collection is ongoing at time of abstract submission. Interviews thus far have revealed common themes with regards to candidate aims and perceived barriers to leadership education. Questionnaires completed by trainees at the beginning of the clinical year demonstrate that the majority of candidates rate their leadership abilities as 'needs improvement'.

**Conclusions:** Initial candidate interviews provide valuable information which can be utilised to aid course development. In order to assess leadership development, participants will be asked to complete another self-rating questionnaire at the end of the clinical year.

**Take-home messages:** Our local experience of a dedicated leadership course for foundation trainees demonstrates the value of such a programme at this stage and assists others in the development of leadership education for junior trainees.

**2Y3 Developing Leadership through Simulation and Practice**

_F Cunnington*, J Hibbert, J Moreiras (Great Ormond Street Hospital for Children, Postgraduate Medical Education Department, London, UK)

**Background:** Leadership, Followership and Management (LFM) are important skills that consultants are expected to have. Historically senior trainees have attended a stand-alone course in their final year which has been viewed as a tick-box exercise, with little practical application. We therefore aligned this programme to the “Medical Leadership Competency Framework” and Kolb’s work on experiential learning.

**Summary of work:** A multi-disciplinary programme on LFM with experience through simulation and practice was designed with the opportunity to put these skills into practice through coaching on individual projects. This learning would be underpinned by action learning sets that would run alongside this work.

**Summary of results:** Through combined use of interactive teaching, simulation and work-place learning we expect the participants will have personally developed their own LFM, abilities by active participation in this blended learning experience. The first cohort is expected to finish in July 2011.

**Conclusions:** Participants will have learned about LFM and be actively involved early in their training to help structure their profession.

**Take-home messages:** A stand-alone programme isn’t sufficient; candidates need to be given the opportunity to take the knowledge learnt on the day(s) and put it into practice under supervision.

**2Y4 Leadership and teamwork training for medical students**

_S Tanawattanacharoen, P Boonmak* (Chulalongkorn University, Faculty of Medicine, Office of Student Affairs, Bangkok, Thailand)

**Background:** Leadership and teamwork are the essential skills for medical profession. Our Faculty provided the second-year students with a 2-day leadership and teamwork programme. This study aimed to determine attitudinal changes regarding leadership and teamwork after the training and their association with students’ gender.

**Summary of work:** A study was conducted in the Faculty of Medicine, Chulalongkorn University. All second-year medical who participated in the short leadership and teamwork programme were recruited. The questionnaire was completed pre-training, immediately and 3 months after the training.

**Summary of results:** Of 87 students who completed questionnaire, there were 54% male and 46% female. Leadership score rose significantly (37.06±3.46 VS 38.78±3.43) immediately after the training (p = 0.001). However, the 3-month after training score slightly rose to 37.09±3.51 (p = 0.950). On the contrary, teamwork score insignificantly changed from 31.69±3.51 to 32.43±3.12 (p = 0.140) and 31.82±3.31 (p = 0.814) immediately and 3-month after the programme, respectively. There was no association between gender and the students’ attitudes.

**Conclusions:** Students’ attitudes towards leadership improved immediately after the programme but faded down after three months. Attitudes towards teamwork, on the other hand, showed no significant improvement. Since this study focused on only attitudinal aspect, the future research aimed to explore behavioural changes is suggested.

**2Y5 Leadership training intervention in Finland**

_M Viikki, H Huhtala, E Leinonen, K Hakkarainen (Presenter: T Koskela) (University of Tampere Medical School, Tampere, Finland)

**Background:** There is growing demand to include leadership education throughout medical curricula.

**Summary of work:** The aim was to study: Which leadership skills undergraduate medical students regard as most important for a physician; In which situations they think the leadership skills are most needed; How leadership training should be organised for undergraduate medical students. Final year medical students filled a questionnaire before and after...
attending clinical training in Psychiatry. Leadership aspect consists of observation of multiprofessional teams led by senior doctors. In the intervention group (N=25) the medical students were 1) offered an opportunity to talk with senior doctors about leadership in medical, multiprofessional teams and 2) asked to actively observe team work and leadership and to fill a short questionnaire on it. In control group (N=27) the training was conducted as usual.

Summary of results: Fairness, interaction skills and organising skills were regarded as most important leadership skills of 14 evaluated items. Exceptional circumstances, such as epidemics or catastrophes, and multi professional team work were ranked as situations in which leadership skills were most likely needed. There were no significant differences between groups.

Conclusions: Fairness, interaction skills and organising skills were regarded as most important leadership skills for physician in both groups.

Take-home messages: Undergraduate students experience leadership as a role every doctor has to take in daily. Leadership in medical teams is partly learned via master-apprentice method.

2Y6 Today’s Doctors, Tomorrow’s Leaders: A pilot clinical leadership scheme for the foundation years

M Mak*, R Abraham*, A Kalraiya1, O Li1, S Shahaney1, H Turner1 (1London Deanery, London, UK; 2Imperial College Healthcare NHS Trust, London, UK)

Background: Recently, the role of leadership within medicine has become increasingly evident. Schemes have been developed throughout the English NHS to engage doctors in leadership but these opportunities are primarily aimed at doctors towards the end of training. Imperial College Healthcare NHS Trust organised a pilot scheme to enable Foundation Doctors to develop their clinical leadership skills.

Summary of work: Today’s Doctors: Tomorrow’s Leaders is a programme that consists of 6 modules including team working and personal awareness, leading an initiative and tools for change. All modules focus around a change management project. 21 Foundation Year One doctors were selected to take part in the pilot year. The doctors were supported through their projects with formal training and regular ‘design surgeries’. Through this, they developed a range of skills including project management, peer learning and negotiation.

Summary of results: Early feedback suggests a successful course which juniors felt developed their leadership and management skills to effect change in their hospital environments, in projects relating to patient safety and quality improvement.

Conclusions: Clinical leadership can be delivered effectively in the postgraduate curriculum at an early stage to equip doctors with the tools to improve healthcare.

Take-home messages: Early opportunities to develop leadership skills enable junior doctors to become agents for change.

2Y7 Specialists’ perceptions of the Dutch residents’ competency as manager in the postgraduate medical curriculum

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Background: The Dutch postgraduate medical training has been revised to focus on seven competencies. The role as manager is one of these competencies and appears to receive little attention during the residency programs. In an earlier study we conducted, we investigated residents’ own perceptions of their competency as managers. In this study, we were interested in how medical specialists perceived the managerial competencies of medical residents.

Summary of work: A 44-item questionnaire was designed which examined medical specialists’ perceptions of the competency and needs of residents in the field of medical management. 298 specialists were invited via email to participate.

Summary of results: 129 specialists (43.3%) responded to our survey. They rated the residents’ competencies in contract negotiating skills, knowledge of the healthcare system and specialist department poorly. They felt that residents were confident in their ability to find medical information and use information technology. Ninety percent reported a need for training in management among residents. Preferred topics were time management and healthcare-organization. The preferred training method was a workshop (79%), given during residency (94%), by an extramural expert (92%) or specialist (79%).

Conclusions: Dutch medical specialists perceive the medical management competencies of residents in some areas to be inadequate.

Take-home messages: The specialists feel that training in medical management during residency is necessary.

2Y8 Professional competencies of Iranian medical university administrators

R Sarchami*, N Ghorchian, S Asefzadeh, M Rahgozar (Qazvin University of Medical Sciences, Islamic Azad University, Science and Research Branch, Iran)

Background: Competencies of educational administrators have been the concern of educational leaders in pioneer universities. Competencies consist of
knowledge, skills, capabilities and motivation toward fulfilling the administrative tasks.

**Summary of work:** This descriptive study was conducted to find out the opinions of faculties about the present status of administrative competencies of academic leaders in Iran’s universities of medical sciences in 2009. A questionnaire consisting of 110 competencies under 20 categories with 5 option Likert scale was used. Questionnaires were distributed and gathered by EDCs of medical universities using targeted sampling. 336 completed questionnaires were analyzed and reported.

**Summary of results:** Results of principle component analysis showed that the highest priority of professional competencies is related to leadership skills. The other competencies are human resource management, knowledge and information management, management of physical resources, educational planning, educational administration in clinical settings, quality management, personal competencies, innovation and entrepreneurship, change and crisis management, social and public relations, educational administration in health fields, budgeting and fiscal management, management of international relations, students services, management of cultural affairs, knowledge about laws and regulations, medical ethics, management of virtual education, and management of political affairs respectively.

**Conclusions:** Academic administrators have a crucial role for a transformation of education and teaching, and improvement of quality activities in the university. Training and reeducation of these administrators should consider the present status and the distance with organizational needs.

**Take-home messages:** Universities are unique among other organizations. Perfect administrative style is necessary and people should be trained to perform it.

**2Y9 Specialists’ perceptions of their competency as manager. Are the teachers of our residents competent enough?**

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**Background:** The postgraduate medical training in the Netherlands has been revised and focuses on seven professional competencies. However, the role as manager presently receives little attention during residency training. Since medical specialists play a significant role in the education of residents, we were interested in the perceived competency of their own roles as manager and their need for additional management education.

**Summary of work:** A 34-item questionnaire was designed to investigate specialists’ perception of their healthcare management competencies and their need for management training in this field.

**Summary of results:** 127 of 298 specialists (42.6%) that we approached participated in the survey. Their perceived competency as managers was good. 86% reported a need for management training. The preferred competency as managers was good. 86% reported a need for management training. The preferred training method was a workshop (79.3%), given by extramural experts (89.3%) during residency (94.2%). More than half of the specialists rated the balance of their personal life with work as neutral or lower. The specialists felt most competent in finding resources to update their knowledge

**Conclusions:** In general, medical specialists feel competent about their knowledge and skills of medical management.

**Take-home messages:** The specialists perceive a need for (additional) training in medical management.

**2Y10 Evaluation of the Danish postgraduate medical specialist education with focus on work organisation**

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**Background:** In 2000, the Danish Specialist Commission Report (DSCR) resulted in a new educational and administrative structure in the Danish postgraduate medical education (PGME), which started in 2004. The report recommended several initiatives and focus-areas on PGME - one was the specialist training in the clinical unit. In 2011, the Danish National Board of Health has initiated an evaluation of the outcome and completion of the recommendations.

**Summary of work:** Work organisation is an important part of the specialist training in the clinical unit; therefore, we focus on the evaluation of how the work organisation influences the PGME through reviews of:

- The 3-hour meetings, 2002-2009, Aalborg Hospital
- The Danish Inspector Scheme Reports from 2006-2010
- The Danish National Evaluation Board of Health has initiated an evaluation of the outcome and completion of the recommendations.

**Summary of results:** The evaluation results in a status of how the work organisation influences the Danish PGME in view of the recommendations from the DSCR (2000).
Further research is planned to explore the aspects of work organisation in PGME.

**2Y11**  
**Improving the quality of supervision in a large Trust**  
*A Williamson, J Davison*, J Hanley, S Quinn (Newcastle Upon Tyne Hospitals NHS Foundation Trust, Education & Training Department, Newcastle Upon Tyne, NE7 7DN, UK)

**Background:** Educational Supervision (ES) of Junior Doctors is a pivotal component of training. Definition of the role of supervisor and time required for effective supervision is unclear.

**Summary of work:** A project was undertaken to review the existing process. A questionnaire assessed supervisor allocation, duration, content of meeting, and satisfaction with the process. Trainee focus groups and supervisor interviews were undertaken. Trainers wanted accessible training and a programme was developed and delivered in departmental meetings with excellent feedback.

**Summary of results:**  
- Supervisor response was 73%  
- 100% of trainees had an allocated ES  
- Meetings averaged 30 minutes  
- 70% of trainees with satisfied with the process  
- 56% of trainers with satisfied with the process  
- Average ES time per trainee per month was 0.125pa.

**Conclusions:** Trainers wanted clearer guidance on the process. Dissatisfaction was highest in the supervisors who had not been trained but they also felt they didn’t need training. Trainees expressed high satisfaction with the process and emphasised the importance of mentoring by supervisors.

**Take-home messages:** 1. Further investigation into time for workplace assessments is required 2. Educational Supervision training sessions adapted to local needs and delivered within departmental meetings increases engagement 3. An short ES handbook was produced to clarify process and has been widely used by supervisors.

**2Y12**  
**Change is possible: reform of medical education in Kazakhstan**  
*N K Khamzina*, M K Teleuov, R S Dosmangambetova, V P Riklefs, A Z Muratova (*Ministry of Health of Republic of Kazakhstan, Department of Science and Human Resources, Astana, Kazakhstan; Karaganda State Medical University, Karaganda, Kazakhstan*)

**Background:** Being the republic of the former Soviet Union, Kazakhstan inherited the teacher-centered system of medical education aimed to educate very large numbers of students in one medical school using governmental obligatory standards. In 2006-2010, the Ministry of Health launched the reform of medical education.

**Summary of work:** Under Ministry of Health support, Karaganda State Medical University (KSMU) opened Clinical Skills Center, introduced competence-based approach, integrated systems-based learning, structured teaching of communication skills, PBL, CBL, TBL, OSCE and mini-CEX. About 500 staff members got trained in essential skills in medical education, both in Kazakhstan and abroad. Since 2008, KSMU participates in major international events in medical education, such as AMEE conferences.

**Summary of results:** We created the learning environment of professional competence and versatile individual development. In 2010, KSMU received national accreditation based on WFME derived standards.

**Conclusions:** We still cannot say that we succeeded, given that the first graduation of newly trained specialists will be only in 2014. Nonetheless, we are now more confident and ready to continue develop the system of medical education.

**Take-home messages:** Huge changes in the system of medical education are possible over the short period of time, provided you have the support of governing authorities and motivation to change.

**2Y13**  
**Current trends in medical undergraduate planning at national level**  
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*Faculty of Health Sciences, University of Beira Interior, Covilha, Portugal; Centro Hospitalar Tondela-Viseu, E.P.E., Viseu, Portugal; Centro Hospitalar Cova da Beira, E.P.E., Covilha, Portugal)

**Background:** In Portugal, the number of students that enters medical courses is decided by the government and it has been the reason for a lot of public debate and political exploitation, recently.

**Summary of work:** Published data about medical resources has been consulted in order to compare the present numbers of Portuguese medical practitioners and medical students with OCDE’s data.

**Summary of results:** Official records show that the number of physician in Portugal has risen from 3.2 per 1000 inhabitants, in 2000, to 3.8, in 2009. The number of students entering medical schools has risen from 756 to 1422. Medical students claim that schools are not prepared to maintain the quality of teaching with this increasing governmental demand.

**Conclusions:** Considering the previous, Portugal’s doctor-patient ratio is above OECD’s (about 3.0 per 1000 inhabitants). Although this ratio doesn’t consider the distribution by medical specialty careers one might consider adequate taking into account the historical moment the country is facing.

**Take-home messages:** Health care planning must include a thorough assessment of national needs in terms of undergraduate medical schools student
capacity, distribution by specialties, and the promotion of an open debate with faculty’s entrance policies to ensure high quality in medical education.

**2Y14** Increasing civic responsibility in Pakistani students through Service-Learning

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**Background:** There is a need to educate Pakistani youth about their civic role in society. Service learning (SL) integrates community service with academic learning. It develops civic responsibility and strengthens communities. It helps to improve communication skills of students by providing hands on experience. We used SL to educate women of reproductive age (WRA) about iron deficiency anemia (IDA).

**Summary of work:** Thirteen students of a girls’ college volunteered. They had interactive communication skills sessions with a facilitator and also learned about IDA. A pre and post test of their perceptions of their communication skills and civic role was done. The students developed educational interventions to educate community women about IDA. Sixty five community women were tested for their understanding of the causes, signs, symptoms and prevention of IDA before and after the educational intervention. A focus group discussion was also conducted for the students.

**Summary of results:** The students showed statistically significant improvement on measures of connection to community (p-value 0.013). Civic awareness and attitude (p-value <0.001) and civic action and efficacy (p-value <0.001) also showed improvement. Similar improvement was seen in their perceptions of their communications skills. There was an increase in the knowledge of community women about IDA, especially its prevention.

**Conclusions:** Service Learning increases students’ sense of civic responsibility, improves their communications skills. It also improves WRA’s knowledge about IDA.

**Take-home messages:** Service-Learning helps create awareness amongst students about their civic role in society and enables them to effectively interact with different segments of society.

**2Y15** Collaboration at Management Levels Between University and Healthcare to Improve Clinical Education

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**Background:** Centre for Clinical Education (CCE) has the overall responsibility for the quality and coordination of clinical education at the university level in the Stockholm County. This responsibility is shared between Karolinska Institutet (KI)/university colleges and Stockholm County Council (SCC) along with private health care providers.

**Summary of work:** CCE initiated seminar activities to clarify how managers could work together to develop clinical education. All operational managers at SCC, heads of departments, heads of units, programme managers at KI and the vice-chancellors of university colleges were invited to two half days of interactive seminars and a web based survey. The first seminar included discussions regarding student perspectives and formal aspects of clinical placements partly illustrated by a case. The second seminar, that occurred one month later, focused on areas in need of development. In between, the participants filled in a survey to identify needs regarding management of clinical education.

**Summary of results:** Identified areas in need of development were; visibility of education in the healthcare system; description of the student process; clarification of the cooperation between healthcare and academia; plus the need for quality criteria. Currently, the work proceeds with creation of specific action plans within identified areas to improve the conditions for collaborative leadership of clinical education.

**Take-home messages:** Joint collaborative seminars with leaders in academia and healthcare was feasible and have resulted in joint action plans for improvement of quality in clinical education.

**2Y16** Experience of Educational Department in Multidisciplinary Scientific Medical Centre in Russia.

E Parmon*, M Ovetchkina, A Konrady, E Shlyakhto (Almazov Federal Heart, Blood and Endocrinology Centre, Education Department, Saint-Petersburg, Russia)

**Background:** The Center of Almazov is one of the leading centers of highly qualified medical support, scientific basic and applied research, training for scientific manpower, raising the level of the doctor’s skill. The outpatient hospital of the Centre is annually visited by 73,000 patients and 7,500 patients are treated at the inpatient hospital annually. There are more than 3,500 employers in the Centre, nearly 500 of them are part-time medical teachers.

**Summary of work:** The Centre has highly competent teaching staff, the Library, conference halls and well-equipped classrooms, latest diagnostic equipment to
be used in training programs, international internship opportunities, young scientists’ contests, various international conferences and events, etc.

**Summary of results:** The Education Department offers a wide range of clinical residency programs, postgraduate medical studies, Doctorate degree medical programs, refresher courses, and advanced medical training programs in the different fields (e.g. Cardiology; Cardiovascular Surgery; Anesthesiology and Resuscitation Science; Hematology; Endocrinology, etc.).

**Conclusions:** Certainly, there are medical education problems in Russia. 2011 will witness the launch of continuous medical education and eLearning in the Almazov Centre. It can also be viewed as our attempt to narrow the gap between the national educational standards that exist in the Russia nowadays and the European ones.

**2Y17 Towards excellence in medical education: experience of institutional accreditation**

R S Dosmagambetova*, V P Riklefs, A S Kalina, S S Kaliyeva, I M Riklefs (Karaganda State Medical University, Karaganda, Kazakhstan)

**Background:** Following the global move towards excellence in medical education and mutual recognition of educational programs, Kazakhstan introduced a national system of medical education accreditation based on adapted version of WFME Global Standards.

**Summary of work:** In the process of institutional accreditation, Karaganda State Medical University (KSMU) underwent self-evaluation, which allowed not only understanding better our strengths, weaknesses, opportunities and threats, and finding the directions for future development, but consolidating the efforts of all the staff members and students towards excellence.

**Summary of results:** In 2010, KSMU received the national institutional accreditation. During the site visit, the national experts and WFME representative appreciated the active involvement of students in management of medical education. At the same time they also gave suggestions as to how to make the management better.

**Conclusions:** As a result of accreditation, KSMU developed the action plan which would make the educational process more efficient. Without procedures of self-evaluation and external site-visit the development of such a plan would not be possible.

**Take-home messages:** Based on our experience, the institutional accreditation is not only a powerful tool for assessing the quality of education, but allows to advance and broaden horizons of medical education.

**2Y18 The impact of the assessment criteria revision in the Continuous Training Activities accredited in Andalusia**

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**Background:** The Andalusian Agency for Healthcare Quality (ACSA) offers Continuous Training Activities Accreditation, Continuous Training Programmes Accreditation and Continuous Training Centres Accreditation as impetus elements in training quality. In January 2010, quality criteria for the Continuous Training Activities Accreditation were revised, increasing their level of requirement, mainly in methodology and planning and logistics.

**Summary of work:** Aim: To analyse the evolution of the continuous training activities accreditation after revising the quality criteria. Type of design: quantitative analysis; Variables: Quality Component (CCL: 1-2,8), Activities accredited by de Andalusian Accreditation Model. Timeframe: 1st of January of 2009 – 31st December 2010.

**Summary of results:** From 1st of January 2009 to 31st December 2009, 2015 activities has been accredited with an average Quality Component of 1,76. From 1st January 2010 to 31st December 2010, 2758 activities have been accredited with an average Quality Component of 1,75.

**Conclusions:** In a short period of time, the continuous training suppliers have incorporated new quality criteria in the training activities design.

**Take-home messages:** The Continuous Training Activities Accreditation contributes to the quality progressive improvement of the training received by health professionals.

**2Y19 Tripartite interactive symposia with audience response system to foster motivated future health care professionals; experience in Fukushima, Japan**

K Ishikawa*, Y Moroi, G Kobayashi, A Sugawara, T Kumagai, K Otani, H Ohira, T Suzutani, T Fukushima (Center for Medical Education and Career Development, Fukushima Medical University, Fukushima, Japan)

**Background:** World's fastest aging and specialization of medical professionals have brought serious physician shortage in Japan. To promote better understanding of future ideal health care system, we designed interactive symposia among patients/residents, health care professionals and government officers of health service with audience response system (ARS).

**Summary of work:** One-hundred fifty seven participants including 41 high school students who would-be doctors responded 12 questions using ARS
system (clicker). Anonymous answers were instantly analyzed, displayed and followed by discussion during the symposia.

Summary of results: Current image of Japanese physicians were ‘busy’, ‘smart’ and ‘respected’. Favorable disposition as physicians were ‘judgment’, ‘integrity’ and ‘great communication skill’. Health care professionals took physician shortage more seriously compared to patients/residents. General/family physicians were considered 3-times more necessary compared to specialist physician. Most participants had significant sense of trust to physicians. ‘Enlightenment campaign for residents’ was the major opinion to reduce irrelevant visit to ER and call for ambulance. Many participants answered understanding between patients/residents and government officers were lacking.

Conclusions: Instant sharing opinions using ARS system strongly stimulated the discussion to foster motivated future health care professionals.

Take-home messages: Better understanding of ideal health care may provide ‘secure feeling’ to patients/residents, ‘feeling of accomplishment’ to health care professionals and ‘reliance’ to government officers in an increasingly transient world.

2Y20 Telemedicine improvement procedures in Guilan Medical University of Medical Science (GUMS) 2009
Mahdokht Taheri*, Abtin Heidarizadeh, Hamid Heidari (Guilan University of Medical Sciences, Educational Vice-Chancellor, Siyadati Ave, Namjoo St. Rasht, Iran)

Background: Telemedicine is a skill that benefits from multimedia tools using modern technologies related to medicine which provide medical services independence of time and space. Development and implementation of telemedicine needs the creation of new technological, cultural, legal, political and social infrastructures.

Summary of work: Questionnaires were completed by 400 randomly selected patients referred to Guilan health centers and 200 physicians and 50 administrators in GUMS in the available form in two consecutive months.

Summary of results: After reviewing the data and using statistical Chi square test, it was determined that significant difference between attitudes and awareness of the situation in the three groups studied can be seen (P < 0/0001). Significant differences in attitude and knowledge levels are due to the differences among patients with two other groups. Groups of physicians and managers in most cases have similarities in attitudes and knowledge levels of telemedicine development.

Conclusions: With assessment of the results of frequency distribution of attitude, despite difference, in the relevant groups, in organizational factors, having Curriculum in the development of telemedicine, in technological factors, having high speed Internet, in the field of stakeholder factors, capability for private sectors to telemedicine implementation, in the field of information literacy, electronic doctor-patient interaction and in the field of environmental factors, public consciousness, has been emphasized overall. It was found that knowledge level in the physicians and managers groups was appropriate.

2Y21 The medical school and the risk of ethics violation: A Brazilian study
M Nunes*, A Gomes (School of Medicine - University of Sao Paulo, Brazil; 2School of Medicine - Faculdade de Medicina do ABC, Brazil)

Background: In Brazil the growing number of medical schools are followed by questions concerning their quality.

Summary of work: If medical students’ training corresponds to a risk of being reported to the Medical Ethical Committee.

Summary of results: From 1808 to 1970 the proportion of complaints (public or private schools) was 2,3% and 4,5%. From 1971 to 2000 the proportion was 1,7% and 8,9% and after 2001 1,7% and 5,6%, p < 0,001.

Conclusions: The complaints are higher in the subgroup of private medical schools opened after 1971.

Take-home messages: Adequate physical facilities for medical training and continuous student supervision by medical teachers is essential to avoid the risk of violation of ethics.

2Z Posters: Feedback

2Z1 Clinical Skills preparation course for sixth year students increases selfperception and provides feedback via OSCE examination. How we support students before starting with their practical year.
M Simon*, SK Beckers, S Sopka (1Medical Faculty of RWTH Aachen University, Dean’s Office for Study Affairs, Aachen, Germany; 2Department of Anaesthesiology, University Hospital of RWTH Aachen University, Aachen, Germany)

Background: German Medical-School-requirements state, that the sixth year of studies, final year, consists of three clerkships. The Interdisciplinary Centre for Medical Education (AIXTRA) arranges preparation courses for these students. Students are taught in high quality procedural training to prepare them for their sixth year clinical training.

Summary of work: Students were surveyed a standardized pre-post questionnaire (EvaSys) before
and after the preparation course. They had to state values and to answer questions concerning self-perception of their abilities in practical skills. Moreover they do formative OSCE examination with 7 stations. Results were analyzed to determine relationships between mean scores in the OSCE and student self-perception post course.

**Summary of results:** Self-perception of the students increases after the course. (ALS 5.24±1.8, central vein catheter 2.3±2.0, devices 4.7±2.8, EKG 5.3±2.1, psychopathologic patient communication 2.2±2.1, aseptic work 7.36±2.9). The self perception does not correlate with the results of the OSCE examination. Students evaluate the course with a mean score of 1.71 (1=very good, 6=not sufficient).

**Conclusions:** The preparation course is helpful for students start into clinical rotations of their last year. It increases self-perception and also self-confidence.

**Take-home messages:** The formative OSCE works as feedback-tool. This is important, because self-perception is not equal to the scores of the OSCE stations.

### 222 Feedback - Determining student perceptions and identifying best practice

**L Willerton**, C Ditchfield (School of Medicine, Wolfson Building, University of Glasgow, G12 8QQ, UK)

**Background:** Throughout the UK, assessment and feedback continue to be the areas with the lowest student satisfaction levels. Research has shown that the quality of feedback received is much more important for improving student performance than the quantity, and poor quality feedback can actually be detrimental to student achievement.

**Summary of work:** The overall aim was to determine how students perceive the feedback they receive, and identify best practice for students and staff. A survey was conducted with 2nd year medical students (n=182). Free text comments were collated and categorised. A focus group was conducted using the nominal group technique to discuss issues highlighted in the questionnaire.

**Summary of results:** Students perceived the quantity of feedback to be much less than they actually received. They recognised that feedback was delivered in different forms but most felt that quantity did not always represent quality. The main issue highlighted was variation depending on marker. Students recommended the provision of a model answer for written work.

**Conclusions:** Students’ perceptions of what makes good feedback differs from those of staff, and the greatest challenge to overcome appears to be inconsistency between markers.

**Take-home messages:** The most effective way of improving student satisfaction is to improve the quality, timing and consistency of feedback through greater communication with markers.

### 223 A customisable Excel Workbook for providing MCQ performance feedback

**J Issberner**, A Wood, S Whiten, J Aiton (School of Medicine, University of St Andrews, St Andrews, Fife KY16 9TF, UK)

**Background:** Feedback to students about their written and MCQ exam performance is of great benefit in identifying gaps in knowledge. Whilst feedback of short written answers can be provided relatively easily, there is a paucity of tools providing feedback to students about MCQ performance whilst preserving the integrity of the question bank.

**Summary of work:** We have developed a simple Excel based exam feedback system, which provides feedback to students on MCQ performance. Questions are grouped into subject headings and an individual’s performance provided for each heading. Anonymised results were pasted in to the workbook. These were then processed into percentages representing student performance.

**Summary of results:** Students received their cohort rank for each heading; their percentage of maximum for each heading; and the percentage of their total attributable to each of the subject headings.

**Conclusions:** Provision of MCQ feedback is a difficult and potentially time-consuming task. Using this Workbook reduces time giving meaningful feedback and, we believe, has facilitated student learning.

**Take-home messages:** Meaningful feedback on large MCQ exams for students is now fast, easy and customisable using software that is widely available. This workbook aids both students and staff in provision of MCQ feedback.

### 224 The usefulness of feedback from simulated patient for medical students and their behavioural change: a qualitative analysis

**M Aomatsu**, K Abe, H Yasui, K Uemura (1Nagoya University, Dept of Education for Community-Oriented Medicine, Nagoya, Japan; 2Nagoya University, Center for Medical Education, Nagoya, Japan, M Aomatsu 65, Tsurumai-cho, Showa-ku, Nagoya, 466-8550, Japan)

**Background:** Communication skills training with simulated patient (SP) is recognized as an efficient method for medical students to train their skills safely. However, previous studies reveal that medical students value feedback more from a clinical educator than others, and the credibility of feedback relates to
perceived usefulness. We wish to know if medical students recognize the usefulness of SP feedback and how it can contribute to the improvement of medical communication skills.

Summary of work: We invited six fifth year medical students to participate a focus group. A researcher moderated the focus group, and it was audio- and video-recorded. The transcript was analyzed qualitatively by Steps for Coding and Theorization, and the students' recognition about the SP feedback and its effect on their behavioural changes was examined.

Summary of results: Medical students recognized that SP feedback was important to evaluate their competencies from a patient's perspective, and requested individualized feedback regarding their self-efficacy. Although, the feedback contributed to improving the students' self-recognition in communication skills, it appeared not to contribute to behavioural changes in clinical practice.

Conclusions: Medical students valued SP feedback but it may not contribute to their behavioural changes.

Take-home messages: We should examine learners' readiness for accepting feedback and self-efficacy about communication skills before giving feedback.

Background: The concept of effective feedback has mainly been developed in Western societies with cultural differences from their Asian counterparts. Based on Hofstede's model of cultural dimensions, Indonesia and The Netherlands differ in power distance and individualism.

Summary of work: We replicated a Dutch study in Indonesia. During two weeks, students (n=213) recorded for every feedback moment: the feedback provider; whether it was based on observation; who took the initiative; and the perceived instructiveness of feedback. Data were analyzed with independent sample t-tests and chi-square tests.

Summary of results: The respondents reported 1654 individual feedback moments, an average of 3.9 feedback moments per student per week, comparable to the 4.4 in the Netherlands (t = 1.274, p = 0.203). Indonesian students received less feedback from specialists (χ² = 415.8, p < 0.001), were less frequently observed by specialists (χ² = 544.9, p < 0.001) and was more often initiated by the supervisor (χ² = 429.2, p < 0.001). The overall mean of ‘perceived instructiveness’ was 2.93, similar to the Dutch students (2.92).

Conclusions: The significant differences between the way Dutch and Indonesian students received feedback can be explained by cultural differences in Power Distance and Individualism.

Take-home messages: Cultural differences should be considered when developing a theoretical framework on the evaluation of feedback.

Cultural Differences in the Instructiveness of Feedback: Comparing Indonesia and The Netherlands

Y Suhoyo*, EA Van Hell, JBM Kuks, GR Rahayu, J Cohen-Schotanus* (Gadjah Mada University, Faculty of Medicine, Department of Medical Education, Yogyakarta, Indonesia, University of Groningen and University Medical Center Groningen, Center for Research and Innovation in Medical Education, Groningen, The Netherlands)

Background: The concept of effective feedback has mainly been developed in Western societies with cultural differences from their Asian counterparts. Based on Hofstede’s model of cultural dimensions, Indonesia and The Netherlands differ in power distance and individualism.

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Conclusions: The significant differences between the way Dutch and Indonesian students received feedback can be explained by cultural differences in Power Distance and Individualism.

Take-home messages: Cultural differences should be considered when developing a theoretical framework on the evaluation of feedback.

A quantitative and qualitative analysis of the impact of formative e-assessment on learning

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Background: The positive impact of feedback on learning is undisputed and automated immediate feedback can be a key benefit of e-assessment. The question remains whether online objective testing can provide feedback of sufficient quality to enhance learning.

Summary of work: A feedback-rich formative e-assessment was delivered online to undergraduate students in our purpose-built thin client technology e-assessment suite and was subsequently made available via our Virtual Learning Environment in the period leading up to the summative assessment. The impact of the feedback on progress was analysed together with access patterns, perceptions and attitudes.

Summary of results: Students valued the feedback-rich formative e-assessment and their engagement correlated with their level of progress in the summative. The number of attempts at the formative was independent of initial performance and student access increased in the run-up to the summative. Students who viewed the formative assessment and feedback as part of their learning made the most progress.

Conclusions: Detailed online feedback was highly valued and could successfully replace tutor-based feedback. We have embedded this type of e-assessment across a range of our modules and are developing further improvements which may enable the provision of automated feedback for summative assessments.

Take-home messages: Feedback-rich formative e-assessments delivered online can successfully replace traditional tutor-based feedback for learning.

Critical discourse analysis of peer tutor’s attitudes to delivering feedback

L A Magee*, N Ramzan, E J Maile, J A Giles, E J R Hill (University of Manchester, School of Medicine, Manchester, UK)
Background: Peer-Assisted Learning (PAL) is facilitated by medical students, delivering small group teaching on clinical examination to peers, outside the normal medical curriculum. Feedback is an essential component of teaching and an important tool for students to improve their skills. This study focuses on PAL tutors’ perceptions of delivering feedback.

Summary of work: Verbal interviews were undertaken with a cohort of PAL tutors (n=12) to assess their attitudes towards delivering feedback. Critical discourse analysis was undertaken on interview transcripts.

Summary of results: PAL tutors: • Carry out their role without subscribing to the traditional medical hierarchy, establishing a congruent relationship with students; • Aim to deliver feedback with consideration to students’ feelings; • Use their own experiences to shape delivery of feedback; • Recognise the importance of critical feedback.

Conclusions: PAL tutors occupy a similar niche in the medical hierarchy to peer-students. Therefore, they may be more acutely aware of what is required to deliver effective feedback. The intrinsic understanding PAL tutors have of students’ learning needs and relaxed nature of PAL sessions contribute to establishing an effective learning environment.

Take-home messages: PAL tutors’ method of feedback delivery is strongly influenced by their own experiences, and heightened consideration of the feelings of their peers due to a highly congruent relationship.

228 The Craft of Medicine: Learning from Clinical Feedback Encounters
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Background: The craft of medicine comprises an array of tacit knowledge assimilated through years of clinical practice. Presenting patients to colleagues succinctly and appropriately is a key element of this craft which students need to learn. We are analysing clinician-student interaction during clinical feedback sessions to examine the what’s and how’s of such learning.

Summary of work: Twenty-four sessions whereby pairs of students presented patients (examined that week) to a consultant were audio-recorded and transcribed. Thematic framework analysis is presently being undertaken by four researchers. Finer-grained linguistic analysis will form the basis for further in-depth analyses of this data.

Summary of results: Clinicians questioned students in long question/answer series as they facilitated students’ application of knowledge. They also imparted knowledge about their specialty and their craft through narrative forms. Students’ description of patients varied between clinical narratives with medical ‘jargon’ and more person-centred narratives using lay terminology.

Conclusions: When talking informally to tutors, students often use the patients’ language when describing their history. During formal feedback moments, they increasingly use highly professional language, scripted by their tutors.

Take-home messages: Extensive educational scaffolding where students are helped to make use of various ways of knowing (including patient and clinical narrative) forms a vital part of learning the craft of medicine.

229 Implementation of enhanced feedback mechanisms for Master of Nursing students about their performance in clinical assessments
S Miller*, S Carr, R Saunders, O Hill (The University of Western Australia, Education Centre - Faculty of Medicine, Dentistry and Health Sciences, Perth, Western Australia)

Background: Program evaluation of the courses in the Faculty of Medicine, Dentistry and Health Sciences at UWA has highlighted a deficit in the provision of feedback to students on performance in Objective Structured Clinical Examinations (OSCEs).

Summary of work: A pilot project was conducted with entry-to-practice nursing students. This involved reviewing current mechanisms used to provide feedback to students following OSCE’s and the implementation of a mechanism to provide enhanced feedback. Previously, students were only provided with feedback when they did not achieve a critical component of the skill being assessed. As part of project, each student was told whether they had passed or failed on the day of the exam and provided with a copy of the assessment sheet shortly after the exam. A questionnaire regarding feedback was then sent to students.

Summary of results: All students recognised that the provision of feedback aids their learning. The majority appreciated receiving the detailed breakdown of marks against the criteria of the skill and written comments about their clinical performance.

Conclusions: Providing the marking guide to students soon after their OSCE appears to be an effective method of providing feedback.

Take-home messages: Strategies for implementing feedback mechanisms in OSCE’s are an important facet of assessing clinical skills.
2Z10 Monitoring of clinical objectives and giving quality feedback: tools that benefit weaker students and put them on the right track

Muhammad Tariq*, John Boulet2, Syeda Kausar Ali3, Afaq Motiwala1, A Qazi (Université de Montréal, Faculté de Médecine, Montréal, Canada)

Background: Monitoring of clinical objectives and giving quality feedback: tools that benefit weaker students and put them on the right track.

Summary of work: With the help of an online system, students must document their experiences throughout their clerkships. Supervisors having access to this information, should provide students with meaningful feedback to remediate their deficiencies. A standard midclerkship feedback form was developed to provide for a more structured approach, and the student and supervisor must complete it together. At the end of the clerkship, students complete a survey regarding the quality of the feedback they received.

Summary of results: Students who do not document their experiences on a regular basis tend to have less success in their final evaluation whereas weak students who do document regularly and get quality feedback tend to fare better. Average and above average students who document as required do very well whether they get formal mid-clerkship feedback or not.

Conclusions: These standards help ensure that students get adequate exposure and feedback but weaker students benefit the most.

2Z11 Evaluating the impact of structured verbal feedback on residents' performance: Step I - Baseline data followed by feedback workshops leading to implementation of a system of feedback

M Jolivet*, A Qazi (Université de Montréal, Faculté de Médecine, Montréal, Canada)

Summary of work: The baseline (pre-intervention) performance of 49 residents was assessed by 360-degree evaluation using a multi-domain questionnaire. It has been noted that due to lack of a formal system of verbal feedback, residents at our program are unable to know their strengths and areas needing improvement in a timely manner. This problem was also noted in an external review conducted by international medical experts in 2008.

Summary of results: The baseline satisfaction survey revealed that 45% of the faculty had not provided formal verbal feedback to the residents in past 6 months. According to residents, 65% never received any formal feedback. Analysis of the 360-degree ratings indicated that there was a training level effect, indicating that experience was related to overall performance. Interestingly, there was a negative relationship between the resident self-ratings and the aggregate ratings provided by others.

Conclusions: We observed that verbal feedback given by the faculty to residents was significantly lacking. We also noted that residents tend to significantly underestimate their skills and performance.

Take-home messages: A system of structured verbal feedback is essential for timely identification of strengths and weaknesses of residents and is provides a platform for improvement in overall performance.

2Z12 Use of an Audience Response System to provide individualised feedback to undergraduate medical students

M Sawdon*, F Curtis* (Durham University, Queen’s Campus, School of Medicine and Health, Stockton-on-Tees, UK)

Background: Medical students perceive a lack of adequate feedback on their learning, as shown annually in the National Student Survey. We have previously shown that an audience response system (ARS) improves students’ satisfaction with the provision of feedback whilst also improving knowledge retention. However, feedback remains the area with the lowest satisfaction ratings. Previous studies highlighted that feedback is most effective when tailored to the individual.

Summary of work: Students were assigned an ARS keypad at the start of one academic year and were regularly assessed on their understanding during physiology lectures by answering questions using the ARS. We provided students with instant feedback, generalised feedback (class responses and feedback on each question) and personalised feedback (individual results were imported into Blackboard). Students were asked to complete an online evaluation form including Likert-scale and free-text questions.

Summary of results: Evaluation is underway and we will present the results of this study alongside staff perceptions of this method of feedback.

Conclusions: Providing students with individualised formative feedback may highlight areas where they have difficulties, enabling them to guide their self-directed study.

Take-home messages: Use of an ARS to provide individualised feedback has potential to improve...
student satisfaction of feedback but also has drawbacks.

**2Z13 Examining the validity and reliability of measurements of interns’ performance**

J Zhang*, D Wilkinson, M Parker (University of Queensland, School of Medicine, 288 Herston Road, Herston, Brisbane, Australia)

**Background:** State-based assessment forms were developed and must be completed to move from provisional to unconditional registration. The assessment form provides interns with feedback on their performance. However, the psychometric properties of the assessment instrument have never been formally examined.

**Summary of work:** A de-identified retrospective data analysis of assessment forms collected from a university teaching hospital setting was conducted. Participants were 152 medical graduates from the School of Medicine, University of Queensland, who were in their first internship year from 2005 to 2007. We carried out factor analysis and reliability test on the assessment items.

**Summary of results:** The Principal Axis Factor analysis produced only one factor from three domains of skills, which explained a total of 64 per cent of the variance. The internal consistency for the factor proved to be reliable, with an alpha co-efficient of 0.95.

**Conclusions:** The assessment was meant to measure different skills of interns, clinical competencies, communication skills, and personal and professional skills. However, factor analysis derived only factor from the eleven skills. It is tempting to infer from these results that what the assessment was really measuring were different skills of interns, clinical competencies, communication skills, and personal and professional skills. However, factor analysis derived only factor from three domains of skills, which explained a total of 64 per cent of the variance. The internal consistency for the factor proved to be reliable, with an alpha co-efficient of 0.95.

**Take-home messages:** Further study is needed to develop a validated and reliable assessment tool to measure interns’ competence appropriately.

**2Z14 Computer generated motion efficiency feedback is a useful educational method during self-regulated practice**

D Rojas*, S Cristancho, M-E LeBel, A Dubrowski (University of Toronto, Department of Pediatrics, HSC Learning Institute, Toronto, Canada; University of Western Ontario, Department of Surgery, London, Canada)

**Background:** Teaching of technical skills to undergraduate medical students in a laboratory setting is common. In this study we examined the effectiveness of video training supplemented with computer-based motion efficiency feedback in self-regulated learning of knot tying skills.

**Summary of work:** Thirty-six students were randomized into 3 groups. All participants had access to video instructions. Group A received computer-generated feedback about the economy of their movements. Group B received the same feedback, and was able to reference this feedback with video materials. Group C learned without extrinsic feedback. All participants performed 18 practice trials, and were immediately post-tested. Skill retention was retested after 2 weeks. Performance was assessed by expert analysis using an objective structured analysis of technical skills.

**Summary of results:** Both post-test and retention-test results demonstrated that the use of motion economy feedback leads to skills improvement and retention (p<.001), and combining this feedback with video references results in more learning and retention (p<.001).

**Conclusions:** Within the realm of self-regulated learning (i.e., without expert present) the computer generated motion economy feedback leads to superior skill improvement and retention when compared to practice without extrinsic feedback. Augmenting this feedback with video references results in better learning.

**Take-home messages:** Computer-based motion feedback effectively enhances self-regulated learning of basic technical skills.

**2Z15 Monitoring Student Performance Using Feedbacks Across Clerkships**

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**Background:** Alerting clerkship directors toward learners’ views of particular content of the curriculum in order to improve teaching skills is a challenging issue. Evaluating how well content of curriculum is been taught can be seen by knowing how much students have learned during clerkships. Providing a checklist system to be filled out by students just at the end of each clerkship can measure learned content.

**Summary of work:** Each student in a rotation team having atime schedule for a particular clerkship ends in a checklist of learned content. Gathering and evaluating contents for a total 42 groups of 3 students and 36 clerkship in one rotation gives us a list of departments with measurement of their teaching skills. Alerting educational staff to the statistical results and reviewing their teaching methods and effort leads to better results from up coming rotations.

**Summary of results:** By managing these realtime, valid, reliable and equitable statistics we surprisingly improved teaching skills to a satisfactory point of
clinical clerkship teaching methods compare to past years. Results were: 2008 3.2/5, 2009 3.8/5, 2010 4.2/5.

Conclusions: Continuous monitoring of clinical clerkships from student learning content would affect teaching skills of particular clerkships.

2AA Posters: Reflection/Portfolios

2AA1 Perceptions of first year medical students towards reflective practice: Comparison between two medical schools
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Background: Self-reflection promotes learner-centered learning. Most researchers agree on a three stage model for reflection; self awareness, critical analysis of an experience, change in the perspective. Self awareness is accompanied by uncomfortable feelings towards the experience. The objective was to qualitatively analyse the practice and their understanding on reflection of first year medical students of two medical schools that are geographically and culturally different.

Summary of work: An open ended questionnaire on practice, understanding and experience on reflection was used. The study population comprised 150 first year medical students from each school. The comments were compiled and classified based on the keywords appearing in the free text.

Summary of results: None from both schools have undergone any formal training on reflective practice. Three groups of key words were identified in both groups: Namely, reflecting on failures and achievements of self, evaluating/analysing/assessing and improving. The results were comparable in both schools and confirms with the three stage model on reflection. A feeling of ‘achievement’ during self-reflection reports significantly increased in high-score subgroup (p<0.001).

Conclusions: Self reflection reports significantly improve reflection and critical reflection ability in students with prior high reflective scores.

Take-home messages: Introduction of self reflection reports can be useful in clinical rotations.

2AA2 Improving reflective ability: implementation of self-reflection reports in anesthesiology rotation
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Background: Anesthesiology curriculum has been facing problems of time-constraint and swift peri-anesthetic management in the operating room environment that leads to a succinct case discussion. Students are also unable to reflect upon their action in an appropriate time. The impact of self-reflection reports on 5th year medical student’s reflective ability before and after a 4-week anesthesia rotation was studied.

Summary of work: Reflective ability was assessed and scored by a well-developed questionnaire (Kember et al 2000) on the first and last day of anesthesia rotation in 120 students. The high-score subgroup was identified according to percentile rank (67 and above). During the rotation students were asked to write 3 reports of self reflection in 2 given formats (PUNs & DENs and SEA) relating to cases they had encountered. Reflective ability before and after 3 report submissions were then compared using McNemar Chi-square.

Summary of results: Although habitual actions did not seem to decline, reflection and critical reflection ability increased significantly in high-score subgroup (p<0.001).

Conclusions: Self reflection reports significantly improve reflection and critical reflection ability in students with prior high reflective scores.

Take-home messages: Introduction of self reflection reports can be useful in clinical rotations.

2AA3 Iranian Nursing Teachers’ and Students’ Perception of Critical Thinking
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Background: Nurses as critical thinkers should be able to provide appropriate care in a healthcare system with rapidly changing knowledge and technology developments in a complex modern world. To date, no research has been conducted to describe the critical thinking concept and to examine its process in Iran nursing education. The purpose of this study was to explain the critical thinking concept and to explore its process in nursing education.

Summary of work: A grounded theory approach was employed using in-depth interviews with 19 participants, 40 informal interviews, observations, field notes and documents. Analysis of data included the process of open coding, axial coding, selective coding, and constant comparison analysis.

Conclusions: Basic understanding of reflection is present among new medical undergraduates irrespective of the geographical location and cultural background and conforms to the proposed three stage model.

Take-home messages: The medical school curricula should reinforce this natural tendency for reflective practice, to be used as a lifelong learning tool.
Summary of results: Data revealed ‘critical thinking’ to be an essential concept with developmental and multidimensional process in interactions that start on birth time and continues its growth all the way to higher education era. Intellectual, emotional, and operational quotients emerged as three dimensions of ‘critical thinking’ concept. In addition, data revealed the process, growing fetus of critical thinking in nursing education with high-risk conception to be a core category with 6 main categories.

Conclusions: According to the study, safe emergent and development of critical thinking in nursing education as a growing fetus and its maturity need requires pre and post natal care by family, schools, nursing education centers and society. In addition, psychosocial factors such as motivation, love, interest and belonging, encouragement, interaction and human relationship are also important.

Take-home messages: Researchers need to emphasize multilateral improvement, renovation and change in the Iran nursing education system based on critical thinking.

2AA4 Promoting a Reflective Learning Environment: The role of clinical tutors

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Background: A reflective style of learning can enhance the development of professional identity. It is limited by the context in which the teaching of medical students takes place and reflective styles of teaching are underutilised. In Bristol students in Academies meet the same clinical tutor weekly in small groups. Our aim was to evaluate the potential of this to facilitate reflective learning.

Summary of work: We used non-participatory observational methods. The sample was one of convenience, eight tutors in psychiatry (the longest established tutorial system). A framework for observation was devised from the literature. This focussed on scholarship in teaching and the definition of a reflexive learning environment. Observation of one tutorial session per tutor was carried out by two researchers. Data were detailed fieldnotes. Framework analysis was applied using Atlas-ti.

Summary of results: Preliminary results show that although learning takes place through interactive teaching, the focus on case presentations seems to restrict the capacity for any reflection.

Conclusions: The potential for the tutor to stimulate reflection exists in small group sessions but this does not happen routinely. More work is required to elicit tutors’ accounts to compliment our observations.

Take-home messages: Reflective learning environments need to be created they do not just happen.

2AA5 Engaging trainees in portfolio building

A Williamson*, N O’Connor (Newcastle Upon Tyne Hospitals NHS Foundation Trust, Education & Training Department, Newcastle Upon Tyne, NE7 7DN, UK)

Background: Portfolio building is an integral part of modern medical education. However, it’s a challenge in a busy clinical life and 68% of our trainees submitted inadequate portfolios for final review.

Summary of work: Administrative staff were trained to review portfolios at 3, 6 and 8 months and provide qualitative feedback believing this support would reduce the time taken to review portfolios at year end. A detailed timeline was produced to guide trainees in building their portfolio over the year.

Summary of results: This intervention made no difference to the quality or timeliness of portfolios. Focus groups revealed trainees valued feedback on their final submission but found it difficult to engage throughout the year.

Conclusions: 1. Trainees wanted to focus on clinical activity. 2. Trainees should be encouraged to view portfolios as part of life long learning and a tool to record their development and achievements. 3. Trainees wanted feedback at year end.

Take-home messages: 1. A change of focus to demonstrate how portfolios can help future recruitment into specialty was more effective. 2. We plan to run “mock” portfolio reviews to illustrate the difference between good and poor portfolios. 3. We were commissioned to write a BMJ learning e module based on our experience with engaging junior doctors in portfolio building which has been very well received.

2AA6 How do postgraduate trainees in different subspecialties view portfolios as educational tools?

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Background: Portfolios are widely utilized in postgraduate clinical training. We hypothesized that the way in which portfolios are viewed and used would vary between trainees in different specialties.

Summary of work: We distributed a piloted, mixed methodology questionnaire by various routes to postgraduate trainees in surgery, medicine and general practice (GP).

Summary of results: We received 147 completed questionnaires with similar numbers from trainees in...
each specialty. Substantially more GPs (59%), than medical (16%) or surgical (27%) trainees, reported a portfolio experience which enabled them to learn through reflection and identify developmental needs. 61% GP trainees reported satisfaction with feedback received compared with 28% medical and 31% surgical trainees. Most respondents considered portfolios to reflect trainees’ clinical skills (62%), knowledge (60%) and clinical judgment (69%) inadequately.

**Conclusions:** The relative acceptance of portfolios by GP trainees compared with their surgical and medical peers may reflect their relatively higher levels of mentorship and central portfolio integration into their curriculum. Concern about the capacity of portfolios to reflect clinical skills and knowledge adequately was shared by trainees in all specialties.

**Take-home messages:** Our findings reveal differing perceptions of the value of portfolios amongst postgraduate trainees in different specialties in the UK and may support the development of specialty-specific portfolios.

**2AA7 Learning to Love My Portfolio: Medical Students’ Experience of a New Portfolio Program**

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**Background:** A portfolio program was introduced to provide longitudinal learning experiences and assessment of students’ knowledge and skills in the CanMEDS competencies. Previous studies discuss challenges to student endorsement of portfolios; our goal was to understand how to make the portfolio palatable.

**Summary of work:** 24 preclerkship and 24 clerkship volunteers met in small groups facilitated by faculty and residents over the 2009/2010 academic year. Students submitted a reflective portfolio demonstrating their understanding and experiences of the CanMEDS roles for assessment at year end. 22 students participated in follow up focus groups or email surveys. Multiple readers coded and analyzed transcripts for themes using grounded theory.

**Summary of results:** Themes emerged within five categories: Preparation, Process, Product, Assessment, and Buy In. Students found small group sessions more useful than production of portfolios and expressed ambivalence about portfolio assessment. Students endorsed greater understanding of the CanMEDS competencies and were glad to be “forced” to write reflective pieces, seeing them as preparation for residency interviews.

**Conclusions:** The relational aspects of small group sessions and perceived preparation for residency interviews promoted student acceptance of the portfolio.

**Take-home messages:** Students can learn to love their portfolios in the context of small group relationships and by perceiving them as preparation for residency interviews.

**2AA8 The use of an electronic portfolio to assess 1st year medical students’ activities in professional context**

I Neto (University of Beira Interior, Faculty of Health Sciences, Covilhã, Portugal)

**Background:** Portfolios are important tools in students’ assessment. They are a collection of artifacts that evidences and reflects on the work done over a period of time. They engage students and teachers in a process of learning through assessment and stimulate the reflection through professional experiences.

**Summary of work:** During 2 weeks, 1st year Medical Students participated in observational placements which took place in hospitals and health care centers. They had the opportunity to experience situations related with their future profession. During this time they had to report what they had experienced and also they had to make a reflection about what they had seen reflecting on the importance for their future as health professionals. They use an electronic tool to submit their work to the evaluation and to have feedback done by teachers. The objectives were clearly defined and for the use of the tool students followed precise instructions delivered by an on-line tutorial.

**Conclusions:** Electronic portfolio has facilitated the presentation of many artifacts showing evidence about the activities developed in different professional contexts. E-portfolio is an easy tool to use by students and teachers and is also a good instrument to assess professional growth of medical students.

**2AA9 The Experiences of Novice Facilitators and Assessors in an Innovative Portfolio Program**

K Locke*, B Kurabi, P Bryden, A Peterkin, Y Chang, M Roberts (University of Toronto, Faculty of Medicine, Toronto, Canada)

**Background:** Preparing faculty to facilitate and assess reflective portfolios significantly challenges new programs. We sought to understand experiences of novice faculty facilitators and assessors in a pilot portfolio program in undergraduate medical education.

**Summary of work:** 48 volunteer students met with facilitators in small groups over one year, then submitted a reflective portfolio focused on professional identity, viewed through CanMEDS roles, at year end. We trained facilitators by orienting them to group reflection on the CanMEDS roles. Separate portfolio assessors were trained by simulated assessment of
student reflections. Followup focus groups and surveys evaluated faculty experiences in either role. Multiple readers coded and analyzed transcripts using grounded theory.

**Summary of results:** 7 facilitators and 8 assessors participated in followup. Overall, facilitators viewed groups’ reflections positively. Assessors, who did not participate in groups, were puzzled that students’ portfolios did not follow written templates for reflection. Emergent categories for facilitators were: Group Process, Faculty Support, Logistics/Scheduling, Preparation. The anticipated category of CanMEDS Roles did not emerge. Emergent categories for assessors were: Assessment Tools, Submissions, Faculty Training, Educational Value.

**Conclusions:** Portfolio assessment is disadvantaged when assessors are unfamiliar with the activities of student reflection groups.

**Take-home messages:** Faculty understanding of portfolio assessment may improve by integrating assessors with the activities of portfolio groups.

2AA10 **Implementation of the e-portfolio to postgraduate year-1 residency training in emergency medicine: Assessments of curriculum improvement and on-line feedback**

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(1Department of Emergency Medicine; 2Department of Medical Education; 3Department of Neurosurgery, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taoyuan, Taiwan)

**Background:** E-Portfolio has become the development tendency of medical education. The teacher may understand the student’s condition immediately, and by way of the bidirectional feedback records to examine the study course, achieves the goal of the comprehensive study.

**Summary of work:** Up to 205 postgraduate year-1 residents trained by e-portfolio registers system. According to stipulation, each student registers at least 10 cases every day in the e-portfolio. We count student’s case numbers, analyze its complete rate, the case severity, and the distribution of the chief complaints. We analyze curriculum understanding before and after the teaching, analyze the students’ and teachers’ bidirectional feedback records, and count the satisfactory ratio of the students to the teachers for the curriculum.

**Summary of results:** Most students finished the cases completely, and show a significant improvement in curriculum understanding. The registered cases of the students cannot cover all core curriculum; the missing components of chief complaint (such as vaginal bleeding) need a better way to strengthening learning. Bidirectional feedback records showed satisfied or very satisfied to the teachers and the study at 90%, ordinary at 8%, and unsatisfied or very unsatisfied less than 2%.

**Conclusions:** Implementation of e-portfolio has the remarkably helped the short-term PGY emergency medicine training results analysis and the core curriculum improvement.

**Take-home messages:** Implementation of e-portfolio helped residency training results analysis and the core curriculum improvement.

2AA11 **UK Core Medical Trainee awareness of the Medico-Legal implications of the ePortfolio**

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(1Kings College Hospital, London, UK; 2University Hospital Lewisham, UK)

**Background:** The ePortfolio allows Core Medical Trainees to record their proficiencies, self-reflect on performance and receive feedback online. Currently there is little definition concerning the privacy of this information and little consultation with trainees regarding the legal implications of this.

**Summary of results:** We found that 78% of respondents were unclear as to how the Freedom of Information Act 2000 impacts on the ePortfolio, and most were uninformed of the extent to which the information can be accessed as evidence in Fitness to Practice hearings (81%) or Civil and Criminal trials (81%).

**Conclusions:** Most trainees are uncertain as to who owns the information held on an ePortfolio, and to what extent the law can access it.

**Take-home messages:** Further reflection on the potentially detrimental effect of portfolios in medical education is necessary.

2AA12 **Evaluation of the Use of Individual and Group Portfolio in a Course of First Year of Medicine**

O Matus*1, P Ibaсez2, M Ripoll2

(1University of Concepcion, Medicine Faculty, Medical Education Department, Concepcion, Chile; 2University of Concepcion, Education Faculty, Concepcion, Chile)

**Background:** Social changes, health policies and patients’ high expectations have led physicians’ needs of generic skills besides clinical skills and teaching strategies to incorporate active-participative learning with assessment methods to measure such learning, such as portfolio. Objective: To evaluate the use of individual and group learning portfolio, in a first year course of medicine, University of Concepcion.

**Summary of work:** Development and implementation of validated instruments to assess the use of portfolio.
Tutor training. Collection of students’ scores. Portfolio was applied in 111 students (100%) of “Introduction to Medicine” course. Perceptions of students and teachers about the process were obtained. Analysis: descriptive and inferential.

Summary of results: Teachers considered: training was necessary and well evaluated, portfolio is a good tool for learning and assessment, prefer individual portfolio. Students considered: tutor important, guided the process and helped them to achieve goals and competences. Teachers’ survey: internal consistency; Cronbach alpha 0.771 observed for 25 cases; 5% critical Alfa 0.388 (significant). Mann-Whitney U test with significant differences in 4 items answered. Chi-Square for students’ scores with group and individual portfolio 33.92 (significant).

Conclusions: Students and teachers find portfolio useful. Individual portfolio is preferred.

Take-home messages: For proper use of portfolio, appropriate training and planning is necessary.

2AA13 Survey of trainees’ attitudes to E-portfolio: A pilot study
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(1James Cook University Hospital, Middlesbrough, UK; 2University Hospital of North Tees, Stockton, UK; 3County Durham and Darlington NHS Foundation Trust, UK)

Background: NHS E-portfolio is an online system used to collect assessments and demonstrate training. It is a compulsory means of assessment of the progress of many UK doctors in training.

Summary of work: A semi-quantative questionnaire was distributed at hospitals in the North East of England. Fifty five doctors completed the questionnaire.

Summary of results: All respondents used an E-portfolio account. 56% had received training in its use. 83% used time outside of work to complete E-portfolio tasks. 69% found it diverted them from other educational aims. 33% of respondents felt E-portfolio diverted them from patient care. 64% of respondents found the E-portfolio website unreliable. Only 35% felt they had adequate training in its use. 80% found it to be a cause of stress and anxiety.

Conclusions: The E-portfolio system leaves many medical trainees unsatisfied. Despite its universal use, trainee doctors are concerned that they have had inadequate training in its utilisation. Many have to use time outside of work to complete assessments. E-portfolio diverts some trainees from career development or patient care. E-portfolio causes stress and anxiety in many.

Take-home messages: E portfolio has a number of negative effects on trainees and their training. These should be addressed and considered in future initiatives.

2AA14 What is so difficult about managing clinical reasoning difficulties?
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Background: Clinical reasoning is the cornerstone of medical competence. Little is known about the common, yet complex issue of how clinical educators manage clinical reasoning difficulties and the factors that influence their behaviour.

Summary of work: Four focus groups were conducted in general practice, internal medicine, and emergency medicine in Belgium and Switzerland. Two researchers analysed transcripts using Fishbein’s integrative model of behaviour prediction.

Summary of results: Across diverse settings, the process of identification and remediation of clinical reasoning difficulties was unstructured. Clinical educators’ underlying beliefs determined their behaviour. They believed in the apprenticeship model of learning in the clinical environment, in which their educational role was limited to role-modelling and where residents’ were responsible for picking-up skills. They were sceptical about the potential impact of remediation. Others had a stronger sense of their educational role yet did not implement systematic processes to manage clinical reasoning difficulties.

Conclusions: A collective paradigm shift is required from residency as an apprenticeship to residency as a structured educational program.

Take-home messages: Faculty development programs should be designed in an integrated way to not only develop clinical educators’ skills but also modify their beliefs.

2AA15 An Exploration of the Views and Perceptions of the Undergraduate e-Portfolio.
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Background: Sheffield Medical School introduced the e-portfolio 6 years ago. This study aims to explore the views of student doctors, regarding its use.

Summary of work: A questionnaire was developed and posted on the medical school’s VLE. All students were invited to complete it anonymously. Two focus groups were conducted and thematically analyzed.

Summary of results: 276 (21%) students completed the questionnaire. 82% understood the purpose of the e-portfolio; 67% regarded reflection as beneficial to
learning. Concerns related to assessment and monitoring, time taken for entering reflections and the importance of reflective practice. The use of the e-portfolio increased in later years. Five themes emerged from the focus groups: Students from later years recognise the purpose and relevance for future job applications but do not fully engage. There was agreement that guidance on use is inadequate, but a lack of agreement on approaches to assessment and feedback and whilst students viewed reflection as beneficial, others commented on difficulties expressing personal opinions during the process.

Conclusions: While there was understanding of the need for the e-portfolio, implementation and guidance was considered to be inadequate.

Take-home messages: Students recognize the benefits of the e-portfolio but more guidance and support is required.

2AA16 Learning portfolios in undergraduate surgical education: our early experience

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Background: Time constraints on the teaching and evaluation of students continue to alter the way in which medical knowledge must be imparted and assessed. Portfolios can be used as a tool for students to record their accomplishments, reflect on their experiences, and gain formative feedback.

Summary of work: We began a program to encourage students to develop a case-based portfolio to document their experience and demonstrate acquisition of knowledge in caring for a variety of surgical diseases during undergraduate surgical course. The weekly case topic was chosen by the student and reported using a template: case history, supporting diagnostic studies and treatment used self reflections on case, identified learning outcomes, self assessment and plan to fill the knowledge gaps.

Summary of results: We describe this system and provide an early analysis of its effect on our curricular learning outcomes achievements and acceptance of the system by the students using student’s surveys and evaluation by faculty. Our analysis of its impact demonstrates a positive effect across many learning outcomes, and survey analysis revealed that students have a positive view of this new system.

Conclusions: The portfolios are suitable for monitoring, discussing and assessing student progress and learning.

Take-home messages: The role of the teacher is crucial to the success of portfolios.

2BB Posters: Career Choice/Education Environment

2BB1 Shortage of physicians and workplace conditions: Results from a graduate survey

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Background: Shortage of physicians is widely discussed in Germany. One reason may lie in the difficulty to combine a career for example with family life. Therefore we wanted to find out whether there is an imbalance between workplace conditions and personal commitments, responsibilities and desires of young residents.

Summary of work: 514 graduates from medical faculties in Baden-Wurttemberg were surveyed in autumn 2009 1.5 years after graduation. 94% are residents.

Summary of results: Workplace conditions with highest individual importance for residents are “work climate”, “possibility to qualify” and “interesting work content”. The “possibility to do research” is rated least important. Nine workplace conditions show differences larger than Mdiff = -0.6 between the ratings of individual importance and current-state. The largest differences are found for the workplace conditions “adequate leisure time” (Mdiff = -1.35) and “compatibility of family and work” (Mdiff = -1.21).

Conclusions: Work climate and the possibility to qualify seem to be the most important workplace conditions of residents at the beginning of their career. There is an imbalance between the importance of and the opportunity for adequate leisure time and the compatibility of family and work. This imbalance maybe one reason for the shortage of physicians on the long-run.

2BB2 Why do young people choose medical study? Case study Croatia, country in social and economic transition

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Background: In a country with social and economic transition, particularly because of the sudden transfer from public to private health care sector, research was conducted in order to determine whether these changes influence young people’s motivation to choose medicine as a field of future development.

Summary of work: The study was conducted on first-year students in the year 1998/1999 and ten years later. An identical, anonymous questionnaire on motives and encouragements was administered to
both groups. They were asked to rank their motivation with 13 statements using a Likert scale. The statements were arranged into categories of internal and external motivations.

Summary of results: In this ten-year period, the difference was noticed in motives of personal advantage (income, social status); External motivation influence was greater for the generation 2008/9.

Conclusions: Although the decision of the young is influenced by the public opinion on MD and doctors’ social status, it is a mission of the School of Medicine to perform a proactive role in the recruitment of the young, especially in the transition countries with a lack of medical doctors.

Take-home messages: These results could recommend whether to change the admission policies for choosing medical students towards present health care needs and requests.

2BB4 The effects of first year medical students’ career interests and gender on educational gains from longitudinal case-based assignments

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Background: This project was designed to assess the effectiveness of using longitudinal cases as a tool to integrate basic science knowledge with clinical understanding and to uncover what student characteristics correlated with increased benefit from these cases.

Summary of work: Longitudinal cases focused on clinical and psychosocial aspects of disease were assigned weekly during Anatomy and Pathology. Students completed surveys before and after case completion to assess issues relating to the translation of knowledge from class to clinic.

Summary of results: Differences were striking when respondents were grouped by career interests (ANOVA, p<0.05). Students undecided about career perceived markedly less benefit from assignments than their peers interested in either primary care or sub-specialties in terms of: developing diagnoses (p=0.0103, p=0.0069 respectively, t-test), integrating didactic information with patient care (p=0.0138, p=0.0723), and overall value of the assignments (p=0.0371, p=0.0375). Response differences based on gender did not achieve statistical significance.

Conclusions: Students with no specified career preference perceived markedly less benefit from longitudinal case-based assignments than students with a specified interest.

Take-home messages: The presence or absence of a specified career interest appears to correlate with perceived benefit from longitudinal case-based assignments, while gender has no such association.

2BB5 Why become a doctor? Factors that may influence the choice

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Background: Knowing the motivations of medical career choice may help to understand the student’s profile and their aspirations. Besides, it can be a useful tool for ethical and humanistic education during graduation.

Summary of work: In the selection process for medical school access in Brazil, a general data questionnaire about career motivations choice was applied to candidates.

Summary of results: From 326 participants, 51.3% were female, 67.4% aged between 16 to 19 years, 61.8% had doctors in their families and 66, 9% did not
consider another career option. Concerning their motivations, 85.19% reported vocation, 80.1% to help others, 37% the professional challenge and 14.3% family influence. Considering issues related to career, as employment opportunities and remuneration, it was reported by 29.2% and 18.6% respectively.

**Conclusions:** Profile was characterized by young idealistic people. Altruistic motivations were more significant than economic aspects, contrasting with the profile observed at the end of medical course.

**Take-home messages:** Educational strategies must allow ethical and humanistic development by the student, preparing them to face difficult situations during medical school and contributing to form their moral axiogram. Those strategies should impact the hidden curriculum as well as strengthen the virtue ethics aspects identified in selection process.

### 2BB6 Career decisions: Significance of the Foundation Programme

*S Govinda Rajoo, H Goodyear, D Wall* (City Hospital Birmingham, Dudley Road, B18 7QH, UK)

**Background:** Early career decisions and planning are essential as specialty applications begin early in Foundation Year 2 only 16 months after starting work as a doctor. Trainees are expected by this stage not only to have made their career decisions but also to have a portfolio of evidence for applications. The Foundation Programme has the potential for being an invaluable period for trainees to prepare for applications. However, a key question is - do trainees make use of these opportunities to make career decisions and portfolio building?

**Summary of work:** Objective: To identify the significant stages in decision making amongst trainees, factors that influence these decisions and the role of the Foundation Programme (FP) in career decisions. Design: A 12 item questionnaire survey was distributed via e-mail.

**Summary of results:** 62% felt that FY1 most influenced their career decision. The commonest time to make a career choice was in FY1 (42% of trainees). The most significant factors influencing trainees’ choice were the work of the specialty and lifestyle. There is a high level of involvement in career support activities during the FP. Most popular were attending meetings related to specialty of choice and careers fairs.

**Conclusions:** FY1 is a very important period in making career decisions. Evidence shows that career support in the programme is too little and comes too late. It is vital that deaneries and career advisors are aware of this information to ensure better provision and engagement of career support during the year.

**Take-home messages:** Foundation Year 1 is a crucial period in career decisions.

### 2BB7 What predicts first year Scottish medical students’ career preferences?

*Jennifer Cleland*, *Fiona French, Peter Johnston* (Division of Medical and Dental Education (DMDE), University of Aberdeen, Aberdeen, UK)

**Background:** Specialty preferences and performance in postgraduate examinations vary between UK medical schools. Are these differences due to student characteristics or undergraduate medical education provision?

**Summary of work:** This study explores differences in Year 1 student demographics and career preferences across five medical schools to provide insight into differences across student populations at entry. All Year 1 medical students at the five Scottish medical schools were invited to take part in a paper-based questionnaire survey in 2009-10. Questions included: reasons for studying medicine, specialty preferences, future career plans and demographics.

**Summary of results:** The overall response rate was 88% [883/1005]. Significant differences were found between medical schools for country of birth, age group and ethnic origin; as well as reasons for studying medicine and career preferences in terms of specialty and preferred location. The relative importance of various factors – e.g., earnings, patient contact, work-life balance – also varied across schools, by gender and by student origin.

**Conclusions:** First year student demographics and career plans differ across the Scottish medical schools.

**Take-home messages:** We suggest that comparisons across any group of medical schools will identify differences in the student populations in terms of career preferences which may have little to do with the direct influence of teaching.

### 2BB8 How are medical students influenced by preceptors and patients in making career choices during clinical teaching placements? Do these influences differ across three different models of clinical education?

*P Stagg*, *D Prideaux, J Greenhill, L Sweet* (Flinders University Rural Clinical School, Box 852, Renmark, South Australia 4341)

**Background:** At Flinders University, medical students can undertake 3rd year of the medical program in any of 12 different geographical locations. The curriculum is delivered using one of three different models of medical education. This study seeks to understand the nature of relationships formed between 3rd year medical students and their patients and preceptors within the different clinical education models, and whether these relationships influence the students’ medical career choices.
Summary of work: The researcher undertook non-participant observations of each student in a clinical setting and conducted open ended interviews with students at the beginning and end of the year. A grounded theory approach has enabled an inductive synthesis of the qualitative data. Preceptors and patients in each of the sites have been interviewed to understand how they perceive they influence the career choices of medical students. Social cognitive career theory has been used to measure changes in making career choices at the beginning and end of 3rd year.

Summary of results: Students actively seek a model of medical education where the predominant teaching style matches their learning style and where there is an optimum fit between contextual learning and idealised future practice. Students seek a model which provides an authentic “Taste & See” opportunity of a self-identified specialty choice. Both patients and preceptors influence students in determining their career choice and this is different in the differing education models.

2BB9 Student perceptions of 3rd year mental health clinical rotation
E Peagam (Newcastle University, Newcastle-upon-Tyne, UK)

Background: The number of medical graduates choosing psychiatric careers is declining. Research has found experiences during undergraduate rotations in psychiatry strongly influences attitudes to mental health and career choices.

Summary of work: The effectiveness of a 3rd year Mental Health rotation in promoting the role of psychiatry and the opportunities afforded as a career were studied. A survey of students’ perceptions at the beginning and end of the year. A participant observations of each student in a clinical setting and conducted open ended interviews with students. The questionnaire focused on careers in psychiatry, merits of psychiatry and attitudes to mental illness. Students were also asked to rate their knowledge and clinical skills in psychiatry and about their career intentions.

Summary of results: Students had favourable perceptions before and after the rotation. Students’ knowledge and clinical skills improved. They also felt psychiatry to be a rewarding career, however, students did not change their career intentions after the rotation. Students provided suggestions of how the above areas could be improved.

Conclusions: The image of psychiatry and mental health amongst medical students undertaking this rotation was a positive one but more can be done to promote psychiatry as a career. The study generated themes to explore in further research.

Take-home messages: Not unsurprisingly students clinical experiences of psychiatry influences their skills, knowledge and attitudes of the specialty.

2BB10 CSTAR Interprofessional Surgery and Anesthesia School: a novel program for pre-clinical medical and nursing students at the University of Western Ontario
GM Busato1, O Cristea1, R Moreland2*, J Landau1, M Johnson1, D Ramage2, D Browning2 (1Schulich School of Medicine & Dentistry, 2Canadian Surgical Technologies & Advanced Robotics, London, Ontario, Canada)

Background: Many pre-clinical medical and nursing students report significant levels of stress and uncertainty associated with impending career choices. The practical aspects of surgical and anesthesia specialties are often under-represented in pre-clinical curricula, leading many students to express a desire for earlier hands-on exposure to these disciplines.

Summary of work: Our program allows trainees to experience a dynamic simulated environment, which will provide knowledge for informed decision-making around career and specialty choice. The curriculum is structured around interactive sessions where students acquire early exposure to fundamental perioperative skills, techniques, and knowledge. These sessions include suturing, sterile field preparation, airway management, laparoscopic simulation and induction and maintenance of anesthesia, to name a few. The week culminates in an interdisciplinary team-based management of a patient using various forms of simulation.

Summary of results: Thirty students completed the first iteration of this program. The results of a course evaluation survey revealed an overwhelmingly positive response, with many students highlighting the significant practical benefits of the experience.

Take-home messages: Students with an interest in hands-on specialties benefit from an early interactive exposure to these fields. Mentor guided simulated experiences can offer students a better opportunity to define their potential career interests in surgery, anesthesia, and perioperative nursing.

2BB11 Measurement of students’ comfort in a medical school in Santiago de Chile
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Background: Medical study has been associated with high rates of personal stress. Different variables influence mental health, learning process and academic performance of students.

Summary of work: We measured several aspects to obtain an overview of indicators of students’ wellbeing. Students of the first 5 years of Medical School of Universidad de los Andes, a traditional curriculum school, were evaluated using the Dundee Ready
Impact of IMU-REEM on changing the educational environment

Joachim Perera*, Ramesh Chandra Jutti, Sambandan Elango, Hla Yee Yee, Katrina Azman, Rohayati Roben (International Medical University, Center for medical Education, No 126, Jalan 19/155B, Bukit Jalil, 57000, Kuala Lumpur, Malaysia)

Background: The ‘ideal’ educational environment may be defined as one that best prepares students for their future professional life and social wellbeing. Student perception of the educational environment is a useful basis for modifying and improving its quality. To measure such an environment, International Medical University uses IMU-REEM which is a modified version of DREEM. This study analyses the impact of IMU-REEM in changing the educational environment.

Summary of work: Students of medical science programme were included. IMU-REEM questionnaire was used. Students were briefed of the importance of the survey. Data was analysed using the SPSS software version 15.

Summary of results: Results showed a significant progress of total scores from 2007 (117.08) to 2010 (121.93) and a shift towards maximum total IMU-REEM score (200). A progress in individual domains of the IMU-REEM towards maximum obtainable scores noted. The progress is attributed to the measures taken to improve the academic and support services based on the scores obtained at survey.

Conclusions: IMU-REEM scores monitor the progress in the quality in the educational environment and motivate the Institute to take measures to improve the educational environment in reaching towards maximum obtainable scores.

Take-home messages: IMU-REEM is a useful tool to measure the change in the educational environment towards improvement.

Medical school culture: More positive than you think

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Background: As students progress from junior to senior medical undergraduates, their development as doctors is influenced not only by the taught curriculum but also by the prevailing medical school culture which has been characterised in other studies as competitive, hierarchical and at times, abusive. This has implications on the development of the professional attitudes and behaviours expected of medical graduates. We aim to describe students’ perception of medical school culture in an Asian setting, conceptualised as the behaviours, attitudes, values and customs of the medical school and the people within it.

Summary of work: This was a qualitative study of medical students in the Li Ka Shing Faculty of Medicine, University of Hong Kong. Between June 2010 to January 2011, students were identified through random and quota sampling and 31 participated in individual semi-structured interviews. A grounded theory approach was used to determine common themes in students’ perceptions.

Summary of results: Medical school culture was categorized into peer-related, student-teacher-related, and institutional-related themes. Most of the subthemes were positive with 27% of these referring to positive peer interactions such as cooperative learning, willingness to help and provision of emotional support.

Conclusions: Positive peer behaviour and attitude were perceived as the predominant features of medical school culture.

Take-home messages: The role of peers in defining medical school culture is significant and may exert a powerful influence on the developing doctor.
Summary of work: The study has a survey model. The population consisted of 842 clinical training students. Purposeful sampling method was used for sample selection. Departments training more than three-weeks were sampled and data were collected from (88.8%) students using three scales, one developed by the researcher. Exploratory Factor Analysis, Structural Equation Modeling, Path Analysis were used for statistical analysis.

Summary of results: The structural equations determined in this study: Academic Success=0.51*Clinical Learning Climate Perception + 0.59*Academic Self-Efficacy (R2 = 0.27). Attitude towards Profession of Medicine=0.42*Academic Achievement + 0.51*Clinical Learning Climate Perception (R2 = 0.14). Clinical learning climate perception and academic self-efficacy perception predict academic success significantly. These two variables explain 27% of academic success. Clinical learning climate perception and academic achievement predict attitudes towards profession of medicine significantly. These two variables explain 14% of the attitudes towards the profession of medicine.

Conclusions: Students’ clinical learning climate perceptions, attitudes towards medical profession, academic self-efficacy perceptions and academic achievements during clinical training are important in qualified physicians’ training.

Take-home messages: Clinical education has a complex structure consisted of different components affecting this structure.

2BB15 Perceptions of Educational Climate in a Canadian medical radiation science programme utilizing the DREEM

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Background: The medical radiation science collaborative program at Mohawk-McMaster, Canada, has undergone curricular reform since its inception in 2004, which is still ongoing.

Summary of work: Aim: To measure students’ perception of the educational environment using the Dundee Ready Education Environment Measure (DREEM), and use the data to enhance teaching and learning in the applied health sciences. To investigate perception of the educational environment in Medical Radiation Science (MEDRADSC) overall, by specialization, and by gender. The DREEM instrument was distributed electronically in June 2009, to a total of 105 third year students from three medical radiation specializations: ultrasound, therapy and radiography.

Summary of results: With an 83% response rate, students rated their climate overall as positive. No significant difference was found between gender or specialization. The mean total score was 139 out of a maximum 200 (70%) indicating relative satisfaction with the environment but with room for improvement.

Conclusions: The DREEM inventory can be used effectively within the medical radiation sciences, to measure student perceptions of educational environment and verify very specific issues relating to each of the 5 subscales.

Take-home messages: Use of DREEM as a monitoring tool permits timely interventions by the curriculum development group in MEDRADSC to remediate problematic educational environments.

2BB16 Educational climate in Obstetrics & Gynecology wards in the view of Students in Iran University of Medical Sciences (IUMS) based on DREEM model

Jalil Koohpayezhadeh*, Kashanian Maryam, Seyed Kamran, Soltani Arabashahi, Hamid Baradaran (Tehran University of Medical Sciences, Center for Educational Research in Medical Sciences (CERMS), Tehran, Iran)

Background: This study measures the educational environment in Obstetrics & Gynecology wards at university affiliated teaching hospitals by using DREEM (Dundee Ready Education Environment Measure) model, and explored the opinions of medical staff.

Summary of work: This is a cross sectional study, using DREEM Questionnaire that is modified by national culture in 5 subscales including: perception of learning, perception of course organizers, Academic Self-Perception, Social Self Perceptions and perception of atmosphere. The Obstetrics-Gynecology wards in 3 different hospitals affiliated to Iran University of Medical Sciences (IUMS) were chosen. 80 female medical students responded the Questionnaires by stratified Random Sampling. Data analyzed by SPSS ver.16.0.

Summary of results: The students included 40 interns and 40 residents. Total scores of Obstetrics-Gynecology wards in the view of students were in More Positive than Negative (106.2 / 200, 95% CI 101.8% to 112.8%) state. The scores of subscales in Students included: Perception of Learning 24.1/48 in A more positive perception state, Perception of Course organizers 24.7/44 Moving in the right direction state, Academic Self Perceptions 19.5/32 in Feeling more on the positive side state, Perception of Atmosphere 24.8/48 in There are many issues which need changing state and Social Self Perceptions 13.7/28 in Not a nice place state.

Conclusions: The overall educational environment score of Obstetrics-Gynecology wards for students is More Positive than Negative that needs reform in teaching-learning activities. A curricular change seems mandatory.
Background: This study was conducted to evaluate the postgraduate learning environment across a healthcare network, and to compare residents’ perception of their environment between various regions and residency level of training.

Summary of work: The three largest post-graduate education programs were surveyed using PHEEM. We compared gender, specialty, level and region of training. Total and subscale scores were compared using One-Way ANOVA or t-test where appropriate.

Summary of results: Of the 500 surveyed residents 252 (50.4%) responded, 133(53%) from Central region. There were 195 (77.4%) junior residents, 164 (65%) were males. There was a significant difference between juniors and seniors with regards to their perception of social support domain with the junior residents perceiving it positively (P= 0.018). There were also statistically significant differences in the specific questions pertaining to expectations, career advice, accommodations, no blame-culture, independent learning, and mutual respect, with junior residents being more positive about these aspects (p< 0.05). Comparisons by region yielded statistical significant differences related to administrative structure.

Conclusions: Junior residents are more enthusiastic about their training environment. Further research directed towards understanding those differences with more nationally representative sample is needed.

What will be demonstrated: In this paper, we present a software platform human anatomy which we designed to provide a virtual learning environment to support teaching and learning delivered on a workstation, mobile devices as well as multi touch screens. The virtual 3D environment is particularly useful for medical students to identify key anatomy structures and their complex spatial relationships.

What is particularly interesting about the innovation/How it could be implemented: Modeling and direct volume rendering (DVR) technologies are applied to anonymized actual patients’ CT Data. The intuitive computer graphic interface and virtual reality 3D environment make learning interesting and engaging. The platform also allows instructors to easily customize the anatomy model by adding additional digital supplementary learning material, including hyperlinks, additional images, animation, audio, video and PowerPoint presentations which are all supported within the learning environment.

Why participants should come to the demonstration: To make use of online and mobile learning function, the system provides interface to extend online and mobile learning. The prototype has been evaluated by medical students and teaching staff for further refinements.

2DD2 eLearning for the contextualisation of radiological anatomy for first year medical students
A Webb*, S Choi* (School of Medicine, Mailpoint 845, Southampton General Hospital, Tremona Road, Southampton SO16 6YD, UK)

Short description of innovation: Digital imaging has revolutionised clinical radiology. Yet many students continue to study limited numbers of hard copy films attached to X-ray viewing boxes at medical school. eLearning provides an opportunity for students to become familiar with the interpretation of digital radiological images and enables them to experience a wide range of normal and pathological images.

What will be demonstrated: An eLearning package composed of a range of interactive identification-based and guided learning activities, based upon normal and pathological digitised radiological images, was devised for the Year 1 Nervous and Locomotor course at the University of Southampton. Its effectiveness was evaluated using quantitative and qualitative methods.

What is particularly interesting about the innovation/How it could be implemented: 86 out of 213 students completed pre- and post-quizzes and a questionnaire. There was a significant improvement between pre- and post-quiz results of students who completed the eLearning package (P<0.01) but no such improvement by students who did not attempt the
package (P=0.78). Seventy-seven percent and 81% of students found the package actively engaged them in their learning and helped them to identify normal radiological features, respectively.

**Why participants should come to the demonstration:** eLearning may be beneficial to the teaching of radiology.

### 2DD3 Students Developing Skills to Support their Roles as 21st Century Medical Educators

R Gordon*, S Healy*, J Scales*, R McMahon, F Nicol, C Davidson, D Duncan, K Sinclair, R Anderson, I Parkin, N Schembri, A Manca, N Lafferty (University of Dundee, CAMS level 8, Ninewells Hospital Medical School, Dundee DD1 9SY, UK)

**Short description of innovation:** A series of student developed clinical anatomy tutorials to support teaching in the musculoskeletal system. Each tutorial focuses on the anatomy of an articulating joint and includes clinical examinations with pathologies and formative assessment.

**What will be demonstrated:** The initial pilot tutorial will be demonstrated, together with some of the early student feedback. An overview of how students managed the development process; engaged and co-ordinated staff input whilst continuing their medical studies. Participants will be able to view the final tutorials and the most recent feedback from students.

**What is particularly interesting about the innovation/How it could be implemented:** With the advent of new technologies there are increased opportunities for students to become producers of learning and to develop their skills as 21st century medical teachers. At Dundee, student enthusiasm for developing learning resources to meet their learning needs has been supported by academic and educational technology staff. This experience at Dundee could serve as a model for developing students skills as the e-teacher for other medical schools.

**Why participants should come to the demonstration:** To gain further understanding of how faculty can support medical students in developing skills as 21st century medical teachers; increase staff engagement in the effective use of educational technologies in the curriculum through student involvement; promote a student centred and collaborative approach to improving the quality of online teaching.

### 2DD4 Simulation and Other Small Group Activities as Teaching Modalities for Curriculum Integration: an Exercise in Building Capacity

David Pederson*, D Collender*, V Thomas* (Department of Integrated Medical Education, Ross University School of Medicine, Commonwealth of Dominica, West Indies)

**Short description of innovation:** In the first two years of undergraduate medical education, a renewed emphasis is being placed on clinical skills, context and reasoning. In 2009 Ross University formed the Department of Integrated Medical Education, charged with integrating clinically-based activities, cognitive and psychomotor skills, and patient centered care with basic sciences. Themes spiraling throughout years 1 and 2 were used in simulation and PBL as important teaching modalities.

**What will be demonstrated:** Since 2008 simulation activity increased from 800 to 3,400 student visits per 14 weeks (over 11,000 annually); cases increased from 2 to 8. Fulltime departmental faculty increased from 1 to 8, with an additional 8 instructors, and 5 support personnel. In 2011 an 8,000 ft² simulation center opened accommodating 340 students per day in 10 simulation suites scheduled, graded and tracked by METI Learning Space. Facilitator training in simulation and PBL is critical for standardization.

**What is particularly interesting about the innovation/How it could be implemented:** Successes include improved student performance, early development of clinical skills, a state-of-the-art simulation facility, and interdepartmental collaboration. Unexpected challenges included finding qualified physician educators and time for additional instruction.

**Why participants should come to the demonstration:** Although integration is a complex process, persistence, reasonable expectations, and collaboration with basic science faculty are critical to success. Negotiation, planning, and training are essential for sustainability.
The goal of this symposium is to address the following questions: Why is this area of faculty development critical as we move forward with new methods of undergraduate and postgraduate teaching and learning, assessment and evaluation, and curriculum design and innovation? What do we mean by leadership and which aspects of leadership should we be addressing? What does the literature currently tell us about leadership development? How can we ensure that all faculty members have an opportunity to realize their leadership potential? Following a brief discussion of current notions of leadership, we will present the findings of the latest BEME review on faculty development for leadership as well as a description and evaluation of a university-based leadership course. We will then challenge the audience to think about how we can ensure that faculty development for leadership development is no longer neglected and discuss ways in which we can address this core competency more explicitly.

3B Symposium: Practice and Community-oriented Curriculum Development in Basic Medical Education (Praxis- und Community orientierte Curriculumsentwicklung im Medizinstudium - (auch) eine Aufgabe für die primärärztlichen Fächer)

Anselme Derese (Belgium), Maren Erhardt (Germany), Andreas Sönnichsen (Austria), Martin Lischka (Austria), Elisabeth Bandi-Ott (Switzerland)

Background: Many German speaking universities are reforming their curricula of basic medical education, in order to make them more practice or community oriented or trying to build consensus on their education for family medicine.

Aim: Offer the possibility to German speaking participants to exchange views, ideas, strategies and research findings on the following topics: Curriculare Innovation im Bereich der Praxisorientierung und der „Community medicine“ und die Frage: Wie können Primärversorger stärker an den Prozessen der Fakultäten teilhaben und Themen der Primärversorgung in der Ausbildung von Medizinstudierenden einbringen?

Ablauf: Impulspräsentationen aus Österreich, Deutschland, der Schweiz und Belgien. Geplant sind außerdem weitere Kurzpräsentationen aus dem Kreise der Teilnehmer, über die wir uns sehr freuen würden; Zum Abschluss wird es eine Diskussion und einen Ausblick “the way forward” geben; Während des Symposiums wird es ausreichend Zeit für den Austausch geben; Das Symposium findet in deutscher Sprache statt.

3C Short Communications: Virtual Patients

3C1 Virtual Patients: Implementing a Virtual Patient-Based curriculum

Trupti Jivram*, Sheetal Kavia, Sean Hilton, Terry Poulton (St George’s University of London, e-Learning in Medical Education, Cranmer Terrace, London SW17 0RE, UK)

Background: Problem-based learning is well established in medical education. Students work through paper patient cases and explore possible investigations, diagnoses and treatments, generating learning objectives, in groups of eight with a facilitating tutor. The ‘Generation 4’ project explored the extent to which virtual patients (VPs) could be used to transform the existing PBL curriculum.

Summary of work: Online interactive VPs replaced existing paper-based cases, allowing students optional routes through a case, making clinical decisions and exploring the outcomes of those decisions. Formative assessments VPs were designed around the topic of the week, providing students with additional opportunities to widen their understanding of the subject and assess their knowledge. A Wide range of e-tools were integrated into the VPs to enrich the learning opportunities including wikis, videos, chatbots, and web-traces.

Summary of results: Students strongly supported the new developments, tutors believed these resources improved the student experience and increased discussion. A controlled trial demonstrated an increase in student exam performance.
Conclusions: G4 has led to a more adaptive, personalised, competency-based style of learning which more closely matches the role of the practitioner.

Take-home messages: PBL experience has been transformed by a range of interactive technologies built around a core of virtual patients which extends the learning opportunities available within PBL tutorial.

3C2 The Virtual Patient: an effective way to teach basic sciences in a clinical context to Year 1 medical students
S Choi*1, A Webb*2 (1University of Southampton, School of Medicine eLearning, MP820, Level B, South Academic Block, Southampton General Hospital, Southampton, UK; 2University of Southampton, School of Medicine CLAS, Southampton, UK)

Background: To improve students’ learning of basic sciences in early years of the medical curriculum, the University of Southampton has introduced Virtual Patients (VP). A VP integrates the themed weeks of learning in each course, supporting students to apply their basic science knowledge in a clinical context and to see what basic science knowledge is essential to understanding clinical subjects.

Summary of work: Mr Tim Brown with a motorbike accident was developed for the Year 1 Nervous and Locomotor course. Each week students become involved in a different aspect of Tim’s care related to their studies during that week. Using quantitative and qualitative methods evaluation has been conducted to investigate its effectiveness. Two hundred and five students in 2009, 170 in 2010 and 182 in 2011 participated in the evaluation.

Summary of results: Students found the VP helpful, enabling them to review, apply, integrate and contextualise their basic and clinical science knowledge. Students’ performance improved significantly between pre- and post-test scores in all weeks (e.g. week 1 mean difference=14.7%; 95%CI 11.3 to 18.1; p<0.001).

Conclusions: VPs can help students integrate and contextualise their basic and clinical science knowledge. Students’ performance improved significantly between pre- and post-test scores in all weeks (e.g. week 1 mean difference=14.7%; 95%CI 11.3 to 18.1; p<0.001).

Take-home messages: VPs can provide a framework that links basic and clinical sciences, facilitating student learning, application, integration and contextualisation.

Take-home messages: VPs can help students integrate and contextualise their basic and clinical sciences.

3C3 Virtual Animal Patients (VAP): Developing computer-based case simulations for veterinary students to integrate and apply course-based clinical knowledge
J Thundathil*1, A Vallevand2 (1Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Canada; 2Medical Education Research Unit, Faculty of Medicine, University of Calgary, Canada)

Background: Provides an opportunity for veterinary students to apply discipline-based knowledge, using a structured diagnostic approach, to evaluate common clinical cases.

Summary of work: An opening scene is presented (vomiting dog). At each stage (history through to diagnostic tests), students are required to input information (history questions to ask owner) before selecting from the respective list of options provided. At appropriate points, students are asked to briefly explain physiological principles underlying clinical signs, justify differentials and diagnostics selected, and interpret test results. Programmed variables (justify_differential_diabetes) collect student answers in a spreadsheet. This document provides a “roadmap” of the case for student-specific feedback.

Summary of results: Twenty-nine second year students completed the three cases. A case-specific question was addressed in a subsequent midterm. For Case 1, 45% of students received full marks on the answer. For Cases 2 and 3, 41% and 75%, respectively, received full marks.

Conclusions: Case-specific answers were not effectively transferred to similarly presented questions. One concern is students were more focused on answering questions for the class simulation assignment rather than incorporating case-specific information, using a facilitated diagnostic process, into a robust and internalized learning experience.

Take-home messages: Simply exposing students to simulations, based on commonly encountered problems, does not guarantee transfer of clinical knowledge and learning.

3C4 Virtual Cases and Interactive Simulations for Head and Neck Injuries - VIS-Ed
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Background: Injuries in the head and neck region are often complex and involves hard and soft tissues. To learn how to handle these cases that often are acute and multi-faceted is difficult. Medical students and residents need to get better tools to learn the underlying anatomical, physiological as well as the biomechanical properties of such injuries to be able to decide on proper investigation and treatment procedures.

Summary of work: We have developed an educational model where patient cases can be visualized and examined as well as a feature where the accident and its effects on hard and soft tissues can be visualized.
Summary of results: The patient cases are based on Virtual Patients, where the user freely can examine the patient, order lab/imaging tests as well as taking the medical history. The trauma visualization is based on Finite-Element Analysis, where the user easily can explore the forces the scull, neck and soft tissues have been exposed to.

Conclusions: A pilot study was performed on how medical students can take advantage of these integrated visualization techniques to better understand how head and neck injuries should be handled clinically.

Take-home messages: Most students were positive to VIS-Ed and a new RCT study is investigating the learning potential of the learning system.

3C5 A Framework of Design-based Research for Virtual Patients as drivers of Innovation in Health Care Education

N Zary*, J Tworek* (Karolinska Institutet, Department of Learning, Informatics, Management and Ethics, Stockholm, Sweden; University of Calgary, Faculty of Medicine, Calgary, Canada)

Background: Literature on Virtual Patients (VPs) focuses on typologies and knowledge-based outcomes, without reporting key design considerations and a framework of educational choices in creating VPs for health care education. The lack of strong knowledge outcomes and transfer of learning lends credence to VPs as poor constructivist learning environments (Cook & Triola, 2010). Yet, innovations in education are fundamentally long-term undertakings requiring iterative feedback and design (Bereiter, 2002).

Summary of work: Design-based research is a relatively new approach, where feedback is iteratively incorporated into future design cycles for the improvement of the innovation. The authors provide a framework of design-based research for VPs, accounting for the ill-structured and complex nature of diagnostic reasoning that is the topical focus of VPs.

Summary of results: The proposed framework is well adapted to the area of VPs since it allows direct, scalable and concurrent improvements in research, theory and practice.

Conclusions: This work is important to moving VP design beyond a deterministic, instructional design approach to one reflective of the complexity in education through learning sciences (Jonassen, 2004, 2009).

Take-home messages: The new approach on VP design can contribute to make and sustain VPs as drivers of innovation in medical education.

3C6 Interactive online case-based dermatology instruction

P Jones*, K Multitalo* (Department of Physician Assistant Studies, UT Southwestern Medical Center at Dallas, 5323 Harry Hines Blvd, Suite V4.114, Dallas, TX 75390-9090, USA; University of Queensland School of Medicine, Herston, QLD, Australia)

Background: Ten case-based interactive courses were developed to meet a demand for continuing dermatology education delivered asynchronously online.

Summary of work: Learners navigate a virtual patient record consisting of introduction, case history, physical examination, differential diagnosis, labs and procedures, final diagnosis, and treatment (including a four-option patient education menu choice). Each section has supplemental multi-tiered hyperlinks to additional information and education resources.

Summary of results: Course enrollment has reached 1,108 by 426 individual learners with a feedback response rate of 73.7%. Of the respondents, 86.6 percent agreed or strongly agreed that content was presented at an advanced level of expertise, and 85.9 percent agreed or strongly agreed that the virtual patient record was user friendly. Eighty-six percent agreed or strongly agreed that the content increased their knowledge, while 89.9 percent agreed or strongly agreed that the content met stated objectives.

Conclusions: This project represents a unique collaboration to deliver high-quality and cost-effective dermatology education in a web-based self-paced setting. The case-based virtual patient record format also has transferability to other medical topics, and any subject matter that can be presented in a case-based format could be similarly developed.

Take-home messages: Low-cost innovative web-based instruction using a virtual patient record is readily available for adaptation to any case-based instructional content.

3D Short Communications Postgraduate Education 2

3D1 Perceptions of Internal Medicine residents about rewards and challenges of caring for patients with chronic illness: A Qualitative Pilot Study

David C Thomas*, Ilene Harris (Mount Sinai School of Medicine, Department of Medicine, One Gustave Levy Place, Box 1087, New York, NY 10029, USA)

Background: Many residents care for patients in a traditional environment, with suboptimal continuity of care and episodic, acute interventions. The complexity of patient care in a short ambulatory care visit is challenging. It may not provide the appropriate time for the patient to sufficiently interact with the provider about the longitudinal component of their diseases.
Summary of work: A qualitative study was conducted, using focus groups with Internal Medicine residents.

Summary of results: There were seven main thematic areas: Perceptions of Rewards in Providing Care; Perceptions of Barriers to Providing Care; Perceptions of Patients’ Barriers to Receiving Care; Education of Patients; Other Strategies to Improve Patient Experiences in Clinic; Strengths of Residency Program in Educating about Patients with Chronic Illness; and Actual Care of Patient

Conclusions: Residents identify patient education as a primary tool to care for patients. Other primary tools were: communication skills; the patient interview; questions to understand patients’ perspectives of their illness; and the family history concerning the patient’s perspective of their illness

Take-home messages: Residents focus on the education of patients, identifying best practices/barriers and suggest ways to improve the care of patients with chronic illness.

3D2 Learning in context: Barriers and opportunities to learning through observation in postgraduate secondary care training in the United Kingdom

Afzal Chaudhry¹, Mark Gurnell¹, Martina Behrens²*, Clare Morris³ (¹Department of Medicine, University of Cambridge, Cambridge, UK; ²Postgraduate Medical School, Faculty of Health and Social Sciences, University of Bedfordshire, Luton, UK)

Background: In the UK, the culture, the format and the structure of training programmes for junior doctors have undergone substantial changes. These changes have considerable influence on learning through the observing of attitudes, activities and behaviours of others, which has traditionally been considered key in becoming a "good doctor".

Summary of work: Using a mixed-methods approach (structured questionnaires of 119 Consultants and 60 Trainees; one-to-one interviews with 4 Consultants and 4 Trainees), we investigated learning through observation by: comparing/contrasting the perceptions of seniors and juniors regarding current training; investigating/identifying factors which influence opportunities for learning; and exploring any link between changes in working relationships and perceived changes in learning.

Summary of results: Both seniors and juniors recognise the value of learning through observation and the need for quality structured senior/junior clinical interactions. Episodes were often limited by time- and service-related constraints. Factors negatively impacting upon learning were: changes in junior doctor rota patterns; reductions in junior doctor working hours; and loss of the classical "firm" structure.

No single factor was seen to have a consistently positive effect.

Conclusions: Learning through observation is a crucial and highly valued component of postgraduate medical training. Recent changes to training programmes have substantially impinged upon the opportunities for learning through observation.

3D3 Survey of post-graduate trainees in the New York area on cultural competence training: Implications for curriculum design

T.J. Jirasevijinda¹*, Cynthia Araujo², Rafael Ruiz³, Julie Mathew⁴, Elizabeth Lee-Rey⁵ (¹Weill Cornell Medical College, Pediatrics, New York City, New York, USA; ²Greater New York Hospital Association, Project Management, New York City, New York, USA; ³University Medical Center of Princeton, Development Office, Princeton, New Jersey, USA)

Background: The ACGME mandates training in cultural competence (CC) under professionalism. CC training is crucial in the context of increasingly diverse patient populations. Little remains known about prior CC training of post-graduate trainees across medical fields.

Summary of work: We piloted an anonymous, self-administered, web-based CC assessment tool to trainees in eight medical specialties at four Greater New York region hospitals. The tool included a survey focusing on respondent demographics and attitudes, and prior CC training.

Summary of results: The tool was administered during March and April 2009. Two-hundred-and-three trainees were invited to participate, and 48 responded (24% response rate). Almost half (46%) self-identified as white, 29% Asian/Pacific Islander; and 40% attended medical school outside the US and Canada. Trainees reported a cultural gap with their patients (37%) and a need to examine their own cultural beliefs (45%). Two-thirds of respondents had had CC training during undergraduate education, which addressed different health beliefs and cross-cultural communication.

Conclusions: Trainees reported gaps in CC training. One-third received training in this area for the first time during residency.

Take-home messages: Exposure to CC training may occur during residency for the first time. Post-graduate training should enhance curriculum in this area.

3D4 Let’s talk – let’s learn

P Dehn*, P Charles*, B Eika* (Centre for Medical Education, Aarhus University, INCUBA Science Park, Skejby, Brendstrupgaardsvej 102, DK – 8200 Aarhus N. Denmark)

Background: Three Personal Development Dialogues (PDD) have been implemented in induction training programmes to support competence development. The
aim of this study was to explore form and content of the mid-term dialogue between interns and their appointed advisor.

**Summary of work:** We used a qualitative approach, including a brief questionnaire, audiotapes of mid-term dialogues and individual dialogues of 12 junior doctors within surgical specialties and their 12 assigned advisors.

**Summary of results:** The dialogues are directed merely by the list of learning objectives to be obtained by the intern. The PPDs emphasize theoretical and practical knowledge while reflection on learning is less frequent, and meta-knowledge almost absent. Neither advisor nor intern prioritises preparation for the dialogues and the advisors’ feedback is based on implicit impressions more than on systematic observations. Overall, the form of the PPD is influenced by an environment attributing little value to educational activities.

**Conclusions:** The summative aspects of learning dominate the PPD leaving little room for formative aspects. There is room for improvement of the learning potential of the PDD which could be achieved i.e. by better preparation and by basing feed back on systematic observations.

**Take-home messages:** 1) Quality of the personal development dialogues is influenced negatively by an emphasis on obtainment of learning objectives and by insufficient preparation; 2) The learning outcome of personal development dialogues could be improved by consciously emphasizing formative rather than summative aspects within the dialogue and by feedback based on systematic observations.

**3D5 Board Round - an innovative way to deliver training and teach Leadership skills to Foundation trainees during their medical placement**

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**Background:** Ward rounds in medicine have traditionally been Consultant led where trainees present cases and management plan. Innovative electronic Board rounds every morning were introduced as part of patient safety initiative, to update patients’ clinical illness and describe our experience on a 29 bedded respiratory ward.

**Summary of work:** Board rounds between 0800 to 0900 hours were introduced as a way to enhance safe patient flows and manage better handover, discharge planning and coordination of patients. This is led by Foundation trainees and facilitated by senior doctors, ward mangers and other healthcare professionals involved with patient care.

**Summary of results:** The electronic board was used as a dashboard and trainees learnt how to prioritise clinical needs, discharge planning, multiprofessional team working and helped the trainees to focus on patients needs, solve clinical problems, be adept at handover meetings and demonstrate their leadership skills.

**Conclusions:** Initial trainee feedback of this project has been excellent. Educational/Clinical supervisors found these board meetings a good opportunity for trainees to demonstrate leadership skills and use this as an assessment tool.

**Take-home messages:** With trainees working in shift patterns, virtual board rounds can become an innovative method of delivery of training for foundation trainees.

**3D6 Engagement with an e-learning tool during an Emergency Department induction programme: Can it predict junior doctor performance?**

D Roland**, F Davies², M Lakhpanauli, N Blackwell³, H Wahl, T Coats ¹ (¹University of Leicester, UK; ²University Hospitals of Leicester NHS Trust, UK; ³OCB Media)

**Background:** The early identification of junior doctors who find the high risk environment of a Paediatric Emergency Department (PED) challenging is an obvious priority.

**Summary of work:** A paediatric focused multiple choice test (MCQ) was undertaken by a new cohort of junior doctors in a busy PED. An e-learning tool designed to improve recognition of the seriously ill child was recommended to the doctors and use monitored until a repeat MCQ two months later. For each doctor the number and demographics of patients seen was recorded and an assessment of overall performance made by the consultant body.

**Summary of results:** The initial cohort comprised of 36 junior doctors of whom 32 undertook the initial MCQ (Cronbach’s alpha 0.8) and 20 completed the repeat. Junior doctor use of the e-learning tool was sporadic and didn’t relate to the MCQ result or number of patients seen. The non-engaged group (poor engagement with an e-learning tool during an innovative method of delivery of training for foundation trainees) were more likely to have concerns identified by their consultants (Relative Risk = 8; CI 2.36 to 27.01).

**Conclusions:** Actively monitoring engagement with educational tools may enable early identification of the doctor in difficulty.

**Take-home messages:** In high risk environments consideration as to why certain groups fail to undertake supplementary education is important.

**3E Short Communications: Written Assessment**

**3E1 Feasibilty of a Web Based Script Concordance Test to Teach First Aid Skills of Flight Attendants**
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Background: Our university has been responsible for the educational course of approximately 14,000 Air France flight attendants in emergency medicine since 2001.

Summary of work: For the past two years, due to financial restraints, we have replaced small group based courses with web based on-board emergencies courses. The vignettes and case studies of script concordance tests (SCT) are very realistic.

Summary of results: Concordance tests (SCT) are very realistic. The vignettes and case studies of script based courses with web based on-board emergencies courses. The SCT scores were significantly higher in experts (29.73±2.59), when compared to laypersons (15.46±5.1) and medical students (16.21±5.89). However, there is no significant difference between the medical students and laypersons.

Conclusions: Ethical SCT is a valid tool in measuring physicians’ competency on their decisions and the reasoning scripts. With the understanding on how students’ reasoning deviated from the experts’, the ethical competency can be improved.

Take-home messages: Physicians’ reasoning abilities on ethical dilemmas can be measured by a written test, SCT. The SCT can be used to enhance ethical reasoning education.

3E2 Assessing competency on medical ethical reasoning with the use of Ethical Script Concordance Test
Tsuen-Chiuan Tsai (Department of Pediatrics, E-Da Hospital, I-Shou University, No.1, Yida Road, Jiaosu Village, Yanchao District, Kaohsiung City 82445, Taiwan, R.O.C.)

Background: Due to the difficulty in gathering consensus of decision, the assessment on ethical reasoning has been considered challenging. The Script Concordance Test (SCT) was previously used in assessing clinical problem solving in medicine, by measuring the degree of concordance between examinees’ scripts and scripts of a panel of experts. As many ethical and clinical issues sharing common problems of ambiguity on making decisions, this study is to develop an “Ethical SCT”, and to explore the ethical reasoning ability of medical students in Taiwan.

Summary of work: Methodology: The Ethical SCT comprised 13 cases of 46 items. Scoring standard was based on the responses derived from 13 ethical experts. The test takers were 22 year 5/6 medical students and 60 laypersons. Using ANOVA, the comparisons of SCT scores were made between medical students and laypersons.

Summary of results: The SCT scores were significantly higher in experts (29.73±2.59), when compared to laypersons (15.46±5.1) and medical students (16.21±5.89). However, there is no significant difference between the medical students and laypersons.

Conclusions: Ethical SCT is a valid tool in measuring physicians’ competency on their decisions and the reasoning scripts. With the understanding on how students’ reasoning deviated from the experts’, the ethical competency can be improved.

Take-home messages: Physicians’ reasoning abilities on ethical dilemmas can be measured by a written test, SCT. The SCT can be used to enhance ethical reasoning education.

3E3 Think of a differential diagnosis or not: effects of different instructional formats on scores and reliability of the script concordance test
WES van den Broek¹, MV van Asperen¹, EJFM Custers², GD Valk³, ThJ Ten Cate² (¹Utrecht University, Faculty of Medicine, The Netherlands; ²University Medical Center Utrecht, Center for Research and Development of Education, The Netherlands; ³University Medical Center Utrecht, The Netherlands)

Background: The script concordance test (SCT) is designed to assess clinical reasoning by adapting the likelihood of a case-diagnosis, based on provided new information. It is not fully clear whether subjects should weigh alternatives in a differential diagnosis when answering or not. This study investigated the effects of different instructions about tacit differential diagnosis when answering SCT questions on scores and reliability.

Summary of work: Fifty-nine final-year medical students completed an SCT. Thirty, randomly assigned, were asked to take their full differential diagnosis into account (test A). Twenty-nine students were asked not to take any other diagnosis into account when answering (test B).

Summary of results: The mean score of test A was 81.5 (SD 3.8) and of test B 82.9 (SD 5.0). The Cronbach’s alpha for test A was 0.39 and for test B 0.65.

Conclusions: Instructions to think of a differential diagnosis when answering SCT questions led to similar scores but lower reliability than the instruction to exclude a differential diagnosis.

3E4 Best Computer Based question types to assess clinical reasoning; a literature review
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Background: Three Medical Universities in The Netherlands aim to develop a shared question database for assessing clinical reasoning of undergraduate students in Computer Based Assessments (CBA). To determine the preferred question types suitable for CBA in clinical reasoning a literature study was undertaken.

Summary of work: Search of PubMed and Omega yielded 27 articles which met the inclusion criteria of a focus on question types specific for assessing clinical reasoning, assessment of medical students and recommending use of question types.

Summary of results: Several question types are suitable to assess clinical reasoning including Script Concordance Tests, Comprehensive Integrated Puzzles, Extended Matching Questions, Short Answer Questions, Long Menu Questions, Multiple Choice Questions and Virtual Patients. Not all types can easily in CBA of clinical reasoning for various reasons.

Conclusions: Combine Comprehensive Integrated Puzzles, Extended Matching Questions and Multiple Choice Questions to assess clinical reasoning. Combined these questions cover most aspects of clinical reasoning, produce valid and reliable test results and are directly suitable for use in CBA. Regardless of the chosen question type, patient vignettes should be used as a standard stimulus format to assess clinical reasoning.

Take-home messages: Use a mix of question types with rich context patient vignettes and standard questions. Train teachers in writing good patient vignettes.

3E5 Computer-based assessment during clerkships: A tool to stimulate learning or an assessment tool?
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Background: Teaching staff of the surgery clerkship felt a need to improve the level of basic surgical knowledge among undergraduate students and to improve the quality and objectivity of knowledge assessment. Both goals were covered, designing a computer-based knowledge test database.

Summary of work: Basic and case-based questions were developed by a dedicated team. The questions were tested during a 4-months pilot phase without repercussions if the student failed. On the first day of the clerkship, a computer-based pre-test with direct feedback was taken. On the last day they did a final assessment from the same database. Following the pilot phase, entry- and exit testing was implemented on an obligatory basis.

Summary of results: 100 students participated in the pilot; 54% failed the pre-test and 56% failed the final assessment. After implementation of the obligatory test, 63 students took the exam in a 3-months period. 67% failed the pre-test, but only 19% failed the final assessment. Teaching staff was satisfied with the design. Other clerkships will also implement this concept of double testing.

Conclusions: Computer-based testing can both serve as a tool to stimulate learning and as an assessment tool.

Take-home messages: Computer based knowledge testing enables more objective and efficient knowledge testing.

3E6 Analytic Methods to Evaluate Item and Test Fairness: A Case Study of the Medical Council of Canada Qualifying Examination Part I (MCCQE I)
M Roy*, MJ Gierl, K Breithaupt, H Lai (Medical Council of Canada, Ottawa, Canada)

Background: In high-stakes testing, it is important that tests are fair to all examinees no matter when or where they wrote the exam, or what demographic background they may have. One way to monitor fairness is to use DIF analysis to examine responses to test items for systematic differences related to factors other than the construct of interest. At issue is how to do this in a computer-based test (CBT) in which not all candidates see the same items.

Summary of work: A new DIF procedure designed to handle adaptive CBT was implemented on two national administrations of the MCCQE I. The MCCQE I is a multi-stage adaptive CBT designed to assess the medical knowledge of medical graduates.

Summary of results: The success of the procedure will be discussed. The number and characteristics of flagged questions will also be explored along with factors that could lead to different response patterns in our test population.

Conclusions: Fairness to all candidates is important to ensure unintended error is not introduced but it has been difficult to do so in CBT contexts. The value of DIF for assessing the fairness of CBT items will be discussed.

Take-home messages: The utility of this statistical method for assessing the fairness of high-stakes assessment of medical knowledge will be explored.

3F Short Communications: Interprofessional Education

3F1 A student run open health clinic
K Bjurkegren*, A Andersson*, K Ahlqvist*, M Holm, M Wohlin (Uppsala University, Sweden)

Background: Clinical practice and interprofessional education provides students with opportunities to develop their own professional roles and learn about other professions.

Summary of work: In this project four different educational programmes, i.e. medicine, nursing, physiotherapy and clinical dietitian students participated. The students worked together in mixed pairs to learn about and understand other professions, to develop their own professional roles and learn about health promotion strategies and communication. The students had support from before and after each client visit. At the end of the project student and clients graded the consultation experience (visual analog scale). Students as well as supervisor were also interviewed regarding the project as a whole.

Summary of results: Teachers as well as students found increased collaboration in-between the professional education program as very stimulating. Students experienced enhanced skill in health promotion communication, they experienced their own professional role as clear but identified a need to learn more about the other professionals.

Conclusions: A student run open health clinic enhances good teamwork and interprofessional learning that in the long run might lead to an increased patient safety and decrease hierarchies within health care practice.

Take-home messages: Both teachers and students learned from interprofessional working in this student run open health clinic.

3F2 A social network approach to studying interprofessional communication: Implications for interprofessional education
Issac Lim*, Chung King Chia*,Mui Peng Wong*, Puay Ee Kwek*, Philip Choo1 (National Healthcare Group, Health Services and Outcomes Research, Singapore; Tan Tock Seng Hospital, Gastroenterology and Hepatology, Singapore; Tan Tock Seng Hospital, Nursing Service, Singapore; Tan Tock Seng Hospital, Executive Office, Singapore)

Background: Interprofessional communication among healthcare workers (HCWs) has often been singled out as key to quality healthcare. However, empirical data that detail communication patterns among HCWs has been lacking. We look at micro communication patterns among HCWs using social network (SN) analytical tools.

Summary of work: We made 112 hours of observations in hospital wards. Minute-to-minute observations of interactions were coded into adjacency matrices to produce static and dynamic SN diagrams to examine communication patterns. 42 interviews with HCWs were conducted to ascertain the context to interpret SN diagrams.

Summary of results: SN diagrams reveal the lack of interprofessional communication. Doctors and nurses spent 25.36% and 19.17% talking intraprofessionally respectively, in stark contrast to interprofessional communication at 3.21%. Time spent on documentation and patients were similar at 26.25% and 25.12% respectively.

Conclusions: SN diagrams were powerful visual tools to represent reality. Communication among HCWs was largely intraprofessional and largely mediated by the IT system and case notes.

Take-home messages: The design of work flow must consider organizational and occupational cultures, and impact of IT on ward dynamics. The centrality of the IT system should be leveraged to facilitate instead of supplanting face-to-face communication. Socialization of HCWs via interprofessional education might be essential to build a team-based care environment.

3F3 Lessons learned from analysis of a case based interprofessional education course
S Mackintosh*, J Tegzes2, J Orzoff1 (Western University of Health Sciences-Department of Interprofessional Education, Pomona, CA, USA; Western University of Health Sciences-Academic Affairs, Pomona, CA, USA; Western University of Health Sciences-College of Veterinary Medicine, Pomona, CA, USA)

Background: Western University of Health Sciences implemented a comprehensive interprofessional education (IPE) program in 2010. The IPE curriculum was designed as a three phase experience for professional healthcare students covering all phases of training. The first phase is a case-based course designed to provide interprofessional exposure for entry level healthcare professional students. This presentation will provide a brief overview of the phase I course including an analysis of early data. The presentation will also describe how the data were used to make course revisions.

Summary of work: The phase I course has now been implemented for three consecutive semesters. The course was designed to utilize a healthcare case as the backdrop for highlighting non-technical competencies such as communication, scope of practice, teamwork, etc. An extensive evaluation plan was administered in congruence with the course.

Summary of results: While there was a learning curve to the course, it was successful, and application of lessons learned from the course contributed to continual course improvements.

Conclusions: Implementation of a case-based interprofessional course is possible, and adjustments
made to the course from data analysis and lessons learned will continue to improve the course. **Take-home messages:** Case-based learning is an effective method for IPE, but evaluation is an integral component for success.

**3F4 Demonstration of interprofessional education student learning: Global rating scale assessment**

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**Background:** Interprofessional education (IPE) curricula and programs have typically revealed useful program evaluation data, but limited, if any, assessment of actual student learning. With the development of competency frameworks for IPE, the opportunity to achieve the assessment of students may be better realized.

**Summary of work:** The Centre for Interprofessional Education, University of Toronto initiated a requisite competency-based IPE curriculum in 2009. As part of this comprehensive curriculum, student learning was assessed during the 2009 – 2010 academic year in over 30 learning activities using global rating scales. The global rating scales are based on the University of Toronto Interprofessional Education Values and Core Competencies. The specific core competencies that each session addresses are used to create five-point Likert global rating scales that contain three anchors. They are used as a self-assessment tool prior to and after the learning activity to determine if there is perceived change by the students with respect to the specific competencies identified for each activity.

**Summary of results:** For all sessions, students’ perception of competencies related to values and ethics, communication and collaboration improved over the session.

**Conclusions:** This global approach to assessment of learning of IPE competencies; therefore, has good utility as one component of a comprehensive assessment strategy for an IPE curriculum.

**3F5 Using intervention mapping to develop an interprofessional and reflective education program for the management of chronic diseases in primary care**


**Background:** The COMPAS project was developed to improve the management of chronic diseases in primary care. It has two main goals: provide useful information to healthcare professionals to improve their own service delivery and facilitate interprofessional collaboration. In order to achieve these goals an interprofessional educational (IPE) program, combining feedback and reflective learning, was implemented in Montérégie (Quebec, Canada).

**Summary of work:** The aim of this study was to use intervention mapping to develop the program theory of this IPE intervention, i.e. make explicit the set of assumptions about the manner in which the program relates to its expected outcomes. Multiple sources of information were used: literature, workshop observation and interviews with participants and facilitators. Results were analysed using thematic analysis and revealed that the intervention is primarily based on goal setting theory.

**Summary of results:** Expected outcomes of the program are: increased awareness of required improvements, increased understanding of other professionals’ role, increased acquaintance with other professionals, development of a relevant action plan and level of implementation of the action plan.

**Conclusions:** This thorough description of the program’s theory will lead to the development of an appropriate evaluation design measuring the effectiveness of this program.

**Take-home messages:** Feedback and reflection appears to be a good combination of strategies to support the implementation of practice changes.

**3G Short Communications: Research**

**3G1 The acquisition of scientific research skills and attributes by medical students undertaking an Honours Degree as a core part of their medical curriculum.**

*S Guild*, *A Laidlaw*, *J Struthers* (School of Medicine, Medical and Sciences Building, University of St Andrews, St Andrews, KY16 9TF, UK)

**Background:** Research skills and competencies are increasingly viewed as important attributes for medical graduates. The top seven such attributes in Medicine emerged from a survey of expert opinion (Laidlaw et al., 2009) and are 1) Inquiring mind/curiosity, 2) Core knowledge, 3) Critical appraisal, 4) Understanding of the evidence base for professional practice, 5) Understanding of ethics and governance, 6) Ability to work in a team, 7) Ability to communicate (Anita Laidlaw, Simon Guild and Julie Struthers 2009)

**Expected outcomes of the program** were: increased awareness of required improvements, increased understanding of other professionals’ role, increased acquaintance with other professionals, development of a relevant action plan and level of implementation of the action plan.

**Conclusions:** This thorough description of the program’s theory will lead to the development of an appropriate evaluation design measuring the effectiveness of this program.

**Take-home messages:** Feedback and reflection appears to be a good combination of strategies to support the implementation of practice changes.
3G2 Does early research experience make a difference? Impact of undergraduate research experience on subsequent choice of further research

Joanne Elliot, David Handelsman, Linda Klein*, Heather Jeffery, Karen Garlan, Megan van der Hoeven (University of Sydney, Sydney Medical School, Sydney, Australia)

Background: Since 2005 the Sydney Medical School has offered students short-term (summer) apprenticeships with career scientists to encourage talented undergraduates into postgraduate research and research careers. The rationale was that students would be attracted by inspirational leadership and this evaluation was conducted to assess whether the program has met its aims.

Summary of work: An online questionnaire was made known to all students who participated in the first 5 years of the program, asking about their experiences and subsequent involvement in research.

Summary of results: 278 undergraduates were awarded one or more Summer Research Scholarships between 2005 and 2009 and 220 (83%) responded to the survey. Of respondents 156 (71%) had completed their 1st degree and of these, 76 (49%) had enrolled in Honours, 6 (3%) had enrolled in a Masters degree and 36 (23%) had enrolled in a PhD. Of those who commenced research after their degree, 68% said their summer program experience influenced their choice, making them more likely to pursue research.

Conclusions: A Summer Research Scholarship program can influence students toward a higher degree and a research career.

Take-home messages: A positive experience with an inspirational leader early in a student’s career can lead them to consider a career in biomedical research.

3G3 The Role of Research and Educational Center in the Teaching Process at the Medical University

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Background: The Research and Educational Center (REC) aims to create an environment for effective training of young scientific and tutorial staff and to build collaborative teams of teachers and young researchers.

Summary of work: The Research Educational Center was formed due to close collaboration of several generations of scientists, professors, teachers, assistants, graduates, interns, residents and students of 2 organizations: the Institute of Internal Medicine of the Medical Sciences and Novosibirsk State Medical University. Joint scientific-exploratory work on the problems of acute coronary syndrome, the search for new prognostic markers of unfavorable outcomes, optimization of treatment and secondary prophylaxis has been effectively carried out for the last 2 years.

Summary of results: As a result of the 2-year work of the REC more than 30 students have been involved in research work. 11 sessions of students’ scientific society have been held. Students have made 4 reports at All-Russia and 1 report at the international conferences. 6 papers have been published in refereed journals. 4 topics of PhD and 1 of doctoral dissertations have been approved.

Conclusions: The organization of the REC increases educational opportunities of our Medical University at various levels: students, under-graduate and post-graduate education, doctoral course. The joint work of scientists and professors with students results in both increasing professional competence of students and their interest to research work.

3G4 Introducing scientific research skills for undergraduate medical students in the Einthoven Science Project

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Background: The Einthoven Science Project has been developed to offer undergraduate students a realistic scientific research task using educational strategies of independent discovery and competition.

Summary of work: Students record each other’s electrocardiogram (ECG). After an expert check on normality, each ECG registration is mathematically synthesized into a vector cardiogram, and the spatial angle between the QRS- and T-axes is computed in addition to conventional ECG characteristics. Data are
blinded and added to a database with previous recordings. The students must formulate a research question and answer it using the database. Students who sent in their work within 1 week are eligible to run for the Einthoven Student Award.

**Summary of results:** The project started in 2005 and the database now contains 1500 normal ECG recordings. Circa 30% of the students did run for the award. Several past award winners continued to perform research and until now by these winners 3 conference presentations have been delivered and 2 papers have been published in peer reviewed international journals.

**Conclusions:** The Einthoven Science Project introduces a competitive and inspiring scientific element in the undergraduate curriculum. It shows that first year students already have great capacities to formulate a relevant research question and to perform scientific research.

**Take-home messages:** Strategies of independent discovery and competition can successfully stimulate undergraduate students to develop scientific research skills.

### 3G5 Scholarship during residency training: A controlled comparison study

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**Background:** Scholarship during residency training is important. The Mayo Clinic Internal Medicine Residency has a multifaceted research curriculum.

**Summary of work:** For residents beginning training 2003-2006 and graduating 2006-2009, we counted MEDLINE peer-reviewed articles during residency for residents who matched to Mayo Clinic and for non-Mayo residents who were ranked higher than the lowest ranked Mayo-matched applicant (i.e., were “ranked to match” and could have come to Mayo had they wished). Outcomes included peer-reviewed articles per resident and the proportion of residents with at least 1 publication during residency.

**Summary of results:** 191 Mayo-matched residents were compared with 430 ranked-to-match non-Mayo residents. Mayo training was associated with over three times as many peer-reviewed articles (2.1 vs. 0.6 per resident) and over four times as many case reports (0.57 vs. 0.13 per resident) than alternative training (both p<0.0001). Nearly twice as many Mayo-matched residents published at least 1 article (66% vs. 36%, RR=1.8; p<0.0001).

**Conclusions:** When compared to their equally-qualified peers, residents participating in this multifaceted research curriculum produced more peer-reviewed articles, more case reports, and were more likely to publish at least 1 paper during residency.

**Take-home messages:** Understanding this curriculum may assist residencies in developing effective research curricula.

### 3G6 Encouraging medical students’ participation in clinical research

**H G Dyer** (Ross University School of Medicine (RUSM), Roseau, Dominica)

**Background:** Lloyd et al (2004) concluded that participation in medical research as a medical student may be under-recognized as a determinant of future involvement in clinical research. Ross University School of Medicine (RUSM) students are therefore encouraged to participate in clinical research.

**Summary of work:** In a RUSM-funded clinical research project on breast cancer detection and diagnosis, members of the RUSM student oncology club formed part of the interviewer group who administered a 38-point questionnaire in a face-to-face interview format to 98 primary health care workers and general practitioners involved in breast care. Criteria for participation in the project included: above-average academic performance, attendance at the training workshop for interviewing skills, taking an oath of confidentiality and photo-documentation of the process.

**Summary of results:** 15 students participated in the project, completing 32 interviews which took place in the community health districts. The average number of interviews conducted per student was 2, the most interviews conducted per student was 4 while the least was 1. The students demonstrated high levels of enthusiasm and professionalism and expressed satisfaction with their level of participation.

**Conclusions:** RUSM students welcomed the opportunity to participate in a clinical research project. Medical educators should provide opportunities for medical students to participate in clinical research.

**Take-home messages:** Medical educators should provide opportunities for medical students to participate in clinical research.

Lloyd, Tom; Phillips, Brenda R; Aber, Robert C. Factors that influence doctors’ participation in clinical research. Medical Education 2004; 38: 848–851

### 3H Short Communications: Peer Assisted Learning

### 3H1 MD PBL tutors provide a slight advantage over student tutors in development of clinical reasoning skills

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**Take-home messages:** Understanding this curriculum may assist residencies in developing effective research curricula.
Background: The University of Hawaii medical school has been supplementing their PBL tutor pool with senior medical students. Researchers have generally found no differences between student and faculty tutors except. Early unpublished research here showed high acceptance by students of student tutors. Summary of work: For the years 2003-2010 we compared both basic science and clinical reasoning final examination marks for students with student tutors to those with faculty tutors. We also convened a student focus group to compare student and faculty tutors. Summary of results: There were no statistically significant differences except in second year on the examination of clinical reasoning \((p=0.004)\) though the effect size was moderate \((d=0.32)\). Students reported that student tutors were better prepared, spent extra time, and created a more comfortable learning environment. Conclusions: MD PBL tutors provided a slight advantage over student tutors in tests of clinical reasoning. This unique finding provides some support for content expertise in PBL tutors. Student tutors were no disadvantage to students in first year and may have many unmeasured advantages. Further research is ongoing. Take-home messages: Student tutors may provide strengths more suitable for early PBL experiences and MD PBL tutors may provide a slight advantage over student tutors in development of clinical reasoning skills.

3H2 Medical student-led peer assisted learning (PAL) improves clinical examination skills – A pilot study at the University of Oxford
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Background: Clinical attachments at medical school are fairly short, yet students are expected to achieve a certain level of competence. To help students gain more from their limited time, we explored whether PAL could be used to improve confidence in specific clinical examinations when offered at the start of a new rotation.
Summary of work: We designed interactive seminars introducing different neurological examinations to fellow students at the start of their neurology course. Questionnaires assessed confidence before and after the sessions. Our initial pilot scheme with 65 students was subsequently expanded to teach over 150.
Summary of results: Our sessions resulted in a significant increase in confidence in examination skills, from an average of 1.8/5 to 4/5 \((p<0.0001, n=65)\). 100% said they would recommend this to colleagues. Written comments emphasised the usefulness of receiving such teaching before starting on the wards.
Conclusions: Medical students’ confidence in examining patients at the start of a new clinical attachment tends to be low. PAL is an effective way to improve this. Importantly, if offered near the beginning, it allows students to make the most of learning opportunities encountered throughout a placement.
Take-home messages: Student-to-student teaching holds considerable potential as a teaching resource, given it is largely underused and yet both popular and effective.

3H3 Can trained peer tutors influence the learning behaviour of students in the dissection course?
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Background: Student tutors in the dissection course meet high demands on their job. We developed a combined technical and didactical training which is well accepted by tutors and tutees. However, this does not mean the tutor training has an effect. We set up a randomized, controlled, single-blinded study with a quantitative cross-sectional analysis to assess and compare student learning behaviour.
Summary of work: To assess the students’ learning behaviour we employed the LIST questionnaire. A common factor analysis was calculated to extract dimensions. Factor scores of the extracted dimensions were calculated for both groups to estimate differences in learning behaviour.
Summary of results: Factor analysis of the LIST questionnaire revealed eight factors explaining 47.57% of the overall variance. Students coached by trained tutors learn more with their fellow students \((\text{factor score in cooperative learning 0.194 vs. -0.205, p=0.018). Although not significant, students coached by trained tutors tend to be better organized in their learning (factor score in learning organisation 0.115 vs. -0.122, p=0.16).}

Conclusions: Students coached by trained tutors present a different learning behaviour than students coached by untrained tutors, they learn significantly more often in teams than their colleagues and tend to be better organized. Thus it seems reasonable to employ professional and didactically qualified tutors also for other subjects and courses.
Take-home messages: Trained peer tutors enhance the cooperative learning of students in the dissection course.

3H4 Peer-taught clinical skills refresher course – an effective preparation for the clinical years?
**3H5 Peer Assisted learning: The effects of two years.**

**Background:** The transition from pre-clinical to clinical years is challenging for undergraduates. This study evaluated: i) the confidence levels of Glasgow students prior to starting clinical attachments; ii) whether a peer-taught clinical skills refresher course (CSRC) delivered at the start of the year would improve the confidence and better prepare students for clinical attachments.

**Summary of work:** 35 fifth year medical students taught clinical examinations of abdominal, cardiovascular, musculoskeletal, neurological (motor, sensory, cranial nerves) and respiratory systems to 88 fourth year students. Overall confidence of tutees starting clinical attachments and in clinical examination skills for each system was assessed, pre and post-CSRC, using a questionnaire and visual analogue scales, respectively.

**Summary of results:** 30% of students felt confident with their overall examination skills before starting clinical attachments. This increased to 71% after CSRC (p<0.001). Confidence also significantly increased for each system when analysed individually.

**Conclusions:** CSRC has increased the confidence in systems examination as well as the overall confidence of students prior to starting clinical attachments.

**Take-home messages:** Peer-taught CSRC can be a valuable asset for undergraduates entering their clinical years.

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**3H6 Peer teaching during medical school and residency can serve as preparation for careers in academic medicine and public health**

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**Background:** It is recommended that resident physicians have opportunities for the “deliberate practice of teaching” before they are expected to function independently.

**Summary of work:** As students, the authors co-directed a public health/ policy initiative for medical students. Course evaluations demonstrated generally positive experiences and students expressed appreciation for exposure to important issues of which they had little prior knowledge. As a resident, one of the authors (OS) conducted an intervention in which fellow residents were introduced to basic concepts of evidence based medicine, biostatistics and epidemiology. Knowledge scores increased from a mean score of 36.67% on the pretest to 50.56% on the posttest.

**Summary of results:** The public health/ policy initiative led to presentations at state and national conferences. The residency project led to presentations at local, state and international conferences. One of the authors (OS) is currently involved with curricular innovations incorporating public health and oral health into the curriculum at a medical school. The other author (HTR) is undergoing training in preventive medicine/public health and plans a career in academic public health.

**Conclusions:** Peer teaching during training can serve as preparation for careers in academic medicine and public health.

**Take-home messages:** Peer teaching should be applied as a more deliberate element in the medical education continuum.

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**3I Research Papers: Assessment**
**311 The Multi-Dimensional Assessment of Clinical Teachers (MD-ACT): The reliability and validity of a new tool to assess the professionalism of clinical teachers**

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**Introduction:** With concern over negative learning environments, a disconnect between formal and informal curricula, and the presence of harassment and discrimination in the clinical environment, the assessment of the professional and teaching behaviours of clinical teachers could represent a potential solution. Here we report the reliability and validity of a new form, the MD-ACT in its first year of implementation.

**Methods:** The MD-ACT, a 17-item form based on a previously validated form1, was distributed on-line. All third-year clinical clerks were required to complete an MD-ACT form for two of their clinical supervisors in each clerkship rotation in exchange for access to their grades on-line. To assess reliability, six random samples of 50 clinical teachers were used to estimate variance components (for bootstrapping an estimate of reliability), and g-theory was used to estimate overall form reliability. For validity of the form, written comments from the MD-ACT were rated on a 7-point scale (from 1=poor to 7=superior clinical teacher), and coded for number of independent segments, number of positive and negative segments, number of global and specific segments, presence of transitions (e.g. ‘however’), of positive-to-negative and negative-to-positive transitions, and word count. For construct validity, the overall global rating of the clinical faculty member was correlated with the comment rating (on the 7-point scale). Further, a regression analysis was conducted with global rating as the variable of interest, and the comment characteristics (listed above) as the predictor variables to determine characteristics in a written comment that predict numerical performance on the MD-ACT.

**Results:** 4715 forms were completed on 573 faculty members, in 2009-10, with an average of 8.26 forms completed per faculty (harmonic mean = 2.8). The overall reliability of an average of 2.8 ratings per faculty member was 0.35 (SD based on subsamples = 0.15), and 12 evaluations per faculty would be needed for a reliability of 0.7. Comments were present for 45% of evaluations (82% of all faculty received at least one comment). Comments were more likely present for poor evaluations, and number of words was a negative predictor of global evaluation. Comment rating correlated well with global evaluation (r=0.77 p<0.001), and presence of negative segments was the best predictor of a negative global evaluation (b=-.45, p<.001), followed by the presence of a negative-to-positive transition (b=-.41, p<.001).

**Discussion and conclusion:** The MD-ACT appears to be a feasible, generalizable, valid, and reasonably reliable assessment tool for the evaluation of clinical teachers.

**References:** 1*Todhunter, Cruess, Cruess, Young & Steiner* (in press). Adv Health Sci Ed.

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**312 Raters’ performance theories and constructs in work-based assessment**

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**Introduction:** Over the last few decades, assessment practices in medical education have been characterized by an increasing focus on work-based assessment (WBA). Weaknesses in the nature of rater judgments, however, are generally considered to compromise utility of WBA-outcomes. It is generally agreed that, in order to effectively improve work-based assessment practices, we need to better understand the processes underlying raters’ judgment and decision making in performance assessments3. The purpose of the present study was to investigate how raters form impressions and make judgments about trainee performance in ‘real-life’ patient encounters. Using theoretical frameworks of social cognition and person perception, we explored raters’ implicit performance theories (‘role schemas’); their use of task-specific performance schemas and the formation of person schemas during observation and assessment of trainee performance. We furthermore explored effects of rater experience on schema-based processing.

**Methods:** Experienced (N = 18) and non-experienced (N = 16) raters (GP-supervisors) watched two videotapes, each presenting a trainee in a ‘real-life’ patient encounter. Cognitive performance of raters was captured through think-aloud procedures and verbal protocol analysis2. Verbal data were analyzed qualitatively to explore the content of raters’ schemas and their use in performance assessment. Quantitatively, we assessed levels of rater idiosyncrasy with respect to performance dimensions that are considered in assessment of performance and we investigated if and how differences in rater expertise affect the use of (task-specific) performance schemas.

**Results:** Raters use different schemas to arrive at judgments about trainee performance. Through analysis of think-aloud protocols a normative performance theory emerged, consisting of 17 different but inter-related performance dimensions. Results indicated substantial levels of rater idiosyncrasy with...
respect to dimensions used in performance assessment; differences were not consistently related to rater expertise. Significant differences between experienced and non-experienced raters were found with respect to use of task-specific performance schemas, suggesting that experienced raters have more differentiated performance schemas. In the majority of raters, person schemas started to develop immediately after the beginning of observation of trainee performance.

**Discussion and conclusion:** Findings from our study further our understanding of processes underpinning judgment and decision making in work-based performance assessments. Results show how raters arrive at and justify their judgments using personal theories and constructs of performance. Raters’ information processing seems to be affected by differences in level of rater expertise. Results from our study may contribute to improvement of rater training, design of assessment instruments and decision making procedures in WBA.

**References:**

**3I3 Positive effect of interim assessment during an ongoing course on the course exam score is not enhanced by immediate feedback: A cross-over study**

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**Introduction:** In a previous study (Ruiter et al, AMEE 2010, abstract 10M1) we demonstrated in a prospective controlled design that an interim assessment during an ongoing course on General Pathophysiology resulted in a higher score of the course exam. As this reflects the so called testing effect, which is supposed to be enhanced by (immediate) feedback, we investigated the effect of feedback following an interim assessment on the score of the course exam.

**Methods:** Two interim assessments were taken during a four-weeks bachelor course on General Pathophysiology by 287 medical and 83 biomedical students at the RUNMC. The assessments consisted of 7 multiple choice questions that were derived from a validated set of questions. All 370 students took an interim assessment on the topic cell damage (second week) and on tumor pathology (fourth week). The intervention consisted of detailed oral feedback on the content of the questions including the rationale of the (in-)correct answers provided by the tutor. The study was set up as a prospective randomized study using a cross-over design, by which the intervention and control groups of the second and fourth week were interchanged. As an outcome measure the difference in the normalized scores (1-10) of the course exam multiple choice questions related to the two different topics was taken. Using conventional cross-over methodology, the effect of feedback was estimated as half the difference in the outcome between the two conditions. Mixed model analysis was used whereby the small work group was taken as study target. Stratification was performed for gender and discipline of the students.

**Results:** The scores of the questions on tumor pathology amounted to 6.73 in the group without and 6.77 in the group with feedback, and 7.70 and 7.78, respectively for those on cell damage. No statistically significant effect of feedback was found: 0.02 on a scale of 1 to 10 (95% CI: -0.20; 0.25). There were no significant interactions of feedback with gender or discipline.

**Discussion and conclusion:** To our surprise no additional effect of immediate feedback following an interim assessment during a small group work session in an ongoing bachelor course could be demonstrated in this prospective randomized controlled study. Possible explanations for these findings include the type of feedback given, other opportunities for feedback later during the course, and/or a ceiling effect of the interim assessment on learning.

**Take-home-message:** The type of feedback that is supposed to contribute to the testing effect on learning should be clarified.

**3I4 Undergraduate Medicine Courses: An analysis of the institutional process of accreditation in Brazil**

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**Introduction:** Undergraduate Medicine courses in Brazil are evaluated once every three years to obtain accreditation from the Ministry of Education (SINAES/INEP-MEC). Two measures compose the final course score: the Specific Component (related to specific professional knowledge) and General Formation (related to the acquisition of broader cultural knowledge and social responsibilities). However, in all employed official indicators, those two complimentary and distinct measures are mixed to build a single indicator quantity. We pay a price for this simplification, namely the loss of perception regarding the individual contribution of each measure in final computation of the indicator. Would it be possible to
analyze the score data in order to recover those two measures? Could a better course classification scheme be devised?

**Methods:** Questionnaires from 89 Medicine courses in 2004 and 158 courses in 2007 were analyzed. Both the performance in the graduating students’ Specific Component score and the difference between the average General Formation examination scores for graduating students and freshmen appear as robust performance indicators. The first indicator is related to the course efficacy, in terms of acquisition of strictly technical abilities. The second is related to course efficiency, the ability to educate responsible citizens. We propose a novel multi-criteria representation of these two quantities.

**Results:** There is evidence of several methodological problems in the process of construction of official indicators. Our analyses show that the most traditional institutes match exactly those which are better classified by our multi-criteria concept. Besides, our concept provides easy visualization of the factors leading to this improved classification.

**Discussion and conclusion:** Both the performance in the graduating students’ Specific Component score and the difference between the average General Formation examination scores for graduating students and freshmen appear as robust performance indicators. Those two complimentary and distinct measures are usually mixed to build a single indicator. However, we pay a price for this simplification, namely the loss of perception regarding the individual contribution of each measure in final computation of the indicator. We propose a novel multi-criteria representation of these two quantities. Besides, our concept provides easy visualization of the factors leading to this improved classification. Compatible and robust reference matrices are necessary when monitoring courses to form excellent professionals, aware of their social responsibilities. We believe this methodology could contribute to the quality assurance process of Medicine courses.

In this study we tried to gain a better insight into these relations by using Social Network Analysis (SNA) to study workplace based learning interactions.

**Summary of work:** A questionnaire was used to identify learning-related relations between all staff members of an Intensive & Medium Care Unit (ICU/MCU) in a large teaching hospital. A total of 84 questionnaires was analyzed using SNA.

**Summary of results:** We were able to draw a network of doctors, residents and nurses on topics like ‘asking work-related questions’ and ‘observing others to learn’. Specialized doctors are central to the network: residents indicate them as their main contact for sharing thoughts on work, although specialists do not reciprocate these contacts. ICU nurses, have many interprofessional contacts with both doctors and residents, strikingly MCU nurses do not share these contacts.

**Conclusions:** SNA can be helpful in revealing patterns of (learning) interaction in a ward. Combining SNA with methods such as case studies and interviews could create a more complete picture of informal learning patterns in the workplace.

**Take-home messages:** SNA has the potential to increase our understanding of interprofessional relations and opportunities for improvements of these relations in the workplace.

**3J2 Patient attitude to medical student experience in General Practice**

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**Background:** General practice is an important part of medical education. We surveyed patients’ attitudes to the presence of medical students during general practice consultations.

**Summary of work:** A prospective survey of 100 patients in a general practice in Wellingborough.

**Summary of results:** 88% of patients were happy to have medical students present in their consultation. Only 80% and 76% were happy to discuss mental health and sexual health issues respectively and only 78% reported feeling confident asking a medical student to leave so they could discuss their problems privately. 61% of patients felt happy to have an intimate examination performed with the student present. The majority of patients were happy to discuss their history with (81%) or be examined (71%) by a student.

**Conclusions:** The majority of patients surveyed were happy to be involved in all aspects of medical student teaching. However significant numbers would be less happy to discuss more personal issues and even more patients would not feel confident asking the student to leave. General practice is an excellent opportunity for students to be introduced to a broad range of consulting styles and clinical problems but it is
important to ensure patients are fully consented to their presence and offered opportunities to decline involvement.

3J3 Learning at a clinical education ward - first and final year nursing students' perceptions
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Background: In an ongoing project first and final year nursing students’ perceptions of their learning process at a clinical education ward are studied. Students are on rotation during six weeks and they take care of patients independently and together with other students under support from supervisors.

Summary of work: Semi structured individual and group interviews of 19 first year and 18 final year students were conducted and analysed using qualitative content analysis.

Summary of results: First year students’ create their own relationship with the patient and this relationship become the main source for their understanding of nursing. Final year students stress affirmation and feedback from the supervisors as the most important sources for their understanding of the role of the nurse and how nursing is related to other sciences.

Conclusions: The educational ward offering authentic patient encounters supported by supervisors seems to be perceived differently by students on different levels. First year students stress the relationship with the patient and final year students’ focus on the relationship with the supervisors.

Take-home messages: To fully acknowledge the possibilities provided on a clinical education ward it is important to take students’ experiences, knowledge and educational level into account.

3J4 Creating a Student ER
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(University of Uppsala, Unit for Medical Education, Uppsala, Sweden)

Background: A team-based organisational model was introduced in the ER of Uppsala University Hospital with a negative impact on medical students’ possibilities to independently examine patients and take full histories.

Summary of work: This project was initiated where suitable patients were managed through a separate part of the ER, where medical students under supervision saw patients first, taking full histories and performing physical examinations, after which students discussed further management with treating physicians. The students took consults, wrote referrals, and kept all medical records under supervision.

Summary of results: A vast majority of patients were managed in under 4 hours. Student feedback has been very positive, and steps are being taken to permanent the project. The number of patients managed by the supervising physicians was moderately decreased.

Conclusions: Medical students starting their clinical rotations are capable of performing many of the duties of the physicians in the ER. Involving the students to this degree in the ER is found to be beneficial and educational.

Take-home messages: A student ER ensures that medical students are given feedback on their clinical skills and knowledge and can be done with only moderate reduction in the amount of patients seen by the physicians.

3J5 Teaching and Learning in an Integrated Ambulatory Medicine Programme for Undergraduate Medical Students in Dunedin, New Zealand
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Background: Changes in healthcare delivery have resulted in more patients with chronic medical conditions being cared for in the community than the inpatient setting. Medical educators now need innovative ways of exposing students to patients with conditions that are infrequently seen in hospital. The Ambulatory Medicine Programme is integrated with ward-based attachments and was developed to enhance students’ clinical skills by providing increased contact with these patients in a dedicated learning environment.

Summary of work: A qualitative/quantitative approach was used to evaluate the Programme over one academic year. This research focuses on staff and student perspectives of teaching and learning in Ambulatory Medicine compared with the inpatient setting; identifies which teaching approaches are most effective and determines whether students can apply new learning on the ward. Patient perspectives of being involved in student teaching are also obtained.

Summary of results: Staff and student feedback show a high level of satisfaction and that the programme has made a positive impact on student learning. Patients enjoy being involved and find it personally satisfying.

Conclusions: Findings indicate that this programme is highly effective in enhancing student learning and clinical skill development.

Take-home messages: An integrated Ambulatory Medicine Programme is an effective way of providing increased clinical learning experiences for undergraduate medical students.
Conclusions: Over the period 2002 to 2009, subject to further statistical testing, a longitudinal improvement was also observed from presentation, effective style, and good rapport. Overall enthusiasm stimulation, appropriate level of inter-item coherence and user discrimination between items. Some qualitative and quantitative analysis of the similarities and differences in work and lifestyle attitudes between medical students from various countries.

Summary of work: We created an open access online survey in February 2010 via an open source survey tool. Forty-eight questions were assembled by a group of international medical students and medical doctors. The questions and responses reviewed were addressed to the themes lifestyle and education. Special attention was given to: Sleep patterns, exercise, smoking, alcohol use, illicit drug use, work load as student, work load outside studies, preferred work load post degree completion and relationship status.

Summary of results: Between February and May 2010, we have received 2456 completed questionnaires. The vast majority of responses were from Germany (1662), Austria (310), Switzerland (234), UK (200), Australia (91) and a negligible amount (8) from various other countries. The prevalence of smoking was highest among European students, especially Austrians at 20% compared to other Europeans at around 10%. Exercise rates showed two peaks at no exercise at all and exercise at 2-3 hrs per week across the World, with Australian students partaking in the least overall exercise. Most students expected an average 40hr working week once qualified.

Conclusions: This study represents an introduction to the similarities and differences between medical students. Some of the differences between countries were intriguing, perhaps testament to cultural and societal differences.

3K2 Harmonisation of medical education and training in Europe 25 years on
A Cumming (University of Edinburgh, Centre for Medical Education, Queens Medical Research Institute, 47 Little France Crescent, Edinburgh UK)

Background: The medical Directives of 1976 established mutual recognition of medical qualifications within European member states. This allowed mobility of doctors without further testing. Since then, the principle of "harmonisation" of medical education and training in Europe has been widely recognised. However, despite much work over 25 years, little progress has been made.

Summary of work: Routine procedures in member states are generally absent at European level – e.g. standardised duration, structure and organisation of educational programmes; specified curricula and core competences; common assessments; specified CPD requirements; regular review and audit of programmes, including site visitations.

Summary of results: Few harmonisation initiatives have progressed beyond needs assessment and opinion survey. Some have agreed standards, but implementation and monitoring of these is rare.
Conclusions: To move forward, we need clearer definitions of why harmonisation is desirable, and the expected benefits; improved understanding of barriers to harmonisation; and more effective processes to promote and monitor harmonisation.

Take-home messages: The current revision of the medical Directive is an opportunity to clarify and enhance the legislative context of harmonisation. If harmonisation is to progress it should be perceived not as an imposed requirement, but as something owned and driven by the medical community, in the interests of patient safety and well-being.

3K3 The importance of specific medical education accreditation standards
M van Zanten (FAIMER/ECFMG, Research and Data Resources, 3624 Market Street, Philadelphia, PA 19104, USA)

Background: There is significant global variation in medical education accreditation systems. The purpose of this study was to evaluate the importance of individual standards used by accreditation agencies throughout the world.

Summary of work: We developed a 150-item survey that consisted of all World Federation for Medical Education (WFME) standards, supplemented with additional standards used around the world. International accreditation experts rated the standards based on the relative importance of each standard for ensuring the quality of undergraduate medical education programs. A 3-point scale was employed: 1=not important, 2=important but not essential, 3=essential.

Summary of results: Thirteen of 22 experts anonymously completed the survey (59%). The mean values across individual standards ranged from 2.32 to 2.87, indicating that most of the 150 standards are at least important, and some essential, for ensuring program quality. Fourteen standards received the highest rating of 3 (Essential) from all experts, and four standards received mean ratings of less than 2.00. Variability in the ratings across the experts for individual standards ranged from 0.00 (unanimous agreement) to 0.60 (moderate disagreement).

Conclusions: While there is some global variation in experts’ opinions of accreditation standards, certain standards are considered essential.

Take-home messages: This data will be useful in determining best practices for medical education accreditation systems.

3K4 Stages and transitions in medical education around the world: clarifying structures and language
M Wijnen-Meijer, W Burdick, L Alofs, C Burgers, Th J ten Cate (Center for Research and Development of Medical Education, University Medical Center Utrecht, P.O. Box 85500, 3508 GA Utr, The Netherlands; FAIMER, USA)

Background: In a world that increasingly serves the international exchange of information on medical training, many students, physicians and educators encounter numerous, often confusing, variations in education and medical training.

Summary of work: We conducted a questionnaire study among representatives from 36 countries. Topics of the questionnaire were: structure of medical education, moment that unrestricted practice is allowed, various options after general medical licensing, names of degrees that are granted and relevant terminology of the medical education system. Next to this, we searched the literature for description of country-specific information.

Summary of results: Based on the results, we described the most common models of current medical training around the world, supplemented with a list of degrees granted after medical school and an explanation of frequently used terminology.

Conclusions: The results of this questionnaire study lead to the conclusion that there are many differences between countries. There is variation in structure and length of medical training, moment of full registration and degrees that are granted. Six dominant models were identified and will be presented.

Take-home messages: Pros and cons of increased unification do not lead to one preferred model.

3K5 Student experiences of core global health teaching and preparedness for electives
Ann Wylie (Department of Primary Care and Public Health Sciences, King’s College London School of Medicine, 4th Floor Capital House, 42 Weston Street, London SE1 3QD, UK)

Background: Phase 4 students (penultimate year) had a Global health day to address required learning outcomes in Tomorrow’s Doctors 2009 (TD09) and to enable students to maximise their elective opportunities. Traditional public health sessions have struggled to engage but the Global health day has been well received by students.

Summary of work: The phase 4 cohort average is 450, the 2009/10 and the 2011/12 cohorts were surveyed after their respective Global health days and the former cohort also surveyed after their electives. In additional thematic analysis was undertaken with a sample of 40 Global health essays, 20 from each cohort, these being 1000 words and required as part of portfolio submission. A student focus group discussed emerging themes.

Summary of results: The obvious relevance of the teaching event to the forthcoming elective, the element of choice for workshops and the “enjoyable”
assignment were key factors in the acceptability of Global health day. Material was virtually accessible for all the workshops but some felt a second day would be desirable.

**Conclusions:** Public health can be engaging when students perceive the relevance and have choice.

**Take-home messages:** Electives offer opportunities to formalise Global health teaching.

### 3K6  Global Health Curriculum Continuum

D Sutphin*, D Tooke-Rawlins (Edward Via College of Osteopathic Medicine, International and Appalachian Outreach Department, 2265 Kraft Dr, Blacksburg VA 24060, USA)

**Background:** The Edward Via College of Osteopathic Medicine (VCOM) trains full-practice physicians in compassionate, altruistic global health care using a curriculum continuum from first year medical school throughout their professional career.

**Summary of work:** Every student may elect experiences and serve as alumni preceptors at VCOM permanent clinics which maintain quality standards. These full-time international clinics are located in the Dominican Republic, El Salvador, and Honduras to support one week first- and second-year mission trips, four week third- and fourth-year international rotations, global virtual education and resources, language and culture courses, research and case study writing, resident medical mission track and hospital rotations, and allow alumni mentorship for student experiences.

**Summary of results:** There were 240 students on medical mission trips and 55 in four week clerkship across 3 countries in 2010-11. During this year, in one country alone there were 24,000 patients seen by the VCOM clinic. Measurement of impact includes systematic evaluation, written reflections and a pre- and post-surveys in domains of knowledge, interest, experience, skill, importance, satisfaction and levels of adoption of life-long medical missions.

**Conclusions:** Findings show significant (p < .05) educational gains and quality experiences in clinical skills, underserved care, public and community health, and medical mission planning.

**Take-home messages:** Future plans are continuous improvement through medical education research.

### 3K7  Are EU medical graduates ready for work in any member state?

Helen S Cameron (Centre for Medical Education, University of Edinburgh, Chancellor’s Building, 49 Little France Crescent, Edinburgh EH16 4SB, UK)

**Background:** Medical graduates of EU member states may work across the EU without further testing. To support such mobility, safeguard patients and avoid stifling educational innovation, the Tuning Project published a consensus statement of learning outcomes. (Cumming & Ross 2008).

**Summary of work:** As part of MEDINE2 (European Academic Network in Medical Education) and using an action research process, members of the Tuning Process workpackage are developing a tool and process with the intention of helping medical schools assess the evidence that their graduating students achieve the agreed learning outcomes.

**Summary of results:** We will share the self-assessment questionnaire and draft support materials ready for further testing.

**Conclusions and Take-home messages:** Having a consensus statement on European graduating learning outcomes is unlikely to be sufficient to standardise new doctors’ competences. Deans and educational leads in medical schools are asked to participate in trialling and critiquing the self-assessment tool and process. Further discussion on parallel methods of harmonising competences on graduation across Europe is welcomed.


Edinburgh: The University of Edinburgh.

### 3L  Short Communications: Continuing Professional Development 1

#### 3L1  Re-certification of General Practitioners in European Countries: a preliminary study

M Vrcic-Keglevic*, R Kolda, B Rindlisbacher (EURACT - CME/CPD Committee, University of Zagreb, Medical School, Department of Family Medicine, 10000 Zagreb, Croatia)

**Background:** The CME/CPD activities cover the longest period of the professional life of a general practitioner (GP). Issues of re-certification/re-licensing of individual GPs become more prominent over the years. The aim of the study is to investigate the criteria, rules and conditions of re-certification of GPs in Europe.

**Summary of work:** Questionnaire, designed by the Euract CME/CPD Committee and distributed among all the Euract member states, i.e. their country representatives (N=39).

**Summary of results:** Representatives from 29 country answered the questionnaire (74%), 13 from eastern and 16 from western European countries. A recertification/re-licensing procedure for GPs exists in 18 of the 29 countries, in all eastern European countries and in 5 western ones. Mostly, the re-certification procedure is mandatory in eastern and voluntary in western countries and is required every 3-5 years. Basis for the re-certification is the collection of
a strictly defined number of credit points in almost all countries. Besides the traditional activities like attendance at lectures and conferences, also e-learning, individual readings, being a trainer and adherence to guidelines are often involved and used in the re-certification process.

Conclusions: In most European countries there exists re-certification system for individual GPs. In >50% this is mandatory, mainly in eastern European countries. The system is mostly based on passive learning methods and less frequently quality improvement based methods, such is work-based assessment, but still in more than half of the countries.

Take-home messages: How to make a transition from passive CME to active CPD methods in the re-certification system for individual GPs.

3L2 Multisource Feedback from Patients for Paediatricians: Evaluation of a New Tool

Background: Appraisal for revalidation aims to include feedback from patients to doctors. PaedCCF (PAEDIatric Carers of Children Feedback) is a patient multisource feedback tool for use by paediatricians.

Summary of work: UK consultant paediatricians were recruited via RCPCH communication networks to evaluate reliability, validity and clinician acceptability of PaedCCF. 50 feedback forms per participant were distributed locally to parent/carers (carers) of children for completion following outpatient consultations (with child input where appropriate). RCPCH-analysed feedback to doctors included graphed mean question scores and qualitative comments. Paediatricians gave their views on feasibility before and after receiving feedback.

Summary of results: 122 consultants returned 4415 forms (mean 36 per doctor). Female carers scored doctors higher than male carers (P < 0.05); ratings from carer and child were higher than carer alone (p < 0.05); follow-up consultations rated higher than first consultations (p < 0.001). Scores across individual questions were highly correlated (reliability of 0.96 using Cronbach’s Alpha). A minimum of 25 consultation ratings were needed for acceptable reliability (D-study). 93.9% of consultants found the tool acceptable as evidence for revalidation.

Conclusions: PaedCCF is a valid, reliable and acceptable tool by which to evaluate consultant paediatricians’ consultations.

3L3 Enhancing learning and advancing care within the Royal College of Physicians and Surgeons of Canada’s Maintenance of Certification program
Craig Campbell*, Jennifer Gordon, Peter Anderson (Royal College of Physicians and Surgeons of Canada, Ottawa, ON, Canada; Dalhousie University, Department of Urology, Halifax, NS, Canada)

Summary of work: An evaluation strategy for the Royal College’s Maintenance of Certification (MOC) Program combined a comprehensive survey of the experiences and perspectives of specialists with key findings from the CPD research literature to develop an evidence-informed framework and credit system. The framework promotes the intentional integration of multiple learning strategies to meet perceived and unperceived needs of specialists.

Summary of results: An analysis of quantitative and qualitative survey data and multiple systematic reviews on the effectiveness of CPD interventions identified 5 themes and 21 recommendations for change. The revised framework was simplified to focus on three approaches to lifelong learning in practice: group learning, self-learning, and assessment. Higher credit ratings were established for assessment and self-learning and a regional education support program was developed to enhance understanding of specialists regarding the program’s goals, principles, and requirements.

Conclusions: CPD systems that intend to support lifelong learning across multiple practice contexts must be informed by research evidence, guided by professional practice needs, and focused on achieving outcomes that enhance the quality of care.

Take-home messages: Systems of CPD must be based on evidence-informed decision making to achieve enhanced learning and advance the quality of care.

3L4 An audit of family physician-patient communication skills: Continuity of Care Matters
F Lemire*, C Brailovsky (The College of Family Physicians of Canada, 2630 Skymark Avenue, Mississauga, ON, Canada L4W 5A4)

Background: The results of a doctor-patient communications audit, using a tool developed under the auspices of the Medical Council of Canada are presented. Participating family physicians were enrolled in the Alternate Route to Certification of the College of Family Physicians of Canada.

Summary of work: Physician and patient completed a questionnaire pertaining to a visit; 207 participating family physicians, with a mean number of 29.75 patients per physician; 6159 dyads were examined and correlated.

Summary of results: 1. Cronbach’s alpha: 0.970 for patients and 0.943 for physicians, indicating excellent internal consistency; 2. Males ranked lower than females when rated by patients (p < .0001); 3. Higher marks were obtained from patients that saw the same physician 3 or more times (p < .0001); 4. Higher marks were obtained when patients were seen for a
Since 2002, the Collège des médecins du Québec, Montreal, Quebec, Canada (CMQ), the medical licensing authority in Quebec, has been assessing the clinical performance of radiologists through the structured oral interview (SOI). The SOI, supervised by two peers, uses imaging as well as realistic and representative clinical vignettes (cases). Expected answers are based on a key feature fashion.

**Summary of work:** Presentation of the type of practice and criteria used for the selection of radiologists who underwent the assessment and to present the remedial programs when required.

The assessment process includes: 1. On the spot film diagnosis (snapper) (10 cases); 2. Film interpretation and dictated report (10 cases); 3. Relevant findings (positive and negative) using differential diagnosis (10 cases); 2. Film interpretation and dictated report (10 cases); 3. Relevant findings (positive and negative) using differential diagnosis (10 cases); 4. Skill evaluation, and interpretation of ultrasonography (5-10 cases).

**Summary of results:** From 2002 to July 2009, 22 radiologists were assessed. Among this number, the clinical performance was judged adequate for 11; 4 received recommendations of CME; 3 were required to do part time remedial clinical training; 4 were imposed a full time remedial training program, with limitation of practice (all of them eventually chose to retire and cease their practice).

**Conclusions:** The SOI is a valid and relevant tool to assess practicing radiologists, and to determine the type and length of potential remedial programs.

**Take-home messages:** The SOI is a valid and relevant tool to assess practicing radiologists.

**3L5 How to assess clinical performance of radiologists: The structured oral interview**

*F Goulet*¹, M Dupré¹, R Ladouceur², L Samson², Y Drouin², G Merette³, J-F Desjardins² (¹Practice Enhancement Division, Collège des médecins du Québec, Montreal, Quebec, Canada; ²Hôtel-Dieu du CHUM, Montreal, Quebec, Canada; ³Hôpital Sainte-Croix, Drummondville, Quebec, Canada; ⁴CH de Verdun, Verdun, Quebec, Canada; ⁵Hôtel-Dieu du CHUM, Montreal, Quebec, Canada)

**Background:** Since 2002, the Collège des médecins du Québec (CMQ), the medical licensing authority in Quebec, has been assessing the clinical performance of radiologists through the structured oral interview (SOI). The SOI, supervised by two peers, uses imaging as well as realistic and representative clinical vignettes (cases). Expected answers are based on a key feature fashion.

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**Conclusions:** The SOI is a valid and relevant tool to assess practicing radiologists, and to determine the type and length of potential remedial programs.

**Take-home messages:** The SOI is a valid and relevant tool to assess practicing radiologists.

**3L6 Can electronic clinical practice audits be used to produce performance improvement through effective continuing medical education programming?**

D Klein*, J Staples (University of Alberta, Faculty of Medicine and Dentistry, Office of Continuous Professional Learning, 2-126 Li Ka Shing Health Research Innovation Facility East, Edmonton, AB, Canada T6G 2E1)

**Background:** The traditional needs assessment in CME programs tends to only capture perceived learning needs. With strong evidence that physicians are poor at self-assessing their learning needs, a different approach is required. Instead, best practices would utilize tools available in electronic medical record systems to perform a clinical audit on a physician’s practice highlight physician-specific practice patterns.

**Summary of work:** This project tested the electronic clinical audit process for family physicians in Canada. An audit of ten preventative care interventions and ten chronic disease interventions was performed on family physician practices in Canada. The physicians used the results from the audit to produce personalized learning needs, which were then translated into educational programs.

**Summary of results:** Documented completion rates for interventions ranged from 13% for ensuring a patient’s tetanus vaccine is current to 97% of pregnant patients receiving recommended prenatal vitamins. 84% of physicians felt the program identified weaknesses in knowledge, while 83% agreed that the method was better than more traditional needs assessments. This electronic needs assessment uses the physician’s own patient information to assist in determining learning objectives.

**Conclusions:** EMR-based needs assessments may provide a better basis for developing CME than a more traditional survey based needs assessment.

**Take-home messages:** EMR-based needs assessments may provide a better basis for developing CME than a more traditional survey based needs assessment.

**3M PhD Reports 1**

**3M1 The Good Doctor in Medical Education 1910-2010: A critical discourse analysis**

C Whitehead (Department of Family and Community Medicine, Faculty of Medicine, 263 McCaul St, Room 510, Toronto, ON, M5T 1W7, Canada)

**Introduction:** Outcomes-based frameworks are an international standard in early twenty-first century medical education. These frameworks rely upon definitions and assumptions of what constitutes the good doctor. However, discourses of the good doctor have changed over the past century. This research seeks to answer the questions: (a) How have the discourses of the good doctor in medical education
changed? (b) What are the implications and unintended consequences of these shifts?

**Methods:** The author performed a critical discourse analysis of the good doctor in medical education in North America from 1910 to 2010. Drawing upon Foucauldian concepts of archaeology, genealogy and serial history, discursive shifts in the conception of the good doctor in medical education were identified. These shifts were analysed, with attention to various factors that influenced and shaped the emergence of new discourses. In addition, these discursive changes were linked to dominant language, practices and themes in medical education.

**Results:** In his 1910 Report, Abraham Flexner described the good doctor as both a scientist and a man of character. However, as his recommendations were implemented, only the discourse of the man of character persisted. In the 1950’s, descriptions of the good doctor shifted from holistic discussions of character to one of physician characteristics as a compilation of measurable traits. ‘Characteristics’ discourse took over from ‘character’ and remained the dominant discourse throughout the 1960’s. In subsequent decades, performance, roles and competence emerged as dominant terminology, along with the development of outcomes-based frameworks.

**Discussion & Conclusions:** Flexner’s scientist physician discourse was separated into two distinct discourses in the years following his report: medicine as science and the good doctor as a man of character. Science became curricular content to be learned by the man of character. With the discursive shift from ‘character’ to ‘characteristics’ in the 1950’s, the medical student became an object of scientific study and was dissected into a series of component parts. Discourses of roles-competence later emerged, along with both performance and manufacturing production language. The student then became a product to be assembled (according to competency criteria), rather than a person on a journey to become a professional.

Discourses of the good doctor in medical education have undergone a series of significant changes over the past century. Tracing these changes permits exploration of implications and unintended consequences that accompany these conceptual shifts, and allows better understanding of our current construct of the good physician.

**3M2 Overcoming Educational Inertia**

**Carl Savage** (Karolinska Institutet, Medical Management Centre/LIME, Stockholm, Sweden)

**Introduction:** Medical education has demonstrated difficulties in meeting the demands of residency, practice, and society. However, this is not due to lack of effort: “change without reform” runs rampant. Much of our thinking about change seems rooted in industrial era paradigms and we tend to focus more on the contents of the change without adequate attention paid to either context or process. This led us to ask: 1. How can we apply knowledge from change management to facilitate the process of improving medical curricula? 2. How can we develop change management theory based on its application in medical curricula?

**Methods:** We answered these questions with four studies. The first, a conceptual article, tested the feasibility of using strategic management thinking to understand a successful curricular innovation. The second, an explanatory case study, analyzed the application of a question-driven facilitator-led curriculum development process, Adaptive Reflection (AR), in three medical school courses. The third analyzed the application of AR at the residency level using the SQUIRE-framework for reporting improvement efforts using multiple data sources. The fourth tested the robustness of AR by exploring the experience of nursing students who applied the process in the creation of web-based CPD courses.

**Results:** 1. Strategic management thinking can be applied to understand innovation in medical education. Disruptive innovation is rare and it remains unclear how to drive change without threats. 2. Complexity science helps us understand how AR can be successfully applied in the medical school context. 3. AR proved to be an effective and efficient way to create and revise residency training courses. Teachers replaced lectures with student-activating activities, improved constructive alignment, created workplace-based examinations, and introduced e-learning. 4. Students successfully applied AR to develop CPD courses for their teachers. By turning the tables, they also regained feelings of self-confidence.

**Discussion & Conclusions:** Most curriculum reform efforts are aimed at changing the organization. Complexity science suggests that change is personal, occurring at the level of interaction with other individuals; through continual iterations, patterns of organizational change emerge. AR allowed us to engage teachers to reflect with each other about what was important to them and their students as professionals, and in so doing, the content of the change emerged in conversations embedded in the context of each individual. The process proved both effective in changing teaching practice as well as resource efficient. However, contextual challenges in the shape of control-based governance practices remain.

3M3 Medical students’ relationships, learning and ‘success’: the impact of ethnicity and social networks
S Vaughan*, T Sanders, V Wass, N Crosley, T Main, J Kerr* (University of Manchester, Education and Research Centre, Wythenshawe Hospital, Manchester, UK; Keele University, Arthritis Research UK Primary Care Centre, Staffordshire, UK; Keele University, School of Medicine, Staffordshire, UK)

Introduction: Medical students’ come from increasingly diverse backgrounds, partly due to institutional efforts to widen participation. Access, however, does not equal smooth integration and there is evidence to suggest that ‘minority’ students experience their education differently. It has been established that students who perform least well academically are more likely to come from an ethnic minority background, yet efforts to establish the reasons for this using an individualistic, student-deficit model have so far failed (McManus et al. 2008). This PhD project examines students’ learning from a situated, social perspective in order to examine experiences and achievement together; the following research questions are addressed: 1. How do relationships mediate students’ learning and success? 2. How does ethnicity/culture/background impact on these relationships?

Methods: The project, undertaken at one institution, comprised 3 phases: 1) 15 interviews and 4 focus groups were undertaken in a collaborative pilot project. 2) A social networks survey was administered to 140 students. 3) 18 interviews undertaken with students recruited from phase 2. All interviews were in-depth and semi-structured with students’ in years 3 & 4. Sampling was stratified by ethnicity, gender and site of hospital placement. Data were analysed initially using grounded theory to highlight emerging themes, then further analysed using sensitising concepts from socio-cultural theories of learning (specifically Communities of Practice and Pierre Bourdieu’s concepts of habitus, capital and field). Themes were cross-validated by a multi-disciplinary team throughout.

Results: Participants describe the importance of relationships in their learning and achievement. These relationships are multi-faceted, providing support emotionally, academically and sometimes financially. Students describe informal group learning as integral to success, enabling them to access a wider body of information than would be possible alone, and to gauge their knowledge in order to direct future learning. Findings suggest, however, that there are social divides amongst students as the activities students participate in differ and relationships are sought with ‘people like them’ often along cultural or religious lines. Students describe collaborative learning, but also learning opportunities as a limited resource to be competed for, possibly exacerbating group tensions.

Discussion & Conclusions: In a student-led, problem-based learning environment with a well documented ‘hidden curriculum’, social networks play an important part in helping students understand what is required of them as future doctors. As patterns of these relationships differ according to a students’ cultural background, it is very likely that students’ are building very different ideas of ‘competence’ and ‘success’ which are translating into different exam performance.


3M4 Virtual Reality Simulation in Laparoscopic Gynaecology
C R Larsen*, J L Soerensen, B Ottesen, T S Schroeder (Dept. of Gynaecology and Obstetrics, The Juliane Marie Centre, Copenhagen University Hospital, Rigshospitalet, Blegdamsvej 9, DK 2100, Denmark)

Introduction: Virtual Reality Simulators might possess the capacities needed for future basic training in laparoscopic surgery, however, there is little research evidence of their efficiency and little is known on of the transferability of skills beyond the artificial environment of the setting of the training facility. Aim: 1) To investigate the construct validity of the LapSim Virtual Reality (VR) Simulator, and to determine the learning curves of novice gynaecologists. To establish the expert performance level in the simulator. 2) To develop and validate a rating scale for skills assessment in laparoscopic gynaecology. 3) To investigate if skills obtained by simulator training can be transferred to human operation

Methods: 1) Evaluation of the construct and discriminative validity of the simulator, generating learning curves and determine the expert performance level in the simulator (Prospective cohort). 2) Developing and validating a rating scale for assessment of laparoscopic skills. To investigate the Inter-Rater Agreement, the gamma coefficient and the Kappa value of the scale. (Prospective cohort, observer blinded). 3) Establishing the effect of VR Simulator training in a human laparoscopic operation. Training was criterion based using the expert performance level defined in study one. Outcome was operative performance assessed by observers blinded to subject and group status, using the rating scale validated in the second study (Randomised Controlled and blinded Trial).

Results: The first study showed that expert gynaecologists performed significantly and consistently better than intermediate and novice gynaecologists. Learning curves showed that experts start at a higher
level and more rapidly reach the plateau of their performance. The second study demonstrated significant differences in surgical performance between the three groups, hence the rating scale was both construct and discriminatory valid. The inter-rater agreement, kappa value and gamma coefficient was sufficiently high. The third study demonstrated that the simulator trained novices reached a median score as gynaecologists with experience from 30-60 operations while the controls performed as true novices. The mean total operating time was reduced with 50% in the simulator trained group, both findings highly significant.

**Discussion & Conclusions:** The LapSim VR simulator demonstrates construct validity. The rating scale for laparoscopic salpingectomy is a valid and reliable tool for assessment of technical skills in gynecologic laparoscopy. Skills in laparoscopic surgery can be clinically relevant increased by proficiency based virtual reality training. The performance level of novices is increased to the level of intermediate experienced surgeons and the operation time is reduced substantially. Mandatory simulator training should be considered before trainees perform laparoscopically on humans.


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**3N Workshop: Social accountability of medical schools: A new mark of excellence for development and accreditation**

*Charles Boelen*¹, *Angel Centeno*²

**Background:** The Global Consensus on social accountability of medical schools, adopted in 2010, suggests that the concept of social accountability be regarded as the most appropriate way for a medical school to fulfill its social obligation and hence a mark of excellence in the development of the institution. Social accountability is characterized by an engagement to orient education, research and service functions to response to current and prospective health needs and challenges of society and to verify, with other key stakeholders in health as witnesses, that their interventions have made a positive impact on health system performance and on people’s health status. There is as fast growing interest worldwide to promote social accountability of medical schools and to revisit standards accordingly that would qualify strategies of a medical school to prepare the medical workforce that societies need in the future.

**Intended Outcomes:** Increased awareness of what social accountability implies for medical teachers and the leadership of medical schools. Opening opportunities for advocacy and action research and for collaboration with groups or individuals sharing a common interest.

**Structure:** Introduction to definitions and the Global Consensus of social accountability of medical schools; group work with task to address some of the three above-mentioned issues; a general discussion to exchange views and enhance future collaborative work.

**Who Should Attend:** The workshop is open to people interested in exploring the relevance of social accountability principles to their work, as well to people willing to engage in a developmental project to implement principles at institutional or national level.

**Level of workshop:** Beginner.

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**30 Workshop: Publishing the Results of Scholarly Work in Medical Education: The Art of Writing and Getting Published**

*A Farmakidis*¹, *C Candler*², *S Kanter*³

**Background:** Publishing peer-reviewed content helps to disseminate important findings and ideas to a wide audience. In addition, contributions to the published literature are key criteria for promotion and evaluation decisions.

**Intended Outcomes:** With high numbers of manuscript submissions and low acceptance rates, what can be done to improve the chances of having a manuscript accepted? Are there other publishing options beyond the traditional article format for medical educators to consider?

**Structure:** This workshop will include an interactive overview of the review and publication processes and focus on techniques for writing clear, concise, and interesting articles. Workshop leaders will discuss the essential components of scholarly articles, research reports, commentaries, and other publication categories. Time will also be allocated to discuss preparing and submitting educational resources to MedEdPORTAL, a peer-reviewed publication service and repository for teaching materials and assessment tools. Workshop leaders will share insights on best
practices for submitting content to Academic Medicine and MedEdPORTAL and will present common reasons that often lead to rejected submissions. Additional topics that will be discussed include working with co-authors, determining order of authorship, revising a submission, interacting with editors, adhering to publication ethics guidelines, and understanding the peer-review process. There will be ample time to interact with workshop leaders, ask questions, and examine issues raised by participants.

Who Should Attend: Junior faculty/researchers and students interested in becoming better navigators of the scholarly publishing world. International faculty/researchers who may be interested in publishing in English-language, peer-reviewed journals.

Level of workshop: Beginner.

3P Workshop: Share and share alike: Using and creating Open Educational Resources - "teaching materials for free?"

Stephen Greenwood, Gillian Brown*, Jane Williams, Nigel Purcell, Suzanne Hardy*, Megan Quentin-Baxter (The Higher Education Academy Subject Centre for Medicine, Dentistry and Veterinary Medicine School of Medical Sciences Education Development, Faculty of Medical Sciences, Newcastle University, NE2 4HH)

Background: Open Educational Resources (OER) are openly licensed teaching and learning materials made freely available online. Sharing of teaching materials is increasingly popular (saving both time and money) but problematic for reasons of copyright, data protection and consent. This workshop, based on the findings of projects funded by the Higher Education Funding Council for England (HEFCE) and administered by the UK Higher Education Academy (HEA) and Joint Information Systems Committee (JISC) aims to help teachers make use of OER legally and ethically.

Intended Outcomes: The workshop aims to help you share teaching resources more safely by: 1. Showing you how to find relevant educational resources on the Internet. 2. Demonstrating best practice in sharing OER. 3. Identifying appropriate copyright, consent and licensing for material you create or wish to adopt. 4. Showing you how to specify the ways in which your own resources can be used by others.

Structure: Brief overview of OER: benefits and drawbacks, consent issues. Activity-1: can I use this in my teaching then? Short update from national UK projects on recent developments in sharing OER. Activity-2: using licences to share teaching materials with minimal risk to yourself and others. Plenary: how will you use OER?

Who Should Attend: Teachers, students, curriculum/e-learning developers.

Level of workshop: Beginner.

3R Workshop: An assessment "Swap Shop"

L Mossop*, K Cobb* (School of Veterinary Medicine and Science, University of Nottingham, College Road, Sutton Bonington, UK)

Background: Do you know your OSCE from your OSLER? Or your DOPS from your Mini-CEX? With such a wide range of assessment tools available it can be difficult to establish what to use in different situations. This workshop aims to demystify some of the issues surrounding performance assessment, through a series of experiential tasks.

Intended Outcomes: (1) An appreciation of the range of performance assessment methods available; (2) Differentiation between OSCEs, OSLERs, DOPS, Mini-CEX - what works when, and why? (3) Participation in these forms of assessment, and comparison of outcomes.

Structure: After a brief introduction, video clips of students will be viewed alongside proposed assessment grids to enable direct comparison between different methods. Participants will use these tools and then reflect on the different outcomes of each. In order to gain a “student” experience, a live task will also be assessed and participants will also contribute to the feedback process, reflecting on which tool facilitates this process most effectively. This workshop will be lead by clinical educators with experience of design and delivery of performance assessment in an undergraduate curriculum.

Who Should Attend: Educators wishing to explore different approaches to work-place based education, assessing or teaching clinical skills, or designing assessments of clinical skills.

Level of workshop: Beginner.

3S Workshop: Standards for PhD Programmes in the Context of Postgraduate Medical Education

MJ Mulvany*, Z Lackovic2, J Mirecka*, D Gordon*4, H Karle4 (1Faculty of Health Sciences, Aarhus University, Denmark; 2University of Zagreb School of Medicine, Croatia; 3Jagiellonian University Medical College, Krakow, Poland; 4Faculty of Health Sciences, University of Copenhagen, Denmark)
Background: PhD programmes are increasingly being integrated into postgraduate medical education. To provide a basis for ensuring that this process can occur without compromising the quality of either, the Organization for PhD Education in Biomedicine and Health Sciences in the European System (ORPHEUS), the Association of Medical Schools in Europe (AMSE), and the World Federation for Medical Education (WFME) are collaborating in preparing standards for PhD education. Acceptance of the standards requires that they be fully discussed to ensure that they do not conflict with national requirements. This workshop will be part of this process.

Intended Outcomes: Participants will have the opportunity to discuss the proposed standards and chart the course for implementation of the standards in their own settings.

Structure: 30 minute introduction by some of the facilitators; 30 minute discussion of the proposed standards in small groups under all the facilitators; 30 minutes for the small groups to report back to whole group.

Who Should Attend: Particularly useful to those involved in research training at postgraduate level as well as for those involved in research aspects of clinical training.

Level of workshop: Intermediate.

3T Workshop: Work place based assessment of International medical graduates using multiple tools

B Nair*, M Parvathy, I Symonds, K Ingham, B Murphy, I Frank (Centre for Medical Professional Development, School of Medicine and Public Health, Newcastle, NSW, 2305 Australia)

Background: There is increasing interest in performance based assessment of doctors, since the performance at work place is more important than their competency. Various tools have been researched and validated in recent years. Another area which is gaining more importance is the assessment of International medical graduates (IMGs). We are doing work place based assessment of IMGs using miniCEX, CBDs, MSF and ITA. Over a period of 6 months 27 IMGs were assessed by 45 trained and calibrated clinicians using blue printed and set criteria. All the candidates have been successful and obtained the licence to practise. They have done 324 miniCEXs, 189 CBDs, 54 ITAs and 594 MSF evaluations. A second cohort of 22 candidates have started and will complete in June 2011.

Intended Outcomes: Attendees will understand the principles of WBA including the need for blue printing, calibration, multiple assessors, multiple tools and preset criteria. They will learn about miniCEX, Case based discussion, multi-source feedback and in training assessment. We will discuss the reliability of the assessments and the minimum number of assessments when doing multiple tools.

Structure: We will discuss the need for WBA and the tools. The attendees will have the opportunity to watch a calibration and feedback video and be trained to do miniCEX assessments.

Who Should Attend: Educators interested in any of the 4 tools and people interested in workplace based assessment and IMGs.

Level of workshop: Intermediate.

3U Workshop: Ethics and law in the medical curriculum

A Dowie*, A Martin* (1 University of Glasgow, School of Medicine, General Practice & Primary Care, 1 Horselethill Road, Glasgow G12 9LX, UK; 2 Medical and Dental Defence Union of Scotland, Glasgow G2 4EA, UK)

Background: Approaches to course design in ethics and law are guided by fixed points on the curricular horizons of our medical schools. Some of these include the degree of integration, the extent to which ethics and law are refracted through professional learning, and the scope for assessment of practical competencies in these subject areas. Alternatives to offering students a bricolage of assorted topics in ethics and law are achievable through a suitable learning frame and a coherent course scheme that make sense within the wider curriculum. The presenters discuss these with reference to their AMEE Guide No.53: Ethics and Law in the Medical Curriculum.

Intended Outcomes: To correlate critically the model presented with participants’ own experiences of ethics and law curricula, and to consider in detail a choice from the following components in parallel discussion groups: (1) Develop a vision for ethics and law education in the school; (2) Clarify the domain of ethics relevant to the course; (3) Maintain the linkage of ethics and law; (4) Construct a suitable frame for learning; (5) Mediate the course within the wider curriculum; (6) Ensure that assessment is fit for purpose.

Structure: There will be a 20-minute presentation followed by group discussion for 1 hour. The workshop concludes with a 10-minute plenary.

Who Should Attend: New and experienced ethics teachers, clinicians responsible for some ethics teaching and course tutors with or without clinical backgrounds.

Level of workshop: Intermediate.
3V Workshop: Why is this learner so challenging to work with?!
Identifying Problems and Facilitating Problem Solving

K Richardson-Nassif¹, E Mylona², N Saks³ (¹Office of the Dean, University of Vermont College of Medicine, 89 Beaumont Avenue, Burlington, VT 05405-0068 USA; ²Stony Brook, University School of Medicine; ³Robert Wood Johnson Medical School, Piscataway, New Jersey, USA)

Background: Medical school is a place of learning for students and faculty. Many stressors are present in this environment and are documented in the literature. Dealing effectively with learners experiencing difficulty requires competent faculty who appreciate that learners are imperfect. The goal of all training programs should be to identify learning difficulties early on and provide educational methodologies that promote success.

Intended Outcomes: By the end of the workshop participants will: 1. Identify stressors that influence learning; 2. Diagnose learner problems and design interventions. 3. Describe institutional infrastructure necessary to deal with learning difficulties.

Structure: This session will be highly interactive. 1. Introductions: workshop, speakers and participants. (10 min.); 2. Small group: Discuss stressors that hinder learning and discuss institutional infrastructure necessary to alleviate issues (15 min.); 3. Large group: Reporting of stressors and associated policies/procedures. (15 min); 4. Small group: Discuss cases illustrating difficult learners. Groups will be divided according to interest (student or faculty learners.) A worksheet will be utilized to record learner problems and interventions. (20 min.); 5. Large group: Discussion will focus on institutional policies and procedures necessary to facilitate dealing with problem learners (15 min.); 6. Summary and evaluation (10 min.).

Who Should Attend: Medical educators, Faculty Development Program Directors.
Level of workshop: Intermediate.

3X Posters: Teaching the Basic Sciences
3X1 Perspectives of student performance in the Health Sciences
SB Higgins-Opitz¹, MA Tufts¹, I Naidoo², S Essack³ (¹University of KwaZulu-Natal ¹Division of Physiology, School of Medical Sciences; ²Faculty of Health Sciences, South Africa)

Background: Physiology is traditionally perceived as one of the subjects that Faculty of Health Science (FHS) students find difficult to grasp. There are also anecdotal reports that students perform better in their professional modules as compared to Physiology.

Summary of work: The study aims to assess FHS student performance and associated contributory factors in physiology as compared with their performance in other modules in professional programmes. Overall pass rates and average, maximum, and minimum marks were obtained for the period 2004 – 2010. Data were further stratified in Brussels, Belgium; ²Cerrahpasa Faculty of Medicine, Istanbul, Turkey

Background: One of the very last bastions of free access to medical education is about to fall in Europe, i.e. in French-speaking Belgium. Following recent abolition of the end of 1st year ‘numerus clausus’, increased student numbers are exceeding universities' training capacity. Moreover, medical studies are being reduced from 7 to 6 years to align with Bologna. Medical faculties are therefore facing the triple challenge of developing an "aptitude test" in basic sciences, organizing an extra preparatory year and designing the new curriculum. Although hotly debated, selection at entry is therefore almost inevitable: but which type and at which cost? Should students be involved at all?

Intended Outcomes: Participants will be able to take home valuable and practical hands-on knowledge of the various selection processes used world-wide, including written tests, examinations, various interview techniques, MMIs (multiple mini-interviews), the Australian model, etc.

Structure: After a brief overview and literature review of most commonly applied selection processes and best practices internationally, participants will be invited to prepare in small groups, demonstrate and defend in front of the audience what they consider one of the most useful selection techniques.

Who Should Attend: Students, teachers, educators and deans with interest and/or taking part in the selection process of medical students.
Level of workshop: Beginner.

3W Workshop: Selecting good future doctors at entry to medical school: an international comparison

Claire de Burbure*, Gracia Umuhire Musigazi*, Ahmet Murt*, André Geubel†, Dominique Vanpee† (†Université catholique de Louvain, International Relations, UCL Health Sciences, Avenue Mounier 50, bte 5020, 1200 Brussels, Belgium; †Cerrahpasa Faculty of Medicine, Istanbul, Turkey)
Summary of results: Analyses reveal that overall student performance in physiology declined steadily. Those students with higher matriculation points had consistently higher pass rates and better marks. Of particular concern, was the substantial decrease in student performance between 2009 and 2010, which coincided with the introduction of a new matriculation system. English-first language speakers were found on the whole to perform better than English-second language speakers. Student performance in the professional modules was consistently better than that in corresponding physiology modules.

Conclusions: The findings have bearing in terms of content, pedagogy and assessment.

Take-home messages: Thus, faculty staff should be encouraged to incorporate novel methods into their teaching and assessment by critically evaluating their practice.

3X2 “If you don’t put your finger in it, you’ll put your foot in it” – Appreciating 3D Cadaveric Human Anatomy in the Dissecting Room

S Whiten*, A Wood, D Sinclair (School of Medicine, University of St Andrews, St Andrews, Fife KY16 9TF, UK)

Background: Concern has been expressed regarding the decline in the breadth and depth of anatomical knowledge in medical students and junior doctors. Since anatomy courses have significantly reduced the exposure of students to unique, three dimensional human anatomy, it has become more important than ever to ensure that limited anatomy teaching has a profound impact on student learning.

Summary of work: The School of Medicine at the University of St Andrews retains full body dissection. During practical tutorials we have observed students experience sudden anatomical insights when encouraged to place their fingers in the cadaver. We have listed these ‘hands on’ experiences which we believe reveal key anatomical relationships.

Summary of results: We present a list of dissections which in our opinion have the ‘wow’ or ‘ah ha’ factor and discuss their clinical significance.

Conclusions: The ‘ah ha’ experiences we list cannot be replicated using anatomy models, computer simulations or anatomy texts. They can only be appreciated by hands-on anatomical dissection.

Take-home messages: The authors are of the opinion that the surgical maxim “If you don’t put your finger in it, you’ll put your foot in it” applies not only to diseases of the large intestine but also to the teaching and learning of 3D human anatomy by cadaveric dissection.

3X3 Implementation of competencies for basic science subjects in the first year of medical training.

P Herrera*, T Cortes, M Aburto, A Cea, A Farfón, E Pedernera, J Reynaga, I Petra (Universidad Nacional Autónoma de México, Facultad de Medicina, México)

Background: It’s quite a challenge to create new teaching and evaluation strategies for the implementation of competencies in a traditional medical school that accepts 1200 students yearly trained in traditional systems, groups of 40, with teachers of limited experience in competencies.

Summary of work: To develop an exercise manual for the implementation of curriculum based competencies that included teaching and evaluation strategies for five academic departments (Anatomy, Biochemistry, Embryology, Mental Health, Public Health); three experimental groups (120 students) and three control groups (120 students) total of 240 students per academic subject, were selected, to implement learning and evaluation strategies detecting problems and finding solutions. Before and after exams and evaluation and opinion instruments were applied.

Conclusions: 1. Evaluation instruments ad hoc for numerous groups must be created. 2. Due to difficulty of certain subjects, implementation of competencies should be gradual. 3. At the beginning new strategies should be used in classroom settings. 4. Teaching and evaluation strategies were created for teachers with little competencies experience. 5. Collaboration between Departments results in a better evaluation of each competency.

Take-home messages: Due to resistance to change from traditional teaching, implementation of competencies requires gradual introduction of strategies.

3X4 Developing biomedical knowledge competency: role of elective courses

F A Mindubayeva*, D Z Taizhanova*, V P Riklefs (Karaganda State Medical University, 1 Department of Physiology, 2 Department of Internal Diseases, 3 Clinical Skills Center, Karaganda, Kazakhstan)

Background: Biomedical knowledge is the fundamental competency of a modern doctor allowing practicing medicine with deep understanding of underlying physiologic mechanisms of health and disease.

Summary of work: Role of physiology in medicine is defined by its immense penetration into the human functions. The reform of medical education in Kazakhstan introduced new methods of active learning aimed to stimulate students’ cognitive activity in learning biomedical disciplines.
Summary of results: In order to provide the students with the opportunity to deeper understand the general mechanisms of vital functions and modern methods of diagnostics, the Department of Physiology introduced the elective course “Fundamentals of functional diagnostics”.

Conclusions: The feedback from students who took the course indicated that they became more confident in using biomedical knowledge for clinical reasoning, could better interpret the results of different diagnostic tests, and understood the importance of biomedical knowledge for their future career.

Take-home messages: The elective courses in basic disciplines are the powerful motivation stimulus for acquiring competency in biomedical knowledge.

3X5 Students’ evaluation and satisfaction with physiology course at medical faculties in Croatia and Bosnia and Herzegovina

Z Ivanovic*, A Cosic†, M Mihaljić‡, S Novak‡, Z Dujic‡, I Cavar, I Drenjancevic (J.I.Strossmayer University of Osijek, Faculty of Medicine Osijek, Department of Physiology and Immunology, Osijek, Croatia; †University of Split, Faculty of Medicine Split, Croatia)

Background: Constant evaluation of curriculum quality is a necessity for medical faculty to achieve desired learning outcomes and to comply with standards of excellence.

Summary of work: 171 medical students at the Faculties of Medicine in Osijek, Split (Croatia) and Mostar (Bosnia and Herzegovina) were surveyed after the end of physiology classes, irrespectively of their success on the exam. They were asked to evaluate their acquired knowledge less integrative then students in Osijek (2.94%) and Split (1.56%). Osijek students lacked the ability to adequately recognize and extract important physiological concepts to successfully navigate multiple choice examinations. Students in Mostar (10.26%) considered teachers as excellent. Students in Mostar (10.26%) considered the course indicated that they became more confident in using biomedical knowledge for clinical reasoning, could better interpret the results of different diagnostic tests, and understood the importance of biomedical knowledge for their future career.

Summary of results: Physiology course was scored intermediate (4.14/5). 53.9% students rated teachers as excellent. Students in Mostar (10.26%) considered their acquired knowledge less integrative than students in Osijek (2.94%) and Split (1.56%). Osijek students were the most frequent users of internet (28%) and Split students of additional sources of reading (68%).

Conclusions: Overall, students are satisfied with most aspects of physiology classes. Fields to be improved are teachers’ quality, effectiveness of used teaching tools, sufficiency of proposed literature, distribution of time in the curricula, and whether the curriculum prepared them for vertical and horizontal integration of the knowledge.

3X6 Effect of a small group, active learning, tutorial-based enrichment program on student performance in medical physiology

J Powell (Ross University School of Medicine, Department of Physiology, P.O. Box 266, Picard, Dominica)

Background: Too few students manage to master physiology at an acceptable level mainly due to ineffective content acquisition and retention. Preliminary data obtained from a survey completed by ‘low performance’ students (grade average < 70%) at Morehouse School of Medicine reported that they lacked the ability to adequately recognize and extract important physiological concepts to successfully navigate multiple choice examinations. Students in Mostar (10.26%) considered teachers as excellent. Students in Mostar (10.26%) considered the course indicated that they became more confident in using biomedical knowledge for clinical reasoning, could better interpret the results of different diagnostic tests, and understood the importance of biomedical knowledge for their future career.

Summary of work: It was hypothesized that a specially designed, small group, physiology enrichment program would enhance the ability of ‘low performance’ students to effectively identify important course information, successfully perform on multiple choice examinations and, thereby, improve overall course performance. Mini-quiz assessments were given at every session to help recognize and solidify core concepts and improve test taking ability. Self-report surveys assessed the effectiveness of the enrichment program on overall course performance.

Summary of results: Results showed marked improvement in grades achieved on all quizzes and examinations throughout the physiology component of the first year curriculum, increased student confidence levels with regards to approaching multiple choice examinations, and a final passing grade average ≥70%.

Conclusions: It was concluded that students became more proficient in identifying core physiological concepts and successful in mastering multiple choice examination questions, and that a critical educational problem impairing student performance was improved.

3X7 Passive and active learners: A comparison using body paints

G M Finn (Durham University (Queen's campus), School of Medicine and Health, Thornaby-on-Tees, UK)

Background: Body painting involves students (painters) marking the position of anatomies onto a peer (canvases). The painter has an active role, but the canvas can become passive. This study compares the knowledge of students after engaging in these roles.

Summary of work: Medical students (n=93) were divided into two groups, painters or canvases. Students completed a pre-test before a body painting teaching session. Immediately after teaching students sat a mid-test to compare the 2 conditions. Twelve weeks after teaching students sat a post-test to assess long-term retention of knowledge.
Summary of results: Pre-test data showed that groups were randomised and had equivalent prior knowledge. There was a difference in knowledge between the 2 conditions immediately after the teaching (p=0.040) with painters recalling more. Long-term retention of knowledge was not significantly different for either group (p=0.773). Similar results have been attained for a second cohort.

Conclusions: The role students undertook had no impact upon long-term retention of knowledge. However, painters recalled more anatomical content immediately after engaging in painting.

Take-home messages: Whether students actively engage or passively attend body painting teaching sessions does not impact upon their long-term retention of knowledge. These results may encourage those who fear the canvas does not gain enough knowledge from the teaching session.

3X8 Differences in the short term and long term retention of anatomical knowledge after a self-guided and a station-based practical-work
J Kooloos*, M. de Waal Malefijt†, M Vorstenbosch‡ (†Department of Anatomy; ‡Department for Orthopaedics, Radboud University Nijmegen Medical Centre, Nijmegen, the Netherlands)

Background: To avoid slackers during self-guided practical-works, we introduced compelling station-based practical-works. We hypothesized that forced ‘time on topic’ enhances learning and favors the retention of anatomical knowledge later on.

Summary of work: Both practical-works included identical content about the hand and wrist. The self-guided practical-work invited the students to study the material as they pleased. The station-based practical-work forced them to study the material in short time-periods. Afterwards the students tried to recall 12 anatomical names from Netter drawings. This test was repeated after 1 week, 5 weeks and 8 months. Eighty-nine students in the self-guided group and eighty-three in the station-based group completed all four test. Data were analyzed with T-tests.

Summary of results: Students in the self-guided group remembered 4.75±2.2, 6.24±2.09, 5.85±2.37 and 3.80±2.12 names, respectively, and those in the station-based group 6.14±2.46, 6.78±2.37, 6.56±2.61 and 4.93±2.36. Differences were significant for all time points except for the first follow-up, which was scheduled one day before the final course exam.

Conclusions: A long lasting effect on the retention of anatomical knowledge is found in favor of the station-based structured practical-work.

Take-home messages: For better long term retention of anatomical knowledge one should push students to learn as much as possible during practical hours.
**Summary of results:** 99% students mentioned that cadavers are the best learning tool for boy structure. 81% student agreed that a good surgeon and physician should have a good knowledge of anatomy. 70% students indicated that there was a dramatic change in their attitude towards the unique teaching aid. 10% students agreed to take up anatomy as a career option. 50% students agreed to donate their bodies for anatomy labs.

**Conclusions:** 99% student agreed that cadaver is the best teaching tool. The use of a human body provides a better opportunity to see and feel the various organs in position texture. Gradually the students develop a professional relationship with the cadaver. They learn to deal death with dignity.

**Take-home messages:** Despite the high technological advances in the field of medical education cadavers still remains the essential and integral part of teaching anatomy. The students should be prepared well by the teachers before they enter the anatomy dissection hall.

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**3X11 In the 21st century, is there a role for cadaveric dissection in basic medical education?**

*R Munir (Medical and Biological Sciences Building, University of St Andrews, North Haugh, St Andrews, Fife, KY16 9TF, UK)

**Background:** In recent times the purpose of cadaveric dissection in anatomical teaching has been put into question with the intervention of many alternative anatomy teaching concepts. One of these concepts is the use of animations in Medical education. Medical animations have been used in various computer programmes; however the scientific basis and usefulness as a teaching tool relies on very weak research models. Data in regards to student perception regarding current and alternative anatomy teaching methods is lacking. It is in these areas that this study will aim to shed light upon.

**Summary of work:** This study aims to survey medical students themselves, in order to discover the benefits of the alternative teaching methods. An extensive questionnaire was developed and medical students (years 1-3) were surveyed to respond to statements using a 5-point Likert scale. These results are being analysed to assess student perception to current and alternative teaching methods.

**Summary of results:** Results will be available by April 2011.

**Conclusions:** Conclusion will be available by 2011. **Take-home messages:** Medical students’ perceptions on the use of different methods of teaching anatomy and more importantly when and how these alternative methods are used should be considered during curriculum review processes.

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**3X12 Attitudes of Turkish Medical Students Towards Autopsy**

*A Balseven Odabasi*, **O Odabasi**, **A R Tumer**, **S Turan** (Hacettepe University Faculty of Medicine, Department of Forensic Medicine; Hacettepe University Faculty of Medicine, Department of Medical Education and Informatics)

**Background:** Autopsy as an educational experience helps students to correlate clinical findings with basic medical sciences; however, the use of autopsy in medical education has been declining. Furthermore this is worsened by the hinderance of medical students from attending autopsy sections in some areas. The aim of our study was to determine the attitudes of medical students towards autopsy practice.

**Summary of work:** We delivered a questionnaire to the 6th-year students in the medical schools located in Ankara in Turkey. The main questions of the questionnaire were the number of autopsies they had attended, their reactions to the first autopsy, their feelings about the adequacy of the conditions.

**Summary of results:** In the evaluation, it was detected that most of the participants agreed on the importance of autopsy in medical education. Most of them had attended an autopsy, felt uncomfortable and inadequate on performing autopsy.

**Conclusions:** We concluded that medical students should be encouraged to observe and participate in more autopsies.

**Take-home messages:** Observing and participating autopsies have a positive impact on students’ attitudes.

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**3X13 Body Bags to Play Doh: New Pro-Active Approaches to Teaching Anatomy**

*CM Diaz*, **D Tuttle**, **T Wooley** (Discipline of Anatomy & Pathology, School of Medicine & Dentistry, James Cook University, Queensland, Australia)

**Background:** Whilst Anatomy teaching at JCU is primarily focussed around our donated bodies, we also use a range of innovative, pro-active teaching approaches to compliment the wet classes. Here we explore and evaluate the capacity of these techniques to engage and inspire students to learn anatomy effectively.

**Summary of work:** We integrated a series of hands-on teaching techniques with the use of prosected human tissues. These included using a whiteboard as a teaching tool, building structures with play doh, surface anatomy, and body painting. Surveys and focus groups were then used to assess the value of these techniques to student learning.

**Summary of results:** These new approaches allowed students to engage fully and to learn in a visual, tactile and sensory manner. Analyses of student grades over
the past few years indicate an increase in the pass rate and a decrease in the fail rate. Surveys also indicated that these innovative learning techniques were popular, relevant, engaging and reproducible study tools for other components of their program.

Conclusions: When used in conjunction with wet anatomy practical classes, “whiteboarding”, use of play doh, art, and surface anatomy, including body painting are both engaging and inspiring and appear to lead to deeper learning.

Take-home messages: Pro-active, “hands-on” approaches to teaching Anatomy result in a more engaging, motivating, inspiring and enjoyable environment for student learning, producing students that are achieving the desired learning outcomes, and are confident, self-direct learners.

3X14 An interactive, collaborative tool to support anatomy teaching and learning in students’ clinical rotations
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Background: A survey showed that students in clinical, (surgical) rotations, feel insecure in their anatomy knowledge. Surgeons complain of students’ lack of knowledge. Additionally, students have limited time to dedicate to extra teaching sessions.

Summary of work: The need for an effective tool to bring students clinically-oriented anatomy knowledge applicable to the level of knowledge students need in clinical rotations was recognized. Initial design was started using the projects students do during anatomy course as an initial construct. Both students and teachers were encouraged to take part in joint projects of clinical topics with a basic design rules but free in the final format.

Summary of results: The information and projects were presented in a website where each project was added after a specialist review or participation in its construct. A discussion was allowed for each project, where each participant could give an opinion or challenge a specific aspect.

Conclusions: Topics were added to the webpage in innovative formats with multimedia presentations and animations, originally produced by students and teachers. Discussions were triggered by some of the projects, allowing them to be enriched and modified. Collaboration was active and the tool was considered useful by students.

Take-home messages: An interest-oriented tool and collaborative construct encourages participation and use.

3X15 Performance effectiveness of practical anatomy class before lecture to facilitate learning in dental students
M Pourghasem*, S Sum (Department of Anatomical Sciences, Faculty of Medicine, Babol University of Medical Sciences, Babol, Iran)

Background: Anatomy is the first key stone of medical education which is performed in traditional method; practical class after lecturing. Nowadays, several methods have been used to make easy learning of anatomy such as presentation of practical class. This study compared the impact of this method on enhancement and facility of learning with traditional course.

Summary of work: 38 first year dental student of dental school of Babol University of Medical Sciences were divided into 3 groups; one group (N=13) with new method education and 2 groups (N=13 & N=12) with traditional method. Matching in learning aptitude was done. After midterm examination, all groups were educated with traditional method. Midterm examination results between traditional and new method were compared. After course, the students with new method answered an attitude questionnaire to compare differences of two methods of teaching on facility and enhancement of learning.

Summary of results: There was no significant difference in the results between groups. Results showed that students had better feeling (69.2%) towards the new method of teaching. Students reported the new method facilitates depth perception (92.3%) and better learning (84.6%) of anatomy.

Conclusions: It seems that practical class before lecture is more acceptable by the students. Therefore, study of this method in all courses of anatomy for medical and dental students is suggested.

3X16 Neurophobia: What are the causes? And what does medical education have to offer?
C Athappilly*, G Giovannani, S Cader, A Flett (Barts and The London, Centre for Medical Education, London, UK)

Background: Neurophobia; a fear of neural sciences and clinical neurology was a term coined in 1994. It has been proposed that such a phobia results in students leaving medical school with inadequate understanding of neurology. A general lack of integration between scientific theory and clinical practice in the medical curriculum has been suggested as the main cause. Since then, even though many medical schools have adopted an integrated approach, recent research suggests that neurophobia still persists. Therefore the causes of neurophobia remain unclear and this study sets out to investigate the nature of this barrier to learning.
Summary of work: A qualitative, explorative research study was conducted in 2011 at Barts and The London Medical School. An electronic questionnaire was used to survey students from a variety of years. It aimed to elicit attitudes towards neurology and students with a high level of neurophobia were selectively invited back to participate in a semi-structured interview. The data generated was transcribed and then analysed using a thematic framework.

Summary of results: This presentation will focus upon emergent themes in the shape of theoretical models which identify and describe the nature and causes of neurophobia. Implications will be drawn as to how such potential barriers to learning in this subject area may be addressed.

3X17 Learning style of anatomy concepts in view of medical students in Kashan University of Medical Sciences

Mohammad Ali Atlasi*, Homayoun Naderian¹, Seyed Ali Reza Moravejii¹, Hossein Nikzad¹, Vahid Mehrabadi²
(¹Kashan University of Medical Sciences, Anatomical Sciences Research Center, Kashan, Iran; ²Kashan University of Medical Sciences, Faculty of Medicine, Kashan, Iran)

Background: Medical students use different learning styles for anatomy learning. This project was carried out in Kashan University of Medical Sciences in order to determine the learning style and strategy of medical students for educational planning.

Summary of work: This cross sectional study was carried out on 237 medical students. The instrument of data collection was a questionnaire form containing 35 questions about styles and strategies of anatomy learning. The responses from students were analyzed by descriptive statistic.

Summary of results: Students in all levels found it easier to understand anatomy in a clinical context, and learning was driven by assessment. The students found learning from cross-sectional images and cadaver easy. They were not inclined to ask questions in class and would have liked to study in small groups.

Conclusions: The findings give evidence to show students’ approaches to anatomy learning related to culture of learning and indicate the importance of cultural influences in the learning. Curriculum design may have contributed to selection of learning styles by the medical students.

3X18 Histopathology in the Dissecting Room - Does it work and what value does it bring to teaching?

A Wood*, S Whiten, J McVee, J Issberner, D Jackson, C S Herrington (School of Medicine, University of St Andrews, St Andrews, Fife, KY16 9TF, UK)

Background: The School of Medicine at the University of St Andrews retains full body dissection within an integrated medial curriculum. During the past academic session we obtained pathological tissue samples from cadavers for microscopic analysis. Our aim is to assess its potential for use in teaching.

Summary of work: We have previously reported how we use medical histories and information about the cause of death when introducing students to their cadavers. The medical histories of seventeen individuals used during the present academic session were reviewed for evidence of reported pathology. Tissue samples were removed for processing. Notable cases have been selected to illustrate the wide range of gross pathology and histopathology present.

Summary of results: The availability of microscopic pathology encourages integration in the dissecting room beyond normal anatomy, normal anatomical variation and gross pathology. When combined with medical histories, this material may be used to stimulate discussion of pathological processes in disease conditions that students will meet in clinical practice.

Conclusions: The cadaveric gross pathology and histopathology present offers an opportunity to further enhance the dissecting room experience. Students in the early years of training can observe and discuss pathological processes which have affected their ‘first patient’.

Take-home messages: The dissecting room provides an excellent resource for the teaching of gross and microscopic pathology. Dissecting room material provides a rich resource enabling integration of medical sciences.

3X19 Surgically Oriented Anatomy: a student initiative to enhance traditional anatomical education at the University of Western Ontario

S Ullah, O Cristea*, A Bodrogi, M Johnson, V McAlister (Schulich School of Medicine & Dentistry; University Hospital, London, Ontario, Canada)

Background: Traditional laboratory anatomy has seen a significant decline in medical education, due to a shift in emphasis from descriptive to more clinically oriented approaches. Many students express a desire for greater exposure to human anatomy, and are eager to see it presented with a focus on clinical implications.

Summary of work: A student initiative titled Surgically Oriented Anatomy (SOA) was created at the Schulich School of Medicine & Dentistry, with the aim of presenting human anatomy in a surgically relevant context. SOA invites surgeons from various specialties to demonstrate a characteristic surgical procedure on a cadaveric specimen. The surgeon discusses the anatomical implications behind the planning, approach and execution of such a procedure. This demonstration
is followed by an interactive period where students form smaller groups and examine the relevant anatomy on cadaveric specimens.

**Summary of results:** SOA is an extra-curricular program that has been well received by the student body, with 60% of pre-clinical medical students currently registered as members. The high demand for SOA workshops demonstrates the desire amongst medical students to learn anatomy, particularly when delivered within a surgical context.

**Take-home messages:** Applying a clinical focus to traditional anatomical education can preserve and enhance the status of this vitally important discipline in medical education.

**3Y Posters: Student Health/Learning Styles**

**3Y1 Medical student Health Promotion**

*Ronnaphob Uaphantasath (Department of Family Medicine, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand)*

**Background:** Medical student Health Promotion is one of our strategies to achieve Health Promoting Medical School. The actions taken to support this strategy is to promote student wellness and positive medical student self care which involve personal attention to proper diet, exercise, health care, and psychological well-being.

**Summary of work:** The first step in 2010 was designed to collect baseline information about student activities and health survey. Medical Student Healthy Days were arranged at orientation in every class. There were many activities such as wellness education, physical fitness, health survey, and chest x-ray and laboratory examination.

**Summary of results:** 1,042 medical students participated in Medical Student Healthy Day. Regarding to Body Mass Index (BMI), the result showed that 64% of male and 62.7% of female had normal weight. There were overweight and obesity among the men (27.2%), which is greater than the women (11.4%). Flexibility, Muscular strength and Endurance, Cardio-respiratory fitness were tested and found that most of them had fair to very poor physical health. The result of health behavior showed that no alcohol drinking (36.8%), no smoking (96.2%), regular exercise (29.6%), having breakfast (24.9%). Average sleep hour when having an examination was 5.7 hour a day, and having a stress (27.1%). In 2010, there were 38 health promotion student extracurricular activities from total 114 activities.

**Conclusions:** The concept of Health promotion can integrate to many activities in medical school especially in medical student health.

**3Y2 Sustainability of Physical Exercise after Attending Health Promotion Course**

*Harnchai Pinaikul (Hatyai Hospital Education Center, Songkhla Ministry of Public Health, Thailand)*

**Background:** Health promotion and maintenance course has been set up in our curriculum in order to promote medical students not only for competency of treatment but prevention also. The objective of study was to survey the sustainability of behavioral change, attitude and knowledge on physical exercise in daily life.

**Summary of work:** Fifty-fourth-year medical students, year 2009, were interviewed using self-administered questionnaire at 1, 6 and 12 months after health promotion course regarding physical exercise. Types of exercise provided in course included walking, jogging, aerobic exercise and bike cycling.

**Summary of results:** The number of students gained knowledge and realizing the importance of exercise for health increased by time. On the contrary, frequency of doing exercise increased from 42% to 96% at 1 month and decreased to 66%, 48% at 6 and 12 months respectively. The major barrier was lack of time.

**Conclusions:** Physical exercise in health promotion is effective but not sustainable. There is a gradual decline within a year. Lack of time is one factor but not the whole answer.

**Take-home messages:** How to overcome the time barrier for sustainability of physical exercise is a crucial matter for further study.

**3Y3 Smoking prevalence and attitudes towards tobacco among Hong Kong medical students: a pre-post evaluation of a teaching module**

*JM Johnston*, SS Shetye, TH Lam, AJ Hedley (The University of Hong Kong, Li Ka Shing Faculty of Medicine, School of Public Health, Pokfulam, HK, China)*

**Background:** Doctors have an important role in creating a smoke free society and reducing tobacco induced disease. A physician’s advice can act as a catalyst for change and training in smoking cessation can increase quit rates. A lack of undergraduate instruction on smoking cessation may contribute to an inadequate response by doctors.

**Summary of work:** 2007-2008 Year-4 MBBS students (n = 128/142; response rate 90%) completed a questionnaire based on the US Agency for Health Care Policy and Research (AHCPR) guideline for smoking cessation practice, and included personal tobacco use, the health impact of smoking, and attitudes to tobacco control, brief advice.

**Summary of results:** Pre-post test knowledge and attitudes scores significantly increased. 4 of the AHCPR 5As scores were significantly higher at post-test. Scores
for ‘advise smokers to quit smoking’ remained unchanged at post-test.

Conclusions: Exposure to tobacco smoke should be taught as the “Fifth Vital Sign” in clinical diagnosis. Improved intervention skills can be achieved through undergraduate medical training.

Take-home messages: The findings provide an analysis of the current effectiveness of the Smoking Cessation Skills Module in the acquisition of proficiency among 4th year medical students. These will guide module development and can be applied to new learning opportunities for medical students.

3Y4 Change of body mass index during medical study
S Insiripong (Department of Medicine, Maharat Nakhon Ratchasima Hospital, Nakhon Ratchasima, 30000, Thailand)

Background: Obesity is associated with coronary disease, one of the common causes of shortened life span among Thai physicians. This paper aimed to study the body mass index (BMI) of medical students at the beginning and at the 6th year of education and its change.

Summary of work: The BMI at the beginning and at the 6th year of the medical students of the last 3 academic years, were analyzed with student-T and chi-square tests.

Summary of results: Ninety-four students, 42 males and 52 females, were enrolled. The mean of BMI significantly changed from 20.2±2.9 to 22.2±2.9 kg/m² (p=0.0015). The majority of the students were in the normal BMI group. The prevalence of the underweight significantly diminished from 33.0 to 11.7% because of its decrease in males from 31.0% to 2.4%.

Conclusions: The BMI of medical students significantly changed from 19.8 at the beginning to 21.0 kg/m² at the 6th year.

Take-home messages: The majority of medical students have normal BMI. Hopefully they can continue keeping their normal BMI during their stressful professional career.

3Y5 General health status and depression amongst first year chiropractic students
A B Wenban*, R Gardner (Barcelona College of Chiropractic, Barcelona, Spain)

Background: Previous research suggests those studying any one of a number of health care disciplines often experience significant decline in self-reported mental and physical health during the course of a programme of study. To date very little research has documented whether a similar phenomenon occurs amongst chiropractic students.

Summary of work: Twenty two (22) first year chiropractic students, enrolled in a 5 year full-time programme of study, completed two different self-administered health assessment questionnaires (Medical Outcome Study Short Form 8 and Beck Depression Inventory) at the start and end of the first year of study.

Summary of results: MOS SF-8 measures improved for physical function (7.1%), role physical (8.8%), body pain (18.3%) general health (15.7%), vitality (17.3%), social function (23.7%), role emotion (25.9%) and mental health (21.8%). Additionally, the students’ mean depression score improved from 12.32 (SD: 7.49) to 3.23 (SD: 4.04).

Conclusions: The participants’ self-reported health status, and level of depression, improved across the first year of the programme of study. Further prospective studies, using larger cohorts, should be carried out to further explore this preliminary finding.

Take-home messages: In contrast to the findings of previous studies among students of other health care professions, chiropractic students’ self-reported physical and mental health status improved when monitored prospectively across the first year of a 5 year programme of study.

3Y6 Formation analysis of professional pedagogical competence in study process of medical college
M Pukite*1, A Pukitis2 (1Riga Stradinsh University, Red Cross Medical College, 5 J Asara Str., LV-1009, Riga, Latvia; 2University of Latvia, Faculty of Medicine, Riga, Latvia)

Background: Professional pedagogical competence (PPC), knowledge and skills in acquisition of the theories of pedagogy and psychology in education of patient as an inseparable part of the formation of students’ PPC was the main aim of this study.

Summary of work: Assessment of the PPC was performed by three vectors of inter-action; teacher – student, student – student, student – patient. One hundred students from Red Cross Medical College of Riga Stradinsh University (RSU RCMC) fulfilled self-assessment questionnaire in the end of 1st, 2nd and 3rd year. Cronbach alpha value was > 0.7.

Summary of results: Knowledge, skills and attitude in the course "Pedagogy" (commendable level 81%, average comprehension level 19%), "Psychology" (commendable level 69%, average comprehension level 31%), and "Informative technologies" (commendable level 47%, average comprehension level in 53%) were evaluated. Self-assessment in the 1st year was close to the highest, but the 3rd year students evaluated themselves close to the middle level. The third vector...
consists of patient case reports (commendable level 41%, average comprehension level 59%) and presentation of research project (commendable level 62%, average comprehension level 35%, low level 3%).

**Conclusions:** 1. In the formation of PPC an important role belongs to knowledge, skills and attitude. The majority of students got highest evaluation score from the teachers, which explains that basic knowledge level in this subject is sufficient. 2. Analysis of the student-patient interaction confirmed the competence to use adequately theoretical knowledge in practical situations. 3. Students’ self assessment reveals progressive dynamics; 3rd year students tend to evaluate themselves markedly more critically.

**3Y7 Basic science course directors’ perceptions of millennial medical students as learners**

C Elam*,1 N Borges2, S Manuel3 (1University of Kentucky College of Medicine, Office of Medical Education, Lexington, KY, USA; 2Wright State University Boonshoft School of Medicine, Office of Academic Affairs, Dayton, OH, USA; 3University of Cincinnati College of Medicine, USA)

**Background:** Millennial generation students entered medical school in 2003. How are they perceived by faculty?

**Summary of work:** Focus group sessions were conducted at the University of Kentucky and Wright State University with first & second-year course directors. Faculty were asked: 1) Name three positive & negative characteristics of current students. 2) How responsive should faculty be to students’ learning preferences? 3) Have feedback and grading issues changed? 4) Describe students’ perspectives on honesty and cheating. Sessions were audi-taped and transcribed. Investigators identified emergent themes.

**Summary of results:** Characteristics-Faculty at both schools described students as bright & motivated, technologically savvy, and collegial as well as driven, time conscious, & pressured to manage information. Fragile psyches if not successful were evidenced. Feedback & grading- Kentucky faculty noted increased requests for information & feedback. WSU faculty thought some students shied away from reflection experiences. Responsiveness- Faculty at both schools thought students increasingly demanded to be taught according to their expectations. Honesty/cheating- WSU faculty thought students sanctioned situational cheating; Kentucky faculty thought students were more reluctant to accuse others of cheating.

**Conclusions:** Course directors described similarities in learners that might be attributable to unique characteristics of Millennial students.

**Take-home messages:** Insights into current learners can inform medical school curricular and academic support initiatives.

**3Y8 Can Learning Style Predict Student Satisfaction with Different Instruction Methods and Academic Achievement in Medical Education?**

Erol Gurpinar*, Mustafa Kemal Alimoglu, Sumer Mamakli, Mehmet Aktekin (Department of Medical Education, School of Medicine, Akdeniz University, Antalya, Turkey)

**Background:** The purpose of this study was determining learning styles of our medical students and investigating the relation of learning styles with each of satisfaction with different instruction methods and academic achievement in them.

**Summary of work:** This study was performed with participation of 170 (91.4%) first-year medical students. The researchers prepared Socio-demographic and Satisfaction questionnaires to determine characteristics of participants and their satisfaction levels with traditional training and PBL. The Kolb Learning Styles Inventory was used to explore learning styles of the study group. The participants completed all forms at the end of first year of medical education. Indicators of academic achievement were scores of five theoretical block exams and five PBL exams performed throughout academic year 2008-2009.

**Summary of results:** The majority of the participants took part in “Diverging” (47.7%) and “Assimilating” (41.5%) groups. PBL satisfaction scores were significantly higher than traditional training scores. There was no difference between exam scores of four learning style groups. Learning style (assimilating) was predicting student satisfaction with traditional training and success in theoretical exams.

**Conclusions:** Our medical students generally are “divergers” and “assimilators”. Assimilating may predict satisfaction with traditional training and academic achievement in this instruction method.

**Take-home messages:** Some learning styles may relate to satisfaction with and achievement in some instruction methods.

**3Y9 Do learning style preferences differ with age, gender and previous higher education among undergraduate medical students?**

F Tasker*, A Jibawi, J Rees (King’s College London School of Medicine, Division of Medical Education, Sherman Education Centre, 4th Floor Southwark Wing, Guy’s Hospital, London SE1 9RT, UK)

**Background:** Learning styles can be divided into four main categories, visual (V), aural (A), read/write (R) and kinaesthetic (K). Understanding students’ learning style preference is important for planning undergraduate programmes.
Summary of work: 391 undergraduate students at King’s College London School of Medicine completed the VARK learning style questionnaire online.

Summary of results: 98% of medical students preferred quad-modal learning styles, 2% tri-modal learning styles. Students mean rank was 5.9, 5.9, 6.3, and 6.5 for VARK respectively with no gender differences. Aural style decreased with age (p=0.02) and with advanced degree taken (p=0.04). Kinaesthetic style decreased as students progressed through the programme (p=0.02).

Conclusions: Undergraduate medical students prefer multiple learning styles defined by the VARK analysis throughout medical school. Overall learning styles do not differ with gender. Aural learning style is preferred less among older students, and those with advance degrees. Kinaesthetic learning styles are less popular in later years of medical school although this becomes more important through most programmes.

Take-home messages: Medical tutors should help students learn using a variety of V, A, R, and K methods, but be aware that mature students and those with advanced degrees are less likely to favour aural methods.

3Y10 Can a metacognitive awareness tool help improve student study skills?
M H Afzal*, B Awied*, M Abdur-Rahman, M Hoque, N Iqbal (Bart’s and the London Medical University, London, UK)

Background: The relationship between academic failure and poor study skills have been noted in many educational settings. Early intervention to help rectify poor study habits can potentially play a major role in reducing failure rates.

Summary of work: A questionnaire, acting as a ‘metacognitive awareness tool’, was designed from the Study Skills Model, focus groups and surveys from previous studies. Students were asked to use the tool and provide feedback. Quantitative feedback, in the form of Likert scale responses, on the usefulness of the tool was collected.

Summary of results: Feedback of the tool was very encouraging. All the students found the tool to be well structured and easy to understand; the vast majority saying the tool provoked them to reflect about their own study skills and identify possible weaknesses in their own study.

Conclusions: The questionnaire needs further involvement of tutors in order to redress most of the deficiencies of the tool; it will make the advice more context appropriate, person specific and also help to improve motivation. Nonetheless the tool offers an opportunity for tutors to explore issues pertaining to their students’ study skills and improve examination performance.

Take-home messages: This questionnaire can help improve study skill metacognition, a key component of revision and learning.

3Y11 Services for pregnant medical students in preclinical courses and clinical rotations
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Background: After having identified a gap of advisory and counselling services for pregnant medical students at all medical faculties in Baden-Württemberg, Germany, regarding the law of maternity leave in preclinical courses and clinical rotations, appropriate management and guidance for pregnant medical students is being presented.

Summary of work: The findings and recommendations are based on a survey assessing a family-friendly medical curriculum at medical faculties of the universities of Freiburg, Heidelberg, Mannheim, Tübingen, Ulm in Germany and an expert’s report on the medical basis regarding the duration of maternity leaves.

Summary of results: Our studies show that no medical faculties offer sufficient services or reliable information on pregnancy safety in medical students. We recommend: Online-informations for all medical students; Instruction of teaching staff about maternity protection of students; Training of the dean’s office’s and student secretaries’ counselling staff; Clarifying the workflow and tasks with the university’s department of occupational health and safety; Definition of individual risks and endangerments for pregnant students in preclinical courses and clinical rotations.

Conclusions: Based on the results of our survey we are able to show how maternity leave in medical education could be implemented, which obstacles and risks exist and what programmes in counselling and support for female medical students are recommended.

Take-home messages: Services for pregnant medical students in preclinical courses and clinical rotations must be well organized.

3Y12 Investigating the effects of ethnicity on academic achievement in medicine
A Selvakumarran*, S Subhani*, M Carroll* (Southall, Middx, UK)

Background: Studies analysing the academic progress of ethnic minority students in British medical schools
have identified under-achievement in comparison to their 'white' peers, despite all students being selected for high academic attainment. However, previous studies have not identified the underlying causes for this phenomenon. Equality legislation requires medical schools to address any perceived inequalities. This study took place in Barts and The London, a medical school situated in the east of London and home to an ethnically diverse population of students.

**Summary of work:** The society works by collating a database of current research and auditing opportunities available, which is then offered to the medical students, thereby initiating student-doctor collaboration. A code of conduct has been instigated for both researchers and students to ensure a fair and transparent system for both parties.

**Summary of results:** This presentation summarises the findings of this research.

**3Y13 Folklore or fact - is there really a difference in the learning experiences and early exam performance between medical students coming from either UK state or independent school backgrounds?**

**David Mearkle*, Sandra Nicholson (Barts and The London School of Medicine and Dentistry, Centre for Medical Education, Garrod Building, Turner Street, London E1 2AD, UK)**

**Background:** It is a commonly held belief that equally academically pre-qualified students from state and independent schools are not equally prepared for the educational rigors of medical school. Provided students from state schools achieve the high academic entrance requirements there is a perception that these students will then go on to out perform their independently-educated peers. The assumption being that state-educated students are more familiar with self-directed learning and adapt more easily to medical school.

**Summary of work:** This paper investigates these claims by examining both quantitatively and qualitatively the impact of school background on one cohort of medical students' performance during their first term at one UK-based medical school. Quantitative analysis of students' exam performance at the end of the first term by comparing the mean performance of students from state and independent school backgrounds is currently being conducted. Focus groups are exploring qualitatively the differences in learning experiences, attitudes and exam preparation between students from different school backgrounds.

**Summary of results:** Initial analysis has not shown any significant differences in exam results by school background and the reasons identified through the focus groups for this will be discussed.

**Conclusions:** This study helps inform us whether the commonly held beliefs concerning the perceived benefits and disadvantages of school background for UK medical students are valid.

**3Y14 Internal differentiation in an undergraduate Pharmacy course**

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**Background:** Differences in learning approaches between students are related to teaching preferences. Students with a deep learning approach (DA) prefer more autonomy and open assignments, those with a superficial learning approach (SA) prefer structure and guidance. As most courses are designed for ‘average’ students, many students are out of their zone of proximal development, may become demotivated, and underachieve. We investigated whether, based on learning styles, internal differentiation within a course is possible.

**Summary of work:** In the course “Preparation and analysis of drugs” (year 2) two different teaching approaches (different in teacher guidance, group-size and student autonomy) were used. Students were assigned to separate groups based on their grades in a first year course and personal preferences. The course was evaluated by interviews, a science motivation questionnaire and the R-SPQ-2F.

**Summary of results:** Students in the DA-group scored significantly higher on DA-learning and course grades for the same exam. They reported a strong ‘community-building’, felt challenged and motivated. No differences in intrinsic motivation between groups were observed.

**Conclusions:** (Dis)advantages and limitations of internal course differentiation need to be explored in more detail.

**Take-home messages:** Internal differentiation within a course seems a possible way to increase motivation and achievement.

**3Y15 Predictive Factors of Academic Engagement in Medical Students**

P Parra, C Pérez, L Ortiz, E Fasce, O Matus, N Bastías (University of Concepción, Medical Education Department, Concepción, Chile)

**Background:** Higher education has the challenge to enable its students to adapt themselves in an increasingly complex and dynamic world. In this context, it is essential to promote students’ deep commitment with lifelong learning and to evaluate their academic engagement at admission.

Summary of results: 113 students (100%) were surveyed, ages: 17 to 25 years (M = 18.56; S.D. = 1.26), gender: 57 men (52.78%). Multiple regression analysis showed that GAS is a significant predictor of academic engagement, unlike HSG. A counterintuitively inverse relation between HSG scores and academic engagement was found.

Conclusions: According to the literature, this research calls into question the suitability of current admissions processes used in higher education to select its students, specially in a world context which requires professionals with a high engagement level.

Take-home messages: Further research is required about the factors associated with academic engagement, to incorporate them into the University admissions process.

3Y16  Student involvement in medical education - how can students become more involved?
E Bate*, DCM Taylor (University of Liverpool, School of Medical Education, Liverpool, UK)

Background: The need to maintain a continuous stream of clinicians involved in medical education has prompted the formation of Academic Education Foundation Programmes across the country. These programmes help develop the skills and interest in education within junior doctors. Involvement and interest in medical education however, can be fostered at a medical student level, and has been found to be beneficial to both the students involved, and the medical school as a whole.

Summary of work: This project aimed to identify the different opportunities and roles within medical education that students can pursue. A series of case studies are presented which demonstrate the areas within medical education that students participate in.

Summary of results: The student roles range from Problem Based Learning (PBL) facilitators, to involvement in student advocacy and representation on faculty committees.

Conclusions: This is an on-going study investigating student roles within medical education at different UK universities. The project identifies the methods being used by different universities to incorporate students into and therein ensure the future of medical education.

Take-home messages: There are many opportunities for students to engage in medical education. The challenge is to overcome the three constraints of; student time, awareness of the opportunities and the availability of appropriate training.

3Y17  Student Committee of EDC : What is it? What must it be?
A Khani*, E Ramezani, Z Joveini, F Safartabar (Student Committee of Education Development Center, Babol University of Medical Sciences, Babol, Iran)

Background: The role of the Education Development Center (EDC) is promoting educational process in all aspects. It is impossible to do this regardless of the role of students as a target group of the education system. The Student Committee of the EDC (SCEDC) as a student organization can help the authorities of EDC to do their duty. This study assessed the Faculty members of Babol University of Medical School views about the SCEDC.

Summary of work: This cross sectional study was carried out in autumn 2010 on Faculty members of Babol University of Medical Science, using a questionnaire with a Likert scale. Questionnaire validity and reliability was confirmed with a Cronbach alpha 0.7.

Summary of results: Overall, 120 participant completed the questionnaires (65.3% male and mean age of participants was 45). Only 28.1% of faculty members had enough information about the fields of activities of SCEDC. The most agreement of participants about SCEDC duties was "doing research in education" (85.1%) and "be an interface between students and departments" (80.2%). Results indicate a significant relationship between professors familiar with the duties of the committee and their willingness to cooperate with the SCEDC (p=0.001).

Conclusions: Notification of faculty members about SCEDC and providing the conditions for cooperation between faculty members and SCEDC is necessary.

3Y18  Survey on student involvement in medical education
I Goganau*, M Weggemans (International Federation of Medical Students’ Associations, Ferney-Voltaire, France)

Background: The International Federation of Medical Students’ Association (IFMSA) is a nonpolitical and not-for-profit organization, among the oldest and largest student organizations in the world, serving as a platform for unity and collaboration. IFMSA represents 106 member organizations from over 95 countries. The IFMSA is recognized by the UN and the WHO as the international voice for medical students. The Standing Committee on Medical Education (SCOME) of IFMSA acts as a forum for centralizing students’ opinions, collaboration and exchange of information, promotes active involvement in education, curricular or extracurricular, aiming to bring improvements in medical schools throughout the world. SCOME has initiated a survey throughout IFMSA to identify the
extent to which students are involved in medical education in different countries.

**Summary of work:** The aims of the survey are: to identify and evaluate ways in which students are involved, to identify problems and limitations to being active participants in improving medical education.

**Summary of results:** It evaluates several topics: student involvement in higher education governance, collaboration and communication with faculty, influence of students in faculty decisions and on national level, student led medical education activities including extracurricular activities.

**Conclusions:** The survey identifies main problems, possible solutions as well as student priorities in being involved in medical education.

### 3Z Posters: Selection

#### 3Z1 Taiwanese perceptions toward the medical education system: high-school leaver vs. post-baccalaureate

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**Background:** Currently in Taiwan, the medical education system with high-school entry and few drop outs has been considered problematic. There has been widespread discussion on the possible change, high-school leaver vs. post-baccalaureate medical education system. This study is to understand the Taiwanese perceptions on this issue during the recent 2 years.

**Summary of work:** This study used internet and paper surveys to ask participants about their opinions for a medical education system and the possible changes. The participants in 2008 included 4 groups: administrative leaders, faculty, students, and parents. In 2011, data were collected from faculty and medical educators.

**Summary of results:** There were 1658 responses in 2008. The respondents were all supporting a single model, while equally splitting for each model. More non-medical faculty supported graduate-entry program, while more students and parents supported high-school entry. Parents were most often opposed to changing the graduate medical program. In 2011, a significant proportion of faculty welcome the co-existence of multiple models, and the supports for high-school model decreased.

**Conclusions:** Based on Taiwanese opinions, there is a trend of change from a single high-school leaver model to multiple models adjusted to local needs. The study results provided a basis for communication and implementation of future changes.

#### 3Z2 Sample Medicine - Student Access into Medicine via Peer Led Education

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**Background:** Medical students reported difficulties in gaining information about the medical course and arranging medical work experience prior to applications. In order to allow students to gain medical exposure and to allow exploration of the medical course students attended Sample Medicine.

**Summary of work:** Sample Medicine is created and implemented by students from the University of Leicester allowing students to learn about the typical life and learning experiences of medical students.

**Summary of results:** Post event students ranked knowledge of the course as being higher than pre-event. In addition several themes emerged when exploring students' perceptions of the application process and the medical course: 1) Work experience is difficult to arrange; 2) The interview aspect of the application process deterred many to apply to Medical school; 3) The event helped students make a more informed choice about applying to the course; 4) Practical learning was appealing to students.

**Conclusions:** The event allows A-level students to network with peers, experience medical teaching and participate in curriculum activities such as group work, attending lectures and doing practicals.

**Take-home messages:** 1) There are multiple difficulties in gaining medical work experience; 2) Certain beliefs and perceptions may hinder students from applying; 3) Taster courses are needed to allow students to make informed choices.

#### 3Z3 Medical students’ and interviewers’ opinions of the appropriateness of traditional interviews for selection to a widening access (WA) to medicine programme

*Elisabeth Rich (Division of Medical Education, School of Medicine, University of Southampton, BBS Highfield Campus, University Road, Southampton, SO17 1B, UK)*

**Background:** The WA medical programme at Southampton University is a dedicated entry route to a medical career for individuals from lower-socioeconomic groups. Evidence indicates that such individuals under-perform in conventional interviews compared to applicants from higher-socioeconomic groups.

**Summary of work:** Questionnaires seeking views on the WA interview experience were completed by
medical students in all years who had entered via the WA route and by selected interviewers.

**Summary of results:** 48.9% of WA students in their early years felt the traditional interview should be retained. However only 25% of WA students in their clinical years and just 20% of interviewers agreed and instead favoured changing to multiple station assessment.

**Conclusions:** As WA medical students progress through their programme their opinions change as to the appropriateness of the selection interview. This may reflect a better understanding of the personal attributes for a career in medicine. These opinions were endorsed by WA interviewers.

**Take-home messages:** Medical students in their clinical years (unlike early years’ students) favour changing the format of the traditional entry interview to medical school for WA applicants to a multiple station selection method.

324 __Changing Student Selection Method to Increase Opportunity of Rural Students__

_B Warachit (Hatayai Medical Education Center, Hatayai, Songkhla 90110, Thailand)_

**Background:** Because of shortage of doctors in rural Thailand, the government had implemented “The Collaborative Project to Increase Production of Rural Doctors (CPIRD)” in 1994.

**Summary of work:** Our students were selected from 7 provinces and some are outreach. If we use only entrance examination scores, these students cannot pass the exam. We include noncognitive knowledge using MMI in selection method so that our students who had lower entrance examination scores can catch up themselves.

**Summary of results:** Cognitive knowledge of our students increased from preclinical years as they pass National Licensing Examination (NLE) step 1 less than normal track in 2 batches (p<0.001) and not different in 3 batches (p>0.05). However, the results of NLE step 2 and 3 in clinical years were not significant difference (p>0.05).

**Conclusions:** Student selection method can be a tool to help students in rural area who previously had few or no chance to be a medical student but have other competencies of a doctor.

**Take-home messages:** Whatever you want your doctor to be, start with student selection.

325 __On-line pre-university orientation project improves students’ performance for the medical school admission test: ten years experience__

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**Background:** Since 2001 Sapienza University of Rome together with 156 high schools supported an on-line pre-university orientation project in order to facilitate students to pass the admission test both for the medical school and biomedical degree courses.

**Summary of work:** A web site containing units of mathematics, physics, chemistry and biology (based on a ministerial released programme) has been built up (www.orientamentoinrete.it). During the Winter students have accessed the units in the web site. In the Summer, two weeks before the admission test, ex cathedra lessons have summed up the notions previously acquired and admission test simulations were performed.

**Summary of results:** Overall web site visits accounted for 207259. Orientation course attendants were 8196; ca 50% of them tried the admission test for the medical school, 37% passed the examination. Overall vacancies for the medical school at Sapienza University of Rome were 4198, 30% were filled by students who attended the orientation course. Course attendants who enter biomedical degree courses were 56%.

**Conclusions:** This is the first Italian on-line pre-university orientation project. Most course attendants (86%) passed the admission test for the medical school or biomedical degree courses.

**Take-home messages:** E-learning followed by ex cathedra lessons enhances the basic science preparation of biomedical admission test attendants.

326 __Correlation of medical school admissions criteria and performance of undergraduate students in academic and clinical examinations__

_N Sartania (University of Glasgow, School of Medicine, Wolfson Medical School, Glasgow, UK)_

**Background:** Aims of the study were to determine: 1. Whether UKCAT adds value to the process of selection for Medicine in Glasgow; 2. whether the test has a predictive validity with regards to academic and clinical performance; 3. to inform the current debate on its validity, fairness in selection and whether the inclusion of this test in admissions criteria has contributed, as hoped, to the widening participation agenda.

**Summary of work:** It is a cohort study and students enrolled in it represent the first cohort admitted to Glasgow that took the UKCAT. Data were available for 77% of students in this cohort and analysed with SPSS 18.0 for Windows. Descriptive statistics were used to describe various characteristics, while the relationship between UKCAT scores and other measured continuous variables were analysed using multiple regression
analysis to predict the effect of UKCAT on examination scores.

**Summary of results:** UKCAT was a significant predictor of written exam scores in Years 1-3 amongst the students accepted to Glasgow, but there was no correlation with the scores for clinical examination.

**Conclusions:** UKCAT might correlate better with exam scores where cognitive abilities are assessed and indeed provide a proxy for A levels in the selection process.

**Take-home messages:** More research and time is needed to validate the test.

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**327 Retention of WSU medical graduates in the Eastern Cape Province, South Africa**

E N Kwizera*, J E Iputo (School of Medicine, Faculty of Health Sciences, Walter Sisulu University, P/Bag X1 Mthatha 5117, Eastern Cape, South Africa)

**Background:** The WSU medical school was established 25 years ago with the main goal of training doctors to serve within the then Transkei, which constitutes a major component of the Eastern Cape Province of South Africa. One strategy of realising this outcome has been a policy of deliberate local recruitment of the majority medical undergraduates.

**Summary of work:** As part of ongoing WSU medical graduate follow-up, this study sought to establish inter alia, the extent of their retention within the Eastern Cape Province. From an exhaustive alumni database, WSU medical graduates who were the Internship and Community Service in 2009 were traced and their practice locations established.

**Summary of results:** In 2009, 571 post-Community Service WSU medical graduates were traced. 242 of these (42.38%) were practising in the Eastern Cape Province, while 140 (24.52%) were in KZN, the two (mainly rural) provinces from where ca. 70% and 20%, respectively, of WSU medical undergraduates are recruited.

**Conclusions:** The WSU medical student selection policy of 'recruiting locally' has resulted in high graduate retention in the Eastern Cape Province. From an exhaustive alumni database, WSU medical graduates who were the Internship and Community Service in 2009 were traced and their practice locations established.

**Take-home messages:** Although having no formal assessment in place at the end of the course, the students showed an admirable and impressive work ethic and competence with case based discussion. Feedback from the course revealed amazing satisfaction with all aspects of the course especially interactive learning.

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**329 A new selection tool for medical students: experience report**

VLC Nunes*, MS Menezes, IA Aleluia, MLC Soliani (Escola Bahiana de Medicina e Saúde Pública Salvador, Bahia, Brazil)

**Background:** In Brazil, access to medical schools is traditionally done through theoretical tests that evaluate the student knowledge, without concern for the vocational aspects. Our institution is a private medical college and accepts 100 students for each semester from about 2500 applicants. Two years ago, we promoted a radical change in the selection method, adding an experiential step with participation of our own teachers.

**Summary of work:** For many years we have been asked about problems in the selection process. Among other flaws, we highlight choosing from highly able students to learn through traditional methods, but not trained in self-learning, and lack of experience of a not idealized medical student’s routine. We then introduce an experiential step, not scored, which simulates a
problem-based learning discussion. This includes reading of a common public health problem and further participative discussion about possible approaches in the context of the Brazilian health system.

**Summary of results:** Over the past five semesters, more than 95% of students considered this experiential step useful for their vocational guidance. Involvement of their future teachers has already promoted a closer relationship.

**Conclusions:** By using new tools, one can improve the selection of medical students ready for self-learning, and also provide some vocational guidance. Active involvement of teachers in the selection process improves their relationship with students, which enhances the efficiency of teaching and learning.

**Take-home messages:** Improving the methods applied to selection processes seems to be a useful tool to achieve an ideal quality of medical education and should be exploited.

### 3Z10 Do admission essays predict future performance in medical school and internship?

**A G Kay, A R Artino, D M Woechter, W Gilliland, D Cruess, M Calloway, S J Durning* (Dept of Medicine (NEP), Uniformed Services University, Bethesda, MD, USA)**

**Background:** Admissions committees strive to select the best applicants. Many committees require applicants to write one or more essays which are evaluated as part of the admissions review process. Essay writing and evaluation require significant time and effort. Our purpose was to determine if applicant essays predict trainee performance.

**Summary of work:** We asked a journalist (AK) to independently score two essays (one university and one AMCAS essay) for each applicant within a year group using a scoring rubric adapted from the journalism field (rating scale = 1-5). We operationalized performance in medical school as cumulative GPA and performance in internship as scores on a validated program director’s evaluation. Pearson correlations were used for statistical analysis.

**Summary of results:** A total of 290 essays were scored (145 university and 145 AMCAS). No statistically significant correlations were found between essay scores and medical school or internship outcomes (correlation coefficients ranged from 0.1 to 0.3). Self-plagiarism (cutting/pasting between essays) was also unrelated to performance outcomes.

**Conclusions:** Few studies have explored the association between medical school essays and trainee performance. We found no statistically significant associations between essay scores and performance outcomes obtained through internship.

**Take-home messages:** Our findings raise questions about the utility of medical school essays, a resource-intensive admission requirement.

### 3Z11 Dr Who? Evaluating perceptions of the ideal attributes of a future doctor


**Background:** Suggested attributes of a good doctor have been used to guide medical students (MSC, 2008). Recently clinicians from various specialties attempted to shortlist ideal characteristics to help steer medical school admissions (Lambe et al, 2010). The study aimed to identify the ideal attributes of good doctors, and perceptions held by the public. We examined whether they differed in their prioritising of characteristics. This can then guide the content of the undergraduate medical student curriculum.

**Summary of work:** The study used a focused group of medical students to shortlist the ten most important non-cognitive attributes of good doctors. Questionnaires were randomly given to a group of medical students (n=25) and to members of the general public (n=25). Perception of importance of attributes of a doctor was measured by means of ten questions rated on five-point Likert-type scales ranging from 1 ("not at all important") to 5 ("always important") The results were then analysed.

### 3Z12 Selection of medical students in Taiwan

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**Background:** Doctors have to be competent in both cognitive and non-cognitive perspectives. In old age, Taiwanese medical students were all high school leavers and selected solely by the Joint College Entrance Examination. In the 80s, interviews were added to enroll graduate medical students in five medical schools, and the programs were soon discontinued, except one. In recent ten years, under the pressure from the Taiwan Education Ministry, entrance interviews were added and gradually increased in proportion of student enrollment. This study is to report the current status of medical student enrollment in Taiwan.

**Summary of work:** Medical School Admission information was collected from website and admission offices in 2010 and 2011.

**Summary of results:** The number of medical school adapting selection of medical student enrollment decreases from 12 to 7. The proportion of selection of medical students by recommendation varied from 15 to 70%. On the contrary, the applicants of high school
leavers to medical college dramatically increased. Interview has been thought to be a good tool to recognize non-cognitive skill in many schools.

**Conclusions:** The selection of medical students by recommendation in Taiwan is a new trend. Interview has been thought to be a good tool to recognize non-cognitive skill in medical student enrollment.

**Take-home messages:** The selection of medical students by recommendation in Taiwan is a new trend. But the long term results of medical education in this process still needs time to prove. Interview has been thought to be a good tool to recognize non-cognitive skill in medical student enrollment.

3Z13 Student Selection at Hannover Medical School: Is There a Gender-Bias?
A Dudzinska*, V Paulmann, V Fischer (Hannover Medical School (MHH) Deanery of Student Affairs, Hannover, Germany)

**Background:** Due to legal restrictions in admission to higher education in Germany, which define the overall-grade of the Abitur (German-high-school-diploma) as pivotal, there is a predominance of women in medicine. As a consequence the so-called feminization of medicine is controversially discussed. It is accompanied by a call for promotion of male applicants within the admission to medical education. Since 2006, Hannover Medical School (MHH) assesses 60% of their applicants by additional selection interviews. Whereas some selection processes seem to favour male applicants, the selection interviews at MHH aim to incorporate students with a high motivation and distinct soft skills – regardless of sex.

**Summary of work:** Based on achieved points in selection interview we analyze whether a gender-bias has a significant impact on the admission to MHH.

**Summary of results:** Two-thirds of the selecting committees consist of male professors. Our analysis displays that there is no statistically significant relation between the sex of an applicant and received points in the selection interview at MHH.

**Conclusions:** As the focus groups are currently being conducted, it is not yet possible to draw any conclusions.

**Take-home messages:** This paper increases our understanding of medical student views on graduate medical education in this process still needs time to prove. Interview has been thought to be a good tool to recognize non-cognitive skill in medical student enrollment.

3Z14 Exploring the views of medical students, at one institution, concerning whether medicine in the UK should be a postgraduate or undergraduate degree
S Chada*, S Nicholson (Barts and the London Medical School, London, UK)

**Background:** It is widely held that the number of places at medical school in the UK are being allocated to those students who already have a degree. The opinions of the students on this issue are under evaluated and in the near future when UK students will be paying high tuition fees it is pertinent that we as educators take into account student opinions.

**Summary of work:** A variety of students on the undergraduate degree programme were recruited to engage in a series of focus groups. Students were asked to comment on the prospect of medicine as a graduate only degree. The discussions were audio-taped and analysed thematically.

**Summary of results:** Currently the focus groups are being conducted and so results are preliminary. Some undergraduates feel marginalized by their perceived more successful postgraduate peers whereas some value their contribution to the curriculum and reflect that they would have themselves benefitted from studying for a previous degree. Postgraduates articulate the increasing financial and social hardships of a further rigorous and lengthy period of study.

**Conclusions:** As the focus groups are currently being conducted, it is not yet possible to draw any conclusions.

**Take-home messages:** This paper increases our understanding of medical student views on graduate medical education.
clinicians, with differences in the fail and high end categories. Simulation and SCR tasks were statistically more likely to flag poor performance. Gender and nationality variables are under analysis for presentation at AMEE.

Conclusions: Interactive recruitment is highly acceptable to candidates, and this assessment centre has interesting psychometric properties. The degree to which ‘killer’ questions can/should be used for access to training grades merits reflection.

Take-home messages: It is our hope that sharing of outcomes will contribute to the discussion about methods in high stakes, summative clinical scenarios, and offer a template that other institutions might find informative and useful.

3AA Posters: Standard Setting / National Exams

3AA1 Computer-Based Standard Setting Procedure for High-Stakes Undergraduate Medicine Examinations

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(Undergraduate Medical Education, University of Alberta, Edmonton, AB. Canada)

Background: Setting defensible cut-scores for high-stakes examinations is critical to validity.

Summary of work: We undertook a pilot project incorporating current psychometric practices to set a pass-score for a high-stakes examination. Subject matter experts (SMEs), also active teachers, were recruited. Recognizing that calibration is essential, two facilitators outlined the process to the SMEs. The primary focus was to achieve a common vision of the minimally competent borderline candidate (MCBC). SMEs were then given access to the examination by means of a specially-designed software application. This application presented items one at a time, prompting SMEs to indicate if the MCBC would respond correctly to each item. SMEs recorded their responses using “Yes” or “No” radio buttons (modified Angoff method).

Summary of results: The examination consisted of 182 multiple choice items. Data from thirteen SMEs resulted in a mean Angoff of 54%. Seven SMEs clustered within five percent of the Angoff value; 11 clustered within 10%. Calibration took 90 minutes. On average, the SMEs required one hour to complete the task.

Conclusions: Calibration appears to have been effective (as indicated by the clustering of results). The computer platform functioned well. Resource requirements are reasonable. Widespread implementation is feasible.

Take-home messages: Computer-based protocols can be used to facilitate standard setting for high-stakes assessment.

3AA2 Comparison of the pass/fail decisions and grades produced by various arbitrary standards on a multiple-choice-examination

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Background: Medical Faculties in Germany differ in the criterion-referenced (CR) and norm-referenced (NR) standards they set for multiple choice examinations in their examination regulations.

Summary of work: Using an empirical data set from an in-house summative examination in internal medicine we calculated the pass/fail rates and grades for the different CR and NR standards employed at German Medical Faculties.

Summary of results: The poster shows the different pass/fail rates and grades that are produced by applying different criterion-referenced (CR) and norm-referenced (NR) standards to the same in-house multiple-choice examination.

Conclusions: The vast majority of German medical schools use criterion- and norm-referenced standards based on tradition, majority practice, political acceptance and legal requirements. These produce arbitrary pass/fail decisions and grades.

Take-home messages: The setting of criterion- and norm-referenced standards for multiple choice examinations at German Medical Faculties is heterogeneous. It needs to be further discussed towards a common standard.

3AA3 The consistency of tutors’ and committee members’ scores related to small groups

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Background: Evaluations of students’ performance with different approaches are recommended. We aimed to determine the consistency of tutors’ and committee members’ scores related to small groups in a medical faculty.

Summary of work: One of the small group practices is Evidence Based Medicine (EBM) in Gazi University Faculty of Medicine. Groups are comprised 4 students and a tutor. The arrangements and follow ups of these groups are carried out by EBM committee which constitutes 4 academic personnel. All tutors and committee members were participated “evaluation education” to achieve standardized evaluation. The
evaluation form includes 10 items and total score is 100 points, filled blindly by tutors and EBMC.

**Summary of results:** The EBM practice was completed by 201 students and 50 tutors. The task given to the students is a vignette that needs to be solved by applying the basic rules of the EBM in 6 steps, and prepare a 1-page handout showing all EBM steps in their scientifically acceptable solution. This handout was assessed with a standard form. There was a statistically significant (p=0.000) difference between mean scores of tutors’ (92.50±9.52) and EBMC’ scores (87.47±5.47).

**Conclusions:** Although tutors and EBMC had the same training, tutors who followed the task process scored higher than EBMC.

**Take-home messages:** If one thinks the process have to take place within the evaluation then tutors’ scores have to be preferred.

**3AA4**  **Self-evaluation ability in medicine: the relationship with the cognitive and non-cognitive performance**

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**Background:** Self-evaluation ability is an important component in self development. This study is to determine the relationship between the self-evaluation ability and the cognitive and non-cognitive performance in medicine.

**Summary of work:** This study included 73 medical graduates who took the entrance examination for PGY (post-graduate year) training in a teaching hospital. The examination was a 50-question MCQ test and a three-station mini-interview (MMI). At the end of the written examination, a self-evaluation form was distributed to the candidates for probing their awareness on the correctness of their responses. We reported the correct reflection proportion and their relationship with the MMI scores and GPA in university as well.

**Summary of results:** The candidates were 27 males and 46 females, with the age ranged from 25 to 36 years old. The candidate who was a “better reflector” tended to have higher MCQ score (r=0.752, p<0.001). However, the self-evaluation ability had little relationship with the MMI scores (r=-0.054, p=0.651) and low correlation with the University GPA (r=0.384, p=0.001).

**Conclusions:** This study revealed the “self-evaluation” ability of knowledge is closely related to the recent performance in cognition domain. However, the short term reflection ability can neither guarantee the long term academic performance nor the non-cognitive capacity as a physician.

**3AA5**  **Factors related to educational scores of the first preclinical year medical students, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand**

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**Background:** The relationships between scores of major subjects taught in the first preclinical year of Thai medical school, previous academic achievements and daily-life activities were rarely explored.

**Summary of work:** Questionnaires were sent out to all first preclinical year medical students with 79.8% being returned (245/307).

**Summary of results:** Positive correlations were revealed between the premedical year GPA (preMDGPA) and Anatomy, Physiology and Biochemistry scores (R=0.664, 0.521, 0.653, respectively; P <0.001 all) by Pearson’s method. Using multiple linear regression analysis, Anatomy scores can be predicted by preMDGPA, anatomy likeness, reading percentage to expectation, monthly earn, reading after class near examination and sleeping period near examination (R=0.773, R2 = 0.598, P<0.001). Physiology scores can be estimated by preMDGPA, reading percentage to expectation, monthly earn and percentage of falling asleep during class near examination (R=0.722, R2 = 0.521, P<0.001). Biochemistry scores can be calculated by preMDGPA, reading percentage to expectation, motivation to study medicine, biochemistry likeness and exam expectation (R=0.794, R2 = 0.630, P<0.001).

**Conclusions:** PreMDGPA, reading percentage to expectation are factors involved in good academic results in the first preclinical year. Anatomy and Biochemistry, but not Physiology scores are influenced by likeness.

**Take-home messages:** Premedical study scores and reading are important factors for good academic achievement in first preclinical year.

**3AA6**  **Are they worth the effort? Mapping “the orals” to the Utility Framework**

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**Background:** Oral examinations are still used in assessment programs in medical schools and national licensing exams. According to van der Vleuten (1996),
the utility of an exam can be evaluated in relation to six
unique facets.

**Summary of work:** We conducted a review of the
literature on oral examinations in medical education
over the past 50 years. In addition, we classified the
studies whether they provided evidence on one of the
utility factors. Furthermore we analyzed of the utility
index of an oral examination.

**Summary of results:** There is a limited number of
studies about oral examinations in undergraduate
curricula. Most of them focus on psychometric aspects,
especially reliability. Despite the known issues of oral
examinations many authors utter the feeling, that they
provide "unique" and important information about an
examinee. In addition, oral examinations are thought to
have an enduring impact on the student’s learning
behavior.

**Conclusions:** The utility index provides an excellent
framework as starting point for further research on oral
examinations and the unique information they gain.
From this point of view, orals can be a valuable
examination tool if shortcomings e.g. in reliability are
compensated e.g. by a higher educational impact.

**Take-home messages:** Many assumptions about orals
still need to be proved.

**3AA7 Predictors of Success on the USMLE Step 1
Examination for students at the American University
of the Caribbean Medical School**

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Lowlands, St. Maarten, Netherland Antilles)_

**Background:** The MCAT score has been considered a
moderate predictor of positive USMLE Step 1 examination performance with US medical students. The approximate average overall MCAT score for matriculating medical school students in the United States is around 30 compared to 24 for matriculating American University of the Caribbean (AUC) medical school students.

**Summary of work:** We examined the correlation
between MCAT scores, undergraduate GPA and
medical school GPA of students and the three digit Step
1 scores at AUC during the past three years.

**Summary of results:** A strong positive correlation was
observed between AUC student GPA and USMLE Step 1
score (r=0.69, p<0.0001). The correlation between
overall MCAT score and Step 1 score was of medium
strength (r=0.31, p<0.0001). A weak correlation was
observed between undergraduate science GPA and
Step 1 score (r=0.18, p<0.001).

**Conclusions:** The MCAT as a predictor of USMLE step 1
score for AUC students is slightly less reliable compared
to students in the United States. This is likely due to
the differences in the distribution of incoming MCAT
scores for US medical school students versus AUC
students.

**Take-home messages:** The most reliable predictor for
success on the USMLE Step 1 examination for AUC
students is their medical school GPA.

**3AA8 Do teachers’ work experience, seniority and
involvement influence the way they evaluate?**

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Deanery, Aachen, Germany; 3University Hospital
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Germany)_

**Background:** Following the medical curriculm reforms,
student evaluation became a fixed part of the Aachener
Modellstudiengang Medizin. But also the teachers’
perspective is crucial to understanding how the
changes in the curriculum are perceived. This study
tries to identify teacher characteristics that have an
effect on their evaluations.

**Summary of work:** Results from an online evaluation
of the Modellstudiengang were analysed between
teachers with different levels of experience, seniority
and involvement in curriculum shaping (n=47).

**Summary of results:** Teachers with less work
experience found students to be less dedicated
(F=5.761, p=.021). Teachers higher up in the hierarchy
were more critical of the organisation of the
Modellstudiengang (F=4.362 p=.043). No differences
were found for curricular involvement or on the section
conception and overall score.

**Conclusions:** In a sample of teachers of the Aachener
Modellstudiengang Medizin, seniority and work
experience influenced the evaluation results in the
areas student dedication and organisation. In the
future, it might be helpful to consider differences in
experience and seniority when comparing evaluation
results and to consider additional steps for amending
the Modellstudiengang’s evaluation results.

**Take-home messages:** Teachers’ work experience and
seniority might influence evaluation results.

**3AA9 Tyrants and teddy bears: How a model of the
learning effects of assessment operates in a clinical
context**

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**Summary of work:** Data from in-depth interviews with eighteen medical students were subject to content analysis utilising a code book previously developed using grounded theory. We subsequently used explanatory power, generalizability, integration and utility as criteria to explore validity.

**Summary of results:** The source, mechanism and effect components of the model all operated in the clinical context. Relationships between these could all be related to the model. One new source component was discovered i.e., interaction with preceptors. Three factors featured in the operation of this component: regular exposure to consequences, personal consequences and emotional valence. The model met the selected criteria for validity.

**Conclusions:** The model is operational in a different context to that in which it was originally described and meets a preliminary determination of validity. Consequences result from the high-stakes nature of summative assessment, but also from personal stakes, e.g. for esteem or agency.

**Take-home messages:** To influence student learning, consequences should accrue from assessment that are immediate, concrete and substantial. In clinical settings, the (negative) role clinical preceptors can play may not consistent with the NT results.

**3AA11 Unfavorable attitude toward the national medical licensing test (NT) part I of the 3rd year Thai medical students in Thammasat University, Thailand**

**P Sritipsukho*1, P Rojpibulstit1, N Suealek1, A Taylor1, S Palsree3, A Samsri3, J Ckumdee4, C Soorapanth*5 (1Department of Obstetrics and Gynecology, 2Bangkok University, Pathumthani, 12121, Thailand)**

**Background:** National medical licensing test (NT) part I is a comprehensive exam for all pre-clinical medical students in Thailand. This study aimed to compare attitude of having the NT between medical students who passed and failed the NT part I at Thammasat University.

**Summary of work:** The 3rd year Thai medical students at Thammasat University were studied. They completed the self report questionnaire asking their attitudes toward the NT with 5 rating scales. There were 5 pro-items and 4 con-items toward the NT. The NT results of each student were collected and the data were compared between. Scoring of each item was summarized as means ± SD in both groups.

**Summary of results:** Of 113 students completing the questionnaires, 87 students passed the NT while 26 students failed the NT. The scores of successful students were lower than unsuccessful students in all pro-items and 2 items of them were statistically significantly, p-value=0.007 and p-value=0.006 respectively. The scores of successful students were higher than unsuccessful students in all con-items and 2 items of them were statistically significantly, p-value=0.030 and p-value=0.031 respectively.

**Conclusions:** Successful Thai preclinical students had unfavorable attitudes toward the NT part I.

**Take-home messages:** Attitudes toward the NT part I may not consistent with the NT results.
3AA12  Key Factors for Success on the Second Stage of National Medical Licensure Examination Assessed by Medical Students of Phramongkutklao College of Medicine
Y Sukawat*, S Chamnanvanakij*, P Pimparyon, P Saengaroon (Phramongkutklao College of Medicine, Bangkok, Thailand)

Background: Three steps of National Medical Licensure Examination (NMLE) are required for all Thai medical students to become licensed physicians in Thailand. During the last 2 years, passing rate of the second stage of NMLE or clinical sciences examination among medical students at Phramongkutklao College of Medicine has reached 96-100%.

Summary of work: We conducted a study to determine factors for success on the second stage of NMLE based on medical students’ opinion. A questionnaire was distributed to the 5th and 6th year medical students after having NMLE.

Summary of results: Almost all students graded attending staff’s tutorials as the most important factor for their success. Contrarily, only 72% and 53% of them reported integrated curriculum and self-directed learning had benefit for NMLE, respectively. The most common ways to prepare themselves for NMLE were attending tutorial classes and practicing with previous examination paper.

Conclusions: Medical students valued passive learning higher than active learning methods especially for the benefit of passing NMLE. This attitude may impede self-learning and problem-based solving atmosphere among medical students.

Take-home messages: Though, tutorials are highly appreciated by medical students, their adverse effects on the long-term medical education should be reevaluated.

3AA13  A practical to-do-list ensures higher success rates on the National medical licensing test part I:
Experience from Thammasat University
P Ropibulsit*, N Suealek1, A Taylor1, P Sritipsukho1, N Sookprasert1, S Tor-udom1, P Petthaveeponrnej1, K Kirtiputra2, W Krudprathum1 (1Faculty of Medicine, TU (n=140), were assigned a questionnaire after receiving their NT results. The questionnaire comprised of seven self-preparation techniques with a five rating scale. One being the technique not used, and six the technique mostly used.

3AA14  Composition of an international medical knowledge test for medical students near graduation
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Background: In the absence of a European clinical knowledge test, our aim was to develop a valid test for final year medical students, applicable in Germany and The Netherlands, to be used as an outcome component of medical training, allowing for curriculum comparison.

Summary of work: Three hundred freely available United States Medical Licensing Examination questions from ten medical disciplines were reviewed by five recent medical graduates from each country. Every rater was to choose 50% of the items to match the expected level of graduates in their country, with a fixed number per discipline to ensure content validity. The final test included items chosen by at least 2/5 raters from each country, yielding a sumscore per country for each item.

Summary of results: Moderate to high correlations were found between country-ratings and the final 150 item version (r_pb=.48 to .80) across all disciplines. Correlations between the country-ratings were moderate (=.35 to .61) for five disciplines and low =.06 to .28) for the others.

Conclusions: Questions relevant to both countries are represented well in the final version of this test which seems acceptable in both countries.

Take-home messages: A US-based test for medical knowledge generated in this fashion provides a tool to compare medical students from different European countries.
3BB Posters: Simulation

3BB1 Incorporation of a high-fidelity cardiac simulator into an undergraduate medical education curriculum: A targeted needs assessment

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Background: The High-Fidelity cardiac simulator (Harvey (TM)) was introduced into the medical curriculum at the University of Toronto to enhance teaching and learning in cardiac physical diagnosis. The goal of this survey was to determine the learners’ perceptions of the role and place of simulation-based teaching (SBT) in medical education.

Summary of work: We surveyed 509 3rd and 4th year medical students and 1st year Internal Medicine Residents. Trainees were recruited through class lists and contacted via email. Participants completed an online questionnaire. Responses were assessed by a five-point Likert scale and compared using Chi-square analyses.

Summary of results: One hundred and twelve learners completed the survey. Half of the respondents had never been exposed to Harvey(TM). 89% of respondents agreed or strongly agreed that SBT is a useful educational tool. The proportion of learners who believed SBT should be integrated with pathophysiology increased with level of training. Among respondents exposed to Harvey, 54.5% strongly agreed (vs 26% unexposed, p<0.005) that SBT improves competency in recognizing common physical findings, and 58.2% agreed (vs 42% unexposed, p<0.05) that SBT improves clinical thinking.

Conclusions: Despite our initial concerns about SRL, both groups achieved equivalent long-term learning outcomes. Combining expert tuition and education theory to ‘direct’ the DSRL group did not have the expected impact.

Take-home messages: In this context, novices provided with minimal instruction self-regulated their learning to achieve good outcomes more efficiently.

3BB2 Scaffolding medical students’ self-regulated learning on a cardiopulmonary patient simulator: Less can be more

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Background: One advantage of simulation is the opportunity for students to learn independently. However, this flexibility comes with possible dangers such as forming an ineffective study plan. We compared unsupervised learning with ‘directed self-regulated learning’ (DSRL) whereby students learn independently using an expert-generated learning plan.

Summary of work: First-year medical students (n=38) viewed an instructional video on cardiac murmurs and then practiced identifying murmurs using the ‘Harvey’ simulator. Participants were randomly assigned to use specific resources during practice: instructional video only (SRL group), or video plus an expert-designed booklet (DSRL group). Participants completed a 24-item retention/transfer test 3-weeks following practice. We analyzed total training time and delayed test scores (diagnosis and interpretation) using independent samples t-tests.

Summary of results: The SRL group (40.64±12.59 mins) required 33% less training time (t36=5.03, p<.001) than the DSRL group (59.83±10.84 mins). On the delayed test, however, the groups scored similarly on diagnosis (SRL=18.06±3.98, DSRL=16.03±5.19, t36=1.36, p=.18) and interpretation (SRL=51.09±16.05, DSRL=49.96±19.26, t36=0.20, p=.85).

Conclusions: Despite our initial concerns about SRL, both groups achieved equivalent long-term learning outcomes. Combining expert tuition and education theory to ‘direct’ the DSRL group did not have the expected impact.

Take-home messages: In this context, novices provided with minimal instruction self-regulated their learning to achieve good outcomes more efficiently.

3BB3 The coupling of simulation with physiology lectures enhanced exam performance of first year medical students in the lower percentile of the class

M Hall*, M Sheakley, M Sacks, D Callender, and D Pederson* (Ross University School of Medicine, Departments of Integrated Medical Education and Physiology, P. O. Box 266, Roseau, Commonwealth of Dominica, West Indies)

Background: Our goal was to show that simulation coupled with cardio-physiology (CP) lectures enhanced students’ learning

Summary of work: Four hours of CP lectures were given to 1,087 first year medical students; 563 of them also had one hour of simulation where they were required to locate and auscultate heart sounds and interpret corresponding flow, pressure and volume changes. Students were tested on these concepts in their final physiology exams.

Summary of results: Students who had simulation had an average increase in mean score of 7 % compared to those without simulation, n=524. There was an average increase of 10.5 % in the lower 27% of the class and 3 % in the upper 27 % in their final physiology scores.
Conclusions: Simulation paired with CP lectures is effective in improving students’ overall comprehension and application of cardio-physiology concepts. Furthermore, students’ basic clinical skills are integrated promoting clinical competency early in the curriculum.

Take-home messages: Simulation is an effective teaching supplement and can introduce experiential learning in medical education.

3BB4 Training the digital generation – Perception of usefulness of virtual reality laparoscopic simulators among the fourth year medical student population
P Berlingieri*1,2, B Shaw1, RA Kadir2, HW Potts (1Centre for Screen Based Medical Simulation, Royal Free Hospital, London, UK; 2UCL Medical School, University College London, London, UK)

Background: Virtual reality (VR) laparoscopic simulators hold great potential for surgical training, medical students being only just exposed to them. This prospective questionnaire-based study evaluated whether medical students perceive VR laparoscopic simulators as being useful educational tools in terms of learning anatomy, managing clinical conditions and supporting career choice.

Summary of work: During the academic year 2009-10, medical students from University College London undertaking Obstetrics & Gynaecology placements attended a structured tutorial using VR laparoscopic simulators (LAPMentor, Simbionix Ltd, USA); a five-point Likert scale anonymous questionnaire pre and post tutorial was filled.

Summary of results: Seventy out of 80 consecutive students (87.5%) attended the tutorials, the response rate being 100%. Students felt VR laparoscopic simulator sessions were useful clinically (87.1%, 61/70) and for learning anatomy (91.4%, 64/70), considering their potential of being an adjunct or even a replacement of dissection. Interestingly, 53.1% (17/32) of participants who were not intending to pursue a surgical career said the experience had made them reconsider their career pathway.

Conclusions: Medical students perceive VR laparoscopic simulators to be useful at an undergraduate level as an educational tool for learning both clinical conditions, anatomy, and helping to make decisions regarding career pathways.

Take-home messages: VR simulation has the potential to continue growing in undergraduate medical education.

3BB5 Prediction of Coronary Angiography Performance by Means of Assessment in a Simulated Setting
S Räder*1,2, E Jørgensen3, B Bech1, L Lönö1, C Ringsted1 (1Centre for Clinical Education, University of Copenhagen and Capital Region, DK; 2Cardiac Catheterisation Laboratory, Department of Cardiology, University Hospital Rigshospitalet, Copenhagen, DK; 3Department of Vascular Surgery)

Background: Clinical coronary angiography skills training competes with demands of productivity and quality of care. Simulation-based coronary angiography skills training before clinical training may overcome both problems. However, little is known about how performance in a simulated setting relates to performance in a clinical setting. We aimed to explore whether assessment of coronary angiography performance in a simulated setting can predict performance in the catheterisation laboratory.

Summary of work: Ten doctors (senior cardiology residents or cardiologists) with varying degree of clinical coronary angiography experience performed two coronary angiographies in the catheterisation laboratory and two coronary angiographies in a simulated setting. Two raters assessed the doctors’ performance as shown on video-recordings by using a novel assessment instrument—a coronary angiography rating scale (CARS).

Summary of results: Data is collected. At the moment, the data is assessed by the two raters. The results will be analysed for reliability, construct, and predictive validity.

Conclusions: Waiting for the results.

3BB6 The “real” difference: The impact of patient contact in teaching geriatric assessment skills
WS Lim*1, WC Wong2, KY Tham7 (1Tan Tock Seng Hospital, Department of Geriatric Medicine, Singapore; 2Tan Tock Seng Hospital, Medical Education Office, Singapore)

Background: Aging simulation workshops have been employed successfully to teach geriatric assessment skills (GAS) to junior medical students. It is unclear whether the learning experience is diluted by the use of simulation at the expense of contact with “real-life” elderly patients.

Summary of work: We studied 48 2nd-year students who attended simulation workshops using student actors who role-play the scenarios, followed by bedside GAS teaching with elderly patients. Mixed-methods approach using a before and after exposure design was undertaken with collection of quantitative (7-point Likert scale) and qualitative (thematic analysis of questionnaire) data.

Summary of results: After bedside teaching, students reported improved confidence in GAS despite the perception that it was more difficult in elderly patients (Pre: 4.6-4.8 vs Post: 5.5-5.8, P<.01). Three learning
themes emerged: 1) Bridging the divide between simulated and real world; 2) Satisfaction of learning GAS from elderly patients; 3) Challenges to learning (language, cognitive and physical factors when assessing elderly patients).

**Conclusions:** Contact with elderly patients can leverage upon the foundation built from aging simulation workshops by providing students with a realistic and satisfying environment to improve confidence in GAS and to appreciate practical difficulties in the assessment.

**Take-home messages:** Incorporate contact with elderly patients when teaching GAS to junior medical students.

**3BB7 Simulation Training for Foundation Trainees - The acutely deteriorating patient**

H Johnston*, J Bennett, K Spooner* (Post Graduate Medical Education, North Bristol NHS Trust, Learning and Research Building, Southmead Hospital, Bristol, UK)

**Background:** The implementation of EWTD and competency based curricula has resulted in difficulty for foundation trainees to gain the required experience in the acutely deteriorating patient. The rarity and life-threatening nature of these situations does not provide ideal educational opportunities. The non-technical/human factor skills involved in the management of the acutely deteriorating patient are often poorly taught.

**Summary of work:** The concept was to use simulation to teach the management of both post op and medical emergencies, to be free of charge for the trainee and to run throughout their 2 years of training. We linked the objectives directly to their curriculum and developed a multi-disciplinary faculty. We also included a communication and breaking bad news scenario. Feedback was collected from trainees to gauge effectiveness.

**Summary of results:** Average of all feedback results: Feedback forms completed 97%; Relevance 95%; Realism 81%; Usefulness 94%; Faculty 95%.

**Conclusions:** Trainees find simulation a useful and enjoyable way of learning. Simulation provides an excellent resource for training and can be adapted to fit a competency based curriculum.

**Take-home messages:** It has the potential to be used as an assessment tool for both technical and non-technical skills and to teach multidisciplinary working however it should compliment and not replace real patient experience.

**3BB8 Can functional magnetic resonance imaging be used to determine brain activation patterns in simulation versus online-based learners?**

S Goon*, E A Stamatakis1, RM Adapa1, S Bishop1, M Kasahara1, D F Wood2, DK Monen2, D Wheeler1, A K Gupta1 (Addenbrooke’s Hospital, University Division of Anaesthesia, Cambridge, UK; 2University of Cambridge, School of Clinical Medicine, Cambridge, UK)

**Background:** There is currently very little information identifying changes in neural networks which support clinical decision-making induced by simulation-based training.

**Summary of work:** This is a pilot observational study involving twelve pre-clinical third year medical students. The students were randomly allocated into two groups. One group received simulation-based training, and the other received online-based training of the same content and duration. The two groups then underwent behavioural testing and functional Magnetic Resonance Imaging (fMRI) scanning during which they performed a multiple choice question task with questions related to the clinical topic they were taught on, and unrelated (control) questions. We used fMRI subtractive analysis to compare the two groups and determine possible differential brain activation patterns. We also aimed to detect any differences in the stress response from responding to clinical stimuli, as measured by salivary cortisol levels, heart rate and blood pressure measurements.

**Summary of results:** The full results will be presented at the conference as work is still in progress.

**Conclusions:** Our results may suggest that high-fidelity patient simulation improves clinical decision-making.

**Take-home messages:** fMRI can be used to determine learning relevant neural networks and may show a difference in clinical decision-making pathways depending on the learning modality.

**3BB9 Systematic training of non-technical skills using simulator training for the entire staff of an intensive care unit**

S Erichsen*, Е Douhan*, Е Haddleton* (Uppsala University Hospital, Clinical skills centre, Uppsala, Sweden; Uppsala University Hospital, Department of Thoracic surgery, Uppsala, Sweden)

**Background:** In health care, the role of non-technical skills as an important factor for patient safety is now generally recognised. However, systematic training of non-technical skills has not yet been established as an essential element of health care professionals’ continuing education. Simulator training has been shown to be effective in training non-technical skills.

**Summary of work:** All 140 health care staff (nurses, nurse assistants, thoracic surgeons and anaesthetists) of a thoracic intensive care unit participated in simulator training, focusing on teamwork and communication. The training was performed in 16 sessions for 8-9 participants during a period of three months. Each session started with a discussion about effective teamwork and communication, followed by
two simulator scenarios with debriefing sessions. After training, the participants completed a written qualitative evaluation.

**Summary of results:** The participants appreciated the relevance of teamwork and communication as tools to facilitate their work and enhance patient safety. This method of non-technical skill training, using simulator training with debriefing, was judged to be realistic and very instructive.

**Conclusions:** The entire staff of an intensive care unit can be systematically trained in non-technical skills by using simulator-training sessions.

**Take-home messages:** Be enthusiastic, allocate time for both planning and training and get support from your director – this will simplify non-technical skills training for multiprofessional staff!

**3BB10 Three methods of teaching medical students laparoscopic skills**

*A Khaimook (Medical Education Centre, Hatyai Hospital, Hatyai, Thailand)

**Background:** Laparoscopic surgery become a major role in general surgery recently. All surgeons now need to familiar with it. With difficult experiences from teaching senior staff laparoscopic skills, many articles show the benefit of teaching this kind of skills very early.

**Summary of work:** Three groups of medical students had practiced laparoscopic skills with three models. The first ten students practice with the conventional closed system training box, the second ten students practice with the DIY open box and the last eight students practice with the “SimSurgery®” simulator.

**Summary of results:** To make a square knot, the first group used 262±138 seconds, the second group used 499±240 seconds. In the second attempt, the first group used 443±180 seconds and 116±72 seconds for the DIY open box. For SimSurgery® group, students used 314±140 seconds to make a square knot and it improved to 154±59 seconds in the second attempt.

**Conclusions:** Students laparoscopic skills by using an appropriate tool.

**Take-home messages:** It is feasible to teach medical students laparoscopic skills by using an appropriate tool.

**3BB11 Dyad training competes with individual training? A randomized, controlled bronchoscopy simulation study**

*A Bjerrum*, B Eika, P Charles, O Hilberg (Department of Pumonary Medicine, Aarhus, Denmark)

**Background:** Extant knowledge on motor skills learning derives from studies of simple motor skills and may therefore not be applicable to more complex motor skills learning, like bronchoscopy simulation training. The current paucity of studies exploring the curriculum of medical simulation training is surprising; especially in light of the costly and instructor-dependent nature of simulation training, and its significant cost-effective savings potential. The present paper compares the relative effectiveness of dyad and individual training.

**Summary of work:** A randomized, controlled study featuring 40 medical students randomized to dyad training or individual training. In the dyad training group, participants alternated between physical and observational practice, and thus perform only halfway as many bronchoscopy simulation cases as those who train alone. The two groups are tested with pre-tests, post-tests and retention-tests.

**Summary of results:** Preliminary results indicate that dyad training is almost as effective if not as effective as individual training. By August 2011, final results will be ready to be presented at the AMEE Conference.

**Conclusions:** Early indications suggest that dyad training holds significant learning potential as compared to individual training. Firm conclusions will be offered at the Conference.

**Take-home messages:** Dyad training holds great potential.

**3BB12 “Oops!”: Using hybrid simulation to assess communication and procedural skills in central venous catheter insertion**

*L Stroud¹*, R Cavalcanti¹,² (¹University of Toronto, Department of Medicine, Toronto, Canada; ²Herbert Ho Ping Kong Centre for Excellence in Education and Practice, University Health Network, Toronto Western Hospital, Toronto, Canada)

**Background:** Internal medicine trainees routinely perform invasive procedures on awake patients. However, procedural and communication skills are rarely taught or assessed together. Hybrid simulation, using standardized patients (SPs) and bench-top models, permits simultaneous assessment of communication, collaboration and procedural skills. We designed a central venous catheter (CVC) insertion assessment scenario that incorporated both a standardized patient and standardized nurse in a high-fidelity simulator.

**Summary of work:** Five senior internal medicine residents (PGY 4) participated in this pilot. SPs and physician raters gave immediate feedback. Performances were videotaped and analyzed qualitatively, and using validated Integrated Procedural
Performance Instrument (IPPI). Residents provided feedback about their experience.

**Summary of results:** Overall, senior residents had excellent technical skills, committing some process errors (e.g. maintenance of asepsis). However, significant areas for improvement were identified in communication (putting pressure on standardized patient’s face under drapes) and collaboration (failure to acknowledge standardized nurse). Residents often only recognized lapses on debriefing. Senior trainees valued the experience, but thought it should occur earlier in the curriculum.

**Conclusions:** Senior residents are technically proficient in CVC insertion, but have room to improve communication skills.

**Take-home messages:** Procedural skills teaching and assessment need to focus on both technical and non-technical elements. Hybrid simulation is a feasible and appropriate way to achieve this.

**3BB13 Simulation in Pediatric Interventional Radiology (PIR): Past, Present and Future Directions**

D Parra*, D Murray, D Carter, E Ng, E McLeod, K McMillen, B Connolly (The Hospital for Sick Children, Diagnostic Imaging Department, 555 University Avenue, Toronto, M5G 1X8, Canada)

**Background:** Simulation has been present for a long time in medical education; however it has been recently introduced to Interventional and Diagnostic Radiology in our institution.

**Summary of work:** Our initial approach to simulation was turkey breast models built by us. Then we started working with anthropomorphic phantoms for radiation exposure simulations and animal models. We have introduced practice of crisis management of simulated scenarios pertinent and tailored to interventional radiology situations, using computerized, life-like mannequins. Recently we acquired two state of the art venous access simulators.

**Summary of results:** In the future we are planning to expand the number and type of task trainers. We are actively involved in the development of the concept of the simulated OR in our institution and the integration of imaging in it. We are evaluating complex computer based models and routine simulation of crisis management. We are also working in assessment tools.

**Conclusions:** Evolution from simple homemade task trainers to complex computerized models has been rapid. The future is promising, with the integration of imaging to our institutional simulated OR and improvement of our current equipment. We strongly believe that development of image compatible pediatric size models is needed.

**Take-home messages:** Simulation in PIR has grown rapidly and it will continue to grow.

**3BB14 Evaluation of out of hospital emergency physicians using a high fidelity simulator**

C Ibelli, C Pentier, J Sende, D Michel, C Bertrand, J Marty (Presenter: E Lecarpentier) (Samu 94 Cesu 94 - Chu Henri Mondor – Creteil, France)

**Background:** Emergency physicians in France work outside the hospital with the mobile emergency and resuscitation service. Some have been evaluated using a high fidelity simulator.

**Summary of work:** Twenty two physicians were randomly evaluated on a scenario applying a service procedure. The same physicians were evaluated six months later on the same scenario.

**Summary of results:** The initial medical level was good and a clear positive evolution was observed in the second evaluation.

**Conclusions:** High fidelity simulator seems to be an interesting tool for evaluating emergency physicians.

**Take-home messages:** High fidelity simulator can evaluate the level of physicians and their progress. It helps to determine the frequency of recycling.

**3BB15 Unconventional simulation model used to teach undergraduate students of medicine the surgical techniques to treat ingrown toenail**

F Silva, MM Guiotoku, HA Miot, LPF Abbade*, LDB Miot (Botucatu Medical School - UNESP Sao Paulo State University, Department of Dermatology, Rubiao Junior, Botucatu(SP) – Brazil 18.618-000)

**Background:** Ingrown toenail is common and surgery is an important treatment. However, there are no animal models to teach the techniques and to practice it. Surgical models should be used to improve depth perception and surgical skills.

**Summary of work:** We aimed to develop a model to teach surgical techniques for treating ingrown toenail. We selected ripe bananas, large and without imperfections in the peel, to simulate the fingers. We used acetate plates to create the nail plate and the nail matrix. The banana peel was incised to create a nail bed. We used conventional surgical materials to demonstrate and to practice the techniques.

**Summary of results:** The banana and acetate plate were adequate for creating a model for the composition of the nail unit. This model allows representation of the proportions and anatomical structures involved in the surgery of ingrown toenails. We demonstrated anesthesia, avulsion of the nail plate and classic matricectomy to undergraduate students and they could practice these procedures.

**Conclusions:** We developed an economic model to teach surgical techniques to treat ingrown toenails and it allows undergraduate students to practice the main procedures.
Take-home messages: Medical students can begin or improve their surgical skills using unconventional simulation models.

3BB16 Fostering Simulation-based Surgical Training in Developing Countries: A pilot study
Sayra Cristancho1, Fuad Moussa2, Alex Monclau3, Bill Kapralos, Antonio Figueredo, Adam Dubowski6 (1University of Western Ontario, Department of Surgery, London, ON, Canada; 2University of Toronto, Division of Cardiac Surgery, Toronto, Canada; 3Universidad Pontificia Bolivariana, Electronics Engineering Department, Bucaramanga, Colombia)

Background: A new North-South, multi-institutional partnership between Canada and Colombia has been formed to develop interdisciplinary research related to medical education. Specifically, we demonstrate the implementation of the University of Toronto’s simulation-based training course for the Off-Pump Coronary Artery Bypass (OPCAB) procedure within the Colombian context. The unique feature of the program was that it employed a progressive training approach; where trainees progressed from low-difficulty skills to more complex tasks using the same simulation platform.

Summary of work: A pre-test, simulation-based training intervention and post-test design was used. Participants included 9 Colombian third-year general surgery residents. The intervention consisted of four simulation stations featuring various cardiac surgery skills. The main outcome measures were time, checklist and global rating scores, and overall performance.

Summary of results: Checklist scores and overall performance revealed significant improvements for the most challenging task: distal anastomoses on beating heart (P=0.067).

Conclusions: The main outcome measures were time, checklist and global rating scores, and overall performance.

Take-home messages: The main outcome measures were time, checklist and global rating scores, and overall performance.

3BB18 Usage of models and high-fidelity medical stimulations (HFMS) in clinical skills education at Faculties of Medicine in Croatia
I Grizelj1, M Mihaljı2, I Drenjancevic3, L Zibar2, L Puljak3, J Azman 1University of Osijek School of Medicine Osijek, Osijek, Croatia; 2Clinical Hospital Centre Osijek, Osijek, Croatia; 3University of Split, School of Medicine Split, Croatia)

Background: Bone marrow aspiration (BMA) is an essential but hazardous procedure. We have developed a novel manikin with posterior iliac crests to teach needle puncture.

Summary of work: This study aimed to assess whether simulation-based instructions reduce medical students’ anxiety regarding BMA needle insertion. After watching a BMA video demonstration, undergraduates were asked to complete a questionnaire concerning anxiety and confidence in performing the procedure using 5-point rating scales (1-5: worst—best) and estimating difficulty (1-5: difficult—easy). Then, they were taught hands-on practices in small groups using the manikin and asked to answer the questionnaire again. The outcome was a change in scales between pre- and post-practices. A paired student’s t-test (two-tailed) was used for statistical analysis.

Summary of results: Eighty-nine fifth year student volunteers from Kawasaki Medical School participated. The scores increased in post-practices compared to pre-practices: (anxiety: 1.66 ± 0.94 versus 2.57 ± 1.32, p < 0.0001; confidence: 1.61 ± 0.70 versus 2.84 ± 1.02, p < 0.0001; and difficulty: 2.50±1.17 versus 3.69±1.22, p < 0.0001)

Conclusions: Hands-on practices reduced anxiety regarding BMA needle insertion.

Take-home messages: Experiential learning could reduce students’ anxiety regarding hazardous procedures.

3BB17 Can simulation-based instruction reduce students’ anxiety regarding hazardous procedures?
K Kawasaki1, M Minagi2, N Nakamura2 (1Kawasaki Medical School, Department of Pediatrics, Kurashiki, Japan; 2Kawasaki Medical Museum, Kurashiki, Japan)

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important they suggest coping with fear of approaching a real patient.

**Conclusions:** Students are aware of the importance of using models and HFMS in classes, but they also think this type of education isn’t used enough.

**Take-home messages:** Students feel this type of education is very important because it helps them in gaining self-confidence, thus models and HFMS should be regularly used in medical teaching in Croatia.

### 3DD  Secrets of Success 2

#### 3DD1  iDecide: Supporting Students’ Career Learning

* S Bickerdike, R Lane, C Murray* (University of Leeds, LIME, Leeds, UK)

**Short description of innovation:** iDecide is an on-line interactive career decision making and career education resource which delivers and compliments face to face career learning across the 5 year MBChB careers education curriculum.

**What will be demonstrated:** We will provide an overview of the resource highlighting the video and audio material and the e-learning courses which form part of the tool including, Intercalating? What to Do if Medicine Is Not for Me? What Type of Doctor Are You? Choosing Your Elective and Making Applications. We will also illustrate how the use of the tool is maximised by linking its use into curriculum activities and formal guidance opportunities including personal tutorials.

**What is particularly interesting about the innovation/How it could be implemented:** The tool enables many aspects of career learning to be supported within the one resource and uses interactivity and ‘real’ professionals to engage students in the process. The tool was launched with 1st year students in November 2010 following a career lecture and workshop and is one of the most popular learning resources with 1st year students.

**Why participants should come to the demonstration:** Find out more about delivering careers education in a cost-effective and student centred way.

#### 3DD2  Quality Improvement: The secrets of success for effective Annual Review of Competency Progression in the UK

* R Kunkler, C Cooper*, D Green, O Junaid, A Boyle, D Williams (East Midlands Healthcare Workforce Deanelry (North Centre, Headquarters Office, University of Nottingham, Kings Meadow Campus, Lenton Lane, Nottingham NG7 2NR, UK)

**Short description of innovation:** The Annual Review of Competency Progression (ARCP) is the summative component of Specialty Training in UK postgraduate medical education. At the ARCP, a panel (Deanery representatives, an external trainer and a lay representative) assesses the documentary evidence of curricular progression in the previous year. The Associate Postgraduate Deans in East Midlands Deanelry manage 16 schools of medicine and 52 specialty curricula. They have identified the key change management components of ensuring the continuous quality improvement of the ARCP process.

**What will be demonstrated:** The following three elements of the ARCP process have been identified as the areas of greatest importance for strategic development, operational performance management and quality control. (1) Organisation and process; (2) Quality management; (3) Learning from the appeals process. Their core components will be described. The system of data collection, data analysis, reflection, group discussion and observation in practice that was used to reach this conclusion will be summarised.

**What is particularly interesting about the innovation/How it could be implemented:** Most interesting is the breadth and depth of experience upon which this innovation is based and its track record of efficacy. It is simple and deliverable in UK training environments as part of the UK Deanelries’ quality management function.

**Why participants should come to the demonstration:** Delegates should attend to learn the secret for the quality improvement of the ARCP process.

#### 3DD3  A Comprehensive Web Based System to Effectively and Efficiently Manage Continuing Professional Development (CPD) Events

* S Rock*, R Barclay, A Naccarato (Office of Continuing Education and Professional Development, Faculty of Medicine, University of Toronto, Suite 650, 500 University Av, Toronto, ON M5G 1V7 Canada)

**Short description of innovation:** The Event Management System (EvMS) is a comprehensive web-based software application designed specifically around the requirements of a university CEPD/CME/CPD office. The system manages a wide variety of functions including event registration, online payment, automated evaluations processing, tracking of registrant credits, and email communications with speakers and registrants. Other components include the online submission and review of scientific abstracts and course accreditation.

**What will be demonstrated:** The demonstration will focus on the power of integrating web based tools in the administration of CPD programming. Highlights will include system capabilities regarding the submission and peer review of CPD event proposals, based on fundamental adult education principles.
What is particularly interesting about the innovation/How it could be implemented: Initially developed for internal administration of CPD programs, the system has been adopted by a growing number of Canadian universities. Capitalizing on the feedback of this national user group, the system continues to advance best practices in the administration of CPD programs.

Why participants should come to the demonstration: By viewing this demonstration, participants will recognize the value of integrating and adopting new technologies and methods in the administration of CPD programming.

3DD4 Leading a Large Implementation Taskforce for a New Curriculum in a Complex Distributed MD Program
M C Fabian*, D Snadden (University of British Columbia, Faculty of Medicine, British Columbia, Canada)

Short description of innovation: The MD program is in the implementation phase of a renewed curriculum. Our medical program is one of the largest in North America and a fully distributed model throughout the province, and with four satellite campuses. The implementation process is innovative, complex and carefully orchestrated.

What will be demonstrated: It will be shown how the task force is incorporating a framework report developed by a review taskforce prior to the implementation phase. The principles of curriculum renewal have been guided by national, North American and international guidelines. The overarching theme is based on the recent Future of Medical Education in Canada initiative.

What is particularly interesting about the innovation/How it could be implemented: The taskforce structure includes in excess of 150 individuals forming both an overarching oversight body and 12 working groups, and further grouped in clusters for themes and governance purposes. A secretariat is central to the implementation process with a detailed project plan and specified deliverables. Scholarship, research and evaluation play an integral role.

Why participants should come to the demonstration: Curriculum renewal is a challenging and exciting task that medical programs have to periodically undergo. Effective strategies have to be employed in order to get the implementation process completed. We demonstrate our project plan approach, and coordinated team approach, in order to get the task done.

SESSION 4: SIMULTANEOUS SESSIONS

4A Symposium: To Share or Not to Share? Illuminating policies and approaches to sharing information about medical students and postgraduate trainees in academic difficulty within the program and across training boundaries
Chair: Paul Hemmer (USUHS-EDP, Bethesda, MD, USA); Panel: Eric Holmboe (American Board of Internal Medicine, Philadelphia, USA), Lesley Southgate (St George’s, University of London, UK), Diane Wayne (Northwestern University, Chicago, USA)

Marginal performance by trainees, whether in medical school or in residency, can be predictive of future performance problems, including disciplinary action by regulatory authorities. Nevertheless, concern persists about whether information about a trainee’s marginal performance is or should be shared with faculty members within a training program, across courses or clerkships, or the bridges between training settings (medical school to postgraduate training or training and practice). If such information is shared, concerns are cited about biasing evaluators, possible unfair treatment of trainees, or possible legal action. Nevertheless, graduates are the legacy of their training program and one must ask whether faculty, administrators, and regulators failing in their duty toward the trainees and society if they do not share information in a manner intended to construct and monitor remediation.

In this symposium, we will explore this critical issue, from the views of various stakeholders (medical students, residents, faculty, administrators/regulators, and patients), examining models which seek to address barriers (e.g., Tomorrow’s Doctors Fitness to Practice) in order to benefit all stakeholders.

4B Symposium: Practice and community oriented curriculum development in basic medical education (In German) (continuation of 3B)
Anselme Derese (Belgium), Maren Erhardt (Germany), Andreas Sönnichsen (Austria), Martin Lischka (Austria), Elisabeth Bandi-Ott (Switzerland)

For abstract see 3B
4C Symposium: Lifelong learning for health professionals

Chair: Alejandro Aparicio (American Medical Association, Chicago, USA)

Lifelong learning in medicine: the example of credentialing: Robert Galbraith (National Board of Medical Examiners, Philadelphia, USA)

From CME/CPD accreditation to medical specialists qualification in Europe: Bernard Maillet (Union Européenne des Médecins Spécialistes, Brussels, Belgium)

Redesign continuing education for health professionals? Why and how? Ron Murray (CME office, University of Virginia, Charlottesville, USA)

Harmonising lifelong learning in European emerging countries: Alfonso Negri (Italian Federation of Medical Specialties, Milan, Italy)

Harmonising lifelong learning in Europe: Hannu Halila (Finnish Medical Association, Helsinki, Finland)

Global harmonisation: Hervé Maisonneuve (University Paris-Sud 11, France)

This symposium will address the issues surrounding lifelong learning in the health profession. The lessons from the North American experiences will be presented with successes and pitfalls, and proposals for European countries. In order to facilitate the circulation of doctors, continuing medical education should be global and harmonized.

Alejandro Aparicio, Robert Galbraith, Bernard Maillet, Ron Murray have no conflicts of interest to declare. Hervé Maisonneuve, Alfonso Negri, Hannu Halila are supported by the Serono Symposia International Federation.

4D AMEE Fringe 1

4D1 Cricket and OSCE require long innings but wouldn’t a career average be better?
K H Mujtaba Quadri (Shifa College of Medicine, Sector H-8/11, Pitar Bukhari Rd, Islamabad, Pakistan)

If you were to judge the batting of Inzamamul Haq, the famous Pakistani cricketer, you would want to judge him on the basis of a long innings playing against a variety of bowlers such as you experience in a standardized OSCE. You would want to ensure that each ball delivered was a fair one with limits to the number of bouncers. You would want the deliveries to be within and not "wide" off the range. You would not want to judge him on a short innings where he gets run out on the first ball. You would want to judge him on a long test innings and not on a 20-20 version. If you truly wanted your assessment to be valid and reliable, you would not be able to judge Inzamam’s knowledge of the game, his cricketing skills and his attitude if you did not watch him carefully and long enough. The role of an assessor is that of an umpire. You are not a bowler whose job is to dismiss Inzamam, fox him out or catch him unawares on a tricky wicket. You want to ensure fairplay. As an umpire you want to ensure a level playing field and the same standards of fairplay for all. The cricketing analogy to OSCE perhaps lays to rest any remaining concerns about the OSCE but wouldn’t a career average / PORTFOLIO be a better tool of assessment? Governing bodies! What do you say?

4D2 101 Things I Hate About Medical Textbooks (Part 1)
M Brookman (Recent Medical Graduate of University of Nottingham, UK)

During their last few months, final year students were asked to comment on textbooks for medical students. Using questionnaires and emailed responses over 100 comments were received. This fringe talk will allow for a 7 out of 10 rant and highlight improvements which could be made.

Michael is a former school teacher and has a reputation for delivering important messages through humour.

4D3 Informal videos to supplement learning of clinical examinations
R Ved*, S Williams, A Grant (Cardiff University, Division of Medical Education, Cardiff, UK)

Medical students at our institution were surveyed for their opinions regarding current e-material (RR: 60/900,[6.7%]). Forty-eight (80%) desired video-material covering clinical examinations. Only nine would have been satisfied with simple, didactic examination overviews, the style adhered to by most videos from other institutions. Many instead suggested that informal, entertaining material could better supplement their study of physical examinations. Thus, twenty clinical examination skills movies were created, requiring a budget of just eight-pounds. Student peers were cast as actors to engage the target audience, and humorous narratives hold the viewers’ attention whilst key details are explained. The videos were posted online with a questionnaire to canvass opinion of the informal material. All respondents (33/33) felt the new films will aid study of clinical examinations. Twenty-five stated explanations of key points in an engaging, entertaining way helped them to retain salient
information. Thirty students expressed wishes for more informal films covering other topics in the curriculum. This action-research study revealed informal yet in-depth video-modules can be cheaply-produced, enjoyable resources for supplementing learning of clinical examinations. Longer and larger studies could determine whether such engaging and comprehensive e-material can improve students’ assessment performances when compared to use of conventional, formal and didactic e-modules.

4D4 MasterChef or MasterClass?
D Lin (University of Sydney, Faculty of Medicine, Western Clinical School, Westmead Hospital, Cnr Hawkesbury and Darcy Roads, Westmead, NSW, 2145, Australia)

Background: Long Case MasterClass is an innovative one day educational program which covers the basic clinical skills in the medical consultation. It is part of a broader program called “CASE: Clinical Approach to Structured Examinations” to assist Year 3 medical students prepare for their medical long case examination.

Description: The program has been developed to assist students develop good specific clinical skills in a structured approach. At the end of the day the 2 medical students who score the best in the specific skills sessions are challenged by performing a long case and then presenting the long cases to 3 judges. The winner is crowned Long Case MasterClass Champion!

Topics: History in the making - History Taking; Let’s get physical! - Physical Examination; What’s your problem? - Problem Listing; Problem Identification and Prioritising; Dr House - Diagnostic dilemmas - Symptoms and Signs: Differentials; Testing times – Investigation; My Management Plan - Management Plan; Perfect Presentations – Presentation; Let’s talk about SEX – Discussion.

Discussion: This will be the first year this program will be implemented. The students are taught and assessed for specific clinical skills during the individual sessions. There will be a workbook provided with additional notes and resources. The game show like format at the end of the program should provide some light entertainment and educational moments not unlike the popular TV cooking series MasterChef.

Conclusion: Students are driven the strongest by assessment and the need to find a number of teaching methods and resources to support their learning. Have some fun along the way is also important.

4E Short Communications: Progress Test

4E1 Progress testing in a competency-based curriculum - an update
Fok-Han Leung, Jodi Herold*, Karl Iglar (University of Toronto, Department of Family and Community Medicine, Toronto, ON, Canada)

Background: Competency-Based Education (CBE) utilizing the Can MEDS-FM framework is becoming the standard of training in Family Medicine in Canada. As part of an evaluation process in CBE, the University of Toronto has developed progress testing to assess in a formative way the Can MEDS-FM Expert role.

Summary of work: This work details results of the pilot progress test taken by year 1 and year 2 postgraduate family medicine trainees at the fifth, tenth and seventeenth months into training. Four iterations of the test will be completed before the time of presentation. Test questions using the key features model were developed by competency content area experts.

Summary of results: Pilot progress testing of family medicine residents (n=255) at the University of Toronto revealed a 2% significant difference between year 1 and year 2 postgraduate family medicine trainees and achieved construct validity across many parameters studied. The residents’ scores were categorized into zones (green, yellow and red). The agreement coefficient for residents being identified as the poorest
performers ranged from 0.88–0.90 depending on the domain of practice assessed.

**Conclusions:** Competency-based progress testing using the key features model is a valid means to assess progress of family medicine residents.

**Take-home messages:** Competency-based training requires an evaluation arm. Progress testing is a good formative evaluation tool. The key features model can be used to create a valid progress test.

4E2  Modelling the growth of undergraduate applied medical knowledge using the progress test

**L Coombes**, E Heffernan, A Freeman, C Ricketts  (Peninsula College of Medicine and Dentistry, University of Plymouth, Plymouth, UK)

**Background:** Peninsula Medical School was established in 2002 with a PBL spiral curriculum, and uses the progress test as its primary method of assessing applied medical knowledge. This provides information on progress of individuals and cohorts, but as a new school we did not know what kind of growth we should expect from our own students.

**Summary of work:** The growth of knowledge for an average student attending PMS will be explored alongside comparisons between a number of practical and demographic measures, such as gender and study location, and subject areas based on the exam's assessment blueprint.

**Summary of results:** Evidence shows different rates of growth for different areas of the curriculum. Analysis of selected demographic areas will be presented and interpreted.

**Conclusions:** Some areas of knowledge grow quickly in the early years, while others show a steadier growth indicating that they are still being learnt in later clinically based years.

**Take-home messages:** The progress test can provide a lot of detailed information about the accrument of various types of medical knowledge, and can be used to test for general bias in the demographic data where it may not be evident in a single test.

4E3  Cognitive development: Application of test equating in progress test of medical course

**M Sakai**, OF F, T Matsuo (State University of Londrina, Londrina-Parana, Brazil)

**Background:** Cognitive development is usually assessed by objective tests. In medical education, progress testing has been used by medical schools to assess students and evaluate programmes. In order to compare results of different tests it suggests the equalization or equating of tests.

**Summary of work:** The purpose of this research was to estimate students' growth of knowledge, by using test equating in progress testing of medical school, in a State University, in period of 2004 to 2007. We used action research and applied Classical Theory of Test (CTT) and Item Response Theory (IRT) test equating in progress testing. The equating method was non-equivalent groups with anchor test.

**Summary of results:** We observed that the average of growth of cognitive knowledge was 30%. The score was 36.9% for 1st academic year and 64.4% for last year. We used CTT Angoff’s test equating instead of IRT test equating. All progress tests have been highly consistently strong (Cronbach’s α). Furthermore, the quality of tests was positive showed by difficulty and discrimination index. Knowledge gain was estimated by using CTT, Angoff's test equating method.

**Conclusions:** As a conclusion, we observed the student's growth of knowledge.

**Take-home messages:** Progress test is important method to formative assessment and programme evaluation.

4E4  Test of retentional knowledge in Slovak medical schools – three years' experience

**J Mokry**, P Cingel, E Halasova, M Borik (Jessenius Faculty of Medicine, Comenius University, Sklabinska 26, 03601 Martin, Slovakia)

**Background:** In order to improve the education at medical schools, three medical faculties in Slovakia perform annual tests focused on retention of students’ knowledge.

**Summary of work:** Test questions (multiple-choice, 80 questions) were prepared by all three faculties. They were performed by students of 3rd (Test I) and 6th study year (Test II). All tests were prepared individually by randomized selection of questions and filled anonymously. The results were analyzed at the level of subject as well as whole faculties during three years.

**Summary of results:** The average students’ participation in all the tests was more than 70%. The general successfulness was an increase in foreign (English speaking) students during the years, especially in the Test II. In Slovak students, no significant difference was observed in results within three years of testing. However, a different result in a single subject could be observed.

**Conclusions:** Annual repeating of the tests seems to be useful in objective evaluation of retentional knowledge and influences of curricula changes on results, with the possibility to compare the results at intra- and inter-faculty levels.

**Take-home messages:** Regular testing of students is a useful tool for comparing the progress in education as well as differences among medical schools and thus could stimulate harmonization and regular update of their curricula.
4E5 A Developmental Perspective on Inter-Institutional Comparisons and Progress Testing
S Schaubert*, Z Nouns, K Schüttpelz-Brauns (Charité - Universitätsmedizin Berlin, Dieter Scheffner Center for Medical Teaching and Educational Research, AG Progress-Test Medizin, Charitéplatz 1, 10117 Berlin, Germany)

**Background:** We make the basic assumption that the field of cross institutional benchmarking can be reformulated from a developmental perspective. From this point of view the question can be addressed whether characteristics of the students’ individual development of competence are influenced by the school’s curriculum.

**Summary of work:** As multi-centre Progress Testing delivers longitudinal information on the growth of medical knowledge, the aim of our study was to model the differences in the students’ development as being influenced by the medical school they belong to. Therefore we analysed Berlin Progress Test data collected from 5 institutions over 6 years of medical education from both, reformed and traditional curricula.

**Summary of results:** Multilevel modelling provided the most adequate method of comparing the institutional influence on the individual development. We were able to show that there are differences in the individual development of medical knowledge according to the school membership.

**Conclusions:** Reformulating issues in medical education from a developmental science perspective reveals interesting research questions. This can serve as an additional theoretical and methodological framework from which research on differences between curricula can be addressed.

**Take-home messages:** There are differences in the individual development of medical knowledge between institutions. A developmental approach aids both, the formulation and understanding of educational research issues.

4F Short Communications: Teamwork

4F1 The “Zone”: An exploration of the psychological fidelity in the scenario based outdoor simulation used by the London HEMS for team training.
S Zafferullah*, D Goodsmant (Barts and The London, Queen Mary School of Medicine and Dentistry, Centre for Medical Education, London, UK)

**Background:** The London Helicopter Emergency Medical Services (London HEMS) provide a Doctor/Paramedic team response to major trauma patients within London. A scenario based outdoor simulation programme (the “moulage”) forms a vital component in the training of HEMS Doctors and Paramedics. This is a simple mannequin, low-fidelity simulation, which is in contrast to the high technology fidelity simulation normally employed in training health professionals. This training process focuses on careful scenario construction to induce a realistic level of stress and time-pressure. The programme designers refer to this as “the zone” – the psychological state of simulated realism and immersion. This preference for psychological fidelity over equipment fidelity has been encouraged by literature in this domain, and the HEMS training process aims to facilitate trainees to enter this “zone” of suspended disbelief in the hope that it will provide for more effective training outcomes pertinent to real-life situations.

**Summary of work:** Research was conducted to examine the extent to which psychological fidelity is actually achieved during training, from the particular perspective of those undergoing and involved in the process. HEMS Doctors, Paramedics, course facilitators and course organisers were invited to complete questionnaires and subsequently partake in interviews. The aims of the research were to explore their opinions on the “zone’s” reality, and also the importance of psychological fidelity in achieving the intended learning outcomes of such simulation training programmes.

**Summary of results:** This presentation reports on the findings of this study.

4F2 The micropolitics of clinical teamworking
J Allard*, A Bleakley, O Corrigan, J Archer (Peninsula College of Medicine and Dentistry, Institute of Clinical Education, Cornwall, UK)

**Background:** This study aims to describe how clinical teams attempt to work democratically and collaboratively in the modern NHS by researching power dynamics and identifying techniques practitioners use to overcome micropolitical barriers.

**Summary of work:** In-depth ethnography with the researcher undertaking a long term engagement in two study settings: an emergency department and an acute psychiatric ward. The primary data collection method is naturalistic unobtrusive observation, supported by video recording of live teamwork and semi-structured interviews.

**Summary of results:** Multi-professional staff must work in increasingly collaborative, fluid and dynamic ways in order to adapt to unique local settings they encounter. These forms of democratic working are context- and culture-dependent.

**Conclusions:** The delivery of patient care has changed considerably. Pressure for efficiency has led to increased role merging and erosion of professional boundaries. This study illustrates how teams are adapting to changes in power dynamics as they make
complex decisions. It highlights techniques for safe, ethical clinical practice as practitioners negotiate pressures and barriers.

**Take-home messages:** Focus on content and form of ‘teams’ and ‘teamwork’ may lead to overlooking dynamic factors of actual practice, such as ‘teeming’, ‘knotworking’ and ‘networking’ in complex environments. These forms of working are not taught, but learned ‘on the job’ and question traditional definitions.

**Take-home messages:** Healthcare managers and professionals see teams – small self-regulating work groups – as key mechanisms to improve services, embed innovation and reduce cost. However, evidence suggests that the ‘craft shop’ nature of healthcare teams may impede this. Educating for teamwork may embed practices that create teams concerned with autonomy and membership participation rather than with improving healthcare.

**Summary of work:** In semi-structured interviews of early-career and senior doctors and nurses we explored experiences of interprofessional team-working, the development of professional identity, beliefs about their profession and the impact of these factors on effective teamwork.

**Summary of results:** Doctors and nurses demonstrated high levels of professionalism, thoughtfulness, mutual respect and adaptability. However, the data suggest that they derive their professional identity in quantitatively different ways, leading doctors to act more autonomously and nurses to follow more formalised procedures and protocols.

**Conclusions:** Doctors adopt ‘craft-based’ modes of operation, whereas nurses adopt a ‘process-management’ approach. The latter may enable diverse groups to deal with highly complex situations.

**Take-home messages:** The effectiveness of interprofessional healthcare teams will not be improved unless the different identities doctors and nurses bring to the group setting are addressed and accommodated.

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**4F4** Addressing professional identities to improve teamwork.

**Mark Barrow**<sup>1</sup>, **Sue Gasquoine**<sup>2</sup>, **Judy McKimm**<sup>2</sup>, **Deb Rowe**<sup>1</sup> (<sup>1</sup>The University of Auckland, Faculty of Medical and Health Sciences, Private Bag 92019, Auckland 1142, New Zealand; <sup>2</sup>Unitec Institute of Technology, Faculty of Social and Health Sciences, Auckland, New Zealand)

**Background:** Teamwork has become linked to strategies for healthcare change and improvement.

**Summary of work:** During the surgical training, three simulation sessions were prepared to have surgical residents working with anesthesiology and emergency medicine residents, in managing acute cases in the ER. After the sessions, an adapted RIPLS test (Parsell, Med Educ 1999) was administered, each component being measured by a 5-points Likert scale from 1 (strongly disagree) to 5 (strongly agree). Scores (surgeons vs non surgeons) were compared by a Mann and Whitney test, significance being defined by p < 0.05.

**Summary of results:** 26 residents (16 surgeons, 10 non surgeons) took the sessions and the test. The sessions were greatly appreciated. Each component of the RIPLS test was highly scored, with mean scores ranging from
3.60 ± 0.97 to 4.88 ± 0.34. Surgery residents gave significant higher scores for only two components: communication with patients and other professionals (4.44 ± 0.81 vs 3.60 ± 0.97, p = 0.0424) and clarification of patients problems (4.81 ± 0.40 vs 4.30 ± 0.48, p = 0.0307).

Conclusions: Simulation is a promising way to ensure team working and professionalism among surgery residents.

Take-home messages: Simulation is a promising way to ensure team working and professionalism among surgery residents.

4G Short Communications: Training in Surgery

4G1 Common surgical diseases: OPD teaching
Anurak Amornpetchsathaporn (Sawanpracharak Medical Education Center, Ministry of Public Health, Thailand)

Background: Teaching common surgical diseases at OPD in real patients is an effective learning method for medical students because they can directly examine and assess patients in a real situation.

Summary of work: Some of 180 daily visiting patients with interesting or common problems at surgical OPD were selected by the teacher for teaching the fifth year medical students during 2006-2010. The patient and relatives were interviewed, examined and assessed by 4-6 students in the separated room. The focus group discussion was performed about 15 minutes after presentation by the student. Direct observations and feedbacks to individuals and group were done during the whole session.

Summary of results: The students could discuss the interesting symptoms and re-examine the missing or misunderstood signs. Most patients were happy to get a longer time of assessment and eager to answer without boredom or stress, cooperated well to being re-examined as a live model. Scores for themes were based on the frequency of trainer attributes identified.

Conclusions: There was agreement on 3 key themes of a surgical trainer. Trainers should be adaptable and recognize the different expectations of CTs.

Take-home messages: Recognition of the themes identified may enhance the learning relationship between trainers and trainees.

4G2 Identifying key themes of a good surgical trainer: Views from training faculty and trainees in a British postgraduate deanship
Humphrey J Scott*, Pasha J Nisar (Kent Surrey and Sussex School of Surgery, 7 Bermondsey Street, Southwark, London SE21 2DD, UK)

Background: This study identifies key themes of a surgical trainer.

Summary of work: Using a collaborative inquiry process, we conducted focus groups and semi-structured interviews with 16 Core trainees (CTs), 16 Speciality trainees (STs) and 10 trainers in general surgery. This study took place from Jan 2010 to Jan 2011 in the Kent, Surrey and Sussex Deanery, UK. Scores for themes were based on the frequency of trainer attributes identified.

Summary of results: The highest ranked themes identified by CTs vs. STs vs. trainers respectively were: effective communication (30% vs. 17% vs. 25%), leadership and organisation (21% vs. 45% vs. 25%) and commitment to training (19% vs. 17% vs. 21%). The lowest scoring theme for CTs was clinical excellence (8%). Trainers placed greater importance on treating the trainee as an individual (17%) than CTs (13%) or STs (9%). CTs emphasised the use of modern tools and curricula (10%), but STs and trainers did not, scoring this theme 2% and 1%.

Conclusions: The students gained practical skill, confidence and satisfaction to learn from many real patients in common surgical diseases under close supervision of the role model teacher at the OPD.

Take-home messages: Teaching common surgical diseases at OPD with a focus group session is indeed an effective teaching method.

4G3 Preoperative team briefings as sites of collaboration and struggle: Implications for novices
S Whyte*, S Espin1, L Lingard2 (1University of Toronto, Wilson Centre for Research in Education, Toronto, Ontario, Canada; 2Ryerson University, Daphne Cockwell School of Nursing, Toronto, Ontario, Canada; 3University of Western Ontario, Schulich School of Medicine & Dentistry, Canada)

Background: Preoperative team briefings have been widely promoted and mandated around the world. The social functions of this practice and their implications for novice team members have received little indepth study.

Summary of work: 756 team briefings were conducted at four Canadian hospitals and documented in observational field notes (2004–2007). We analyzed the social functions apparent in the performance of team briefings and their implications for novice team members. Pierre Bourdieu’s concepts of habitus, field and capital guided the analysis.

Summary of results: Team briefings were sites of both collaboration and struggle; they variously exposed, reproduced and transformed existing power relationships. Surgery and anesthesia residents often followed the collaborative or dismissive behaviours of senior team members, but they also assumed significant independent responsibility for leading team briefings. This provided opportunities for developing
professional competencies but also created significant tensions, as when novices lacked sufficient cultural and symbolic capital to earn the attention of their interprofessional colleagues. In contrast to medical trainees, novice nurses were typically not recognized as active participants in team briefings.

**Conclusions:** Team briefings require novices to exercise collaborative competencies and also to navigate longstanding interprofessional power relationships.

**Take-home messages:** Interprofessional practices such as team briefings have significant educational potential, with both constructive and problematic consequences.

**4G4** Can an online Masters in Surgical Sciences improve success in professional exams?

*N Peel*, A Robson*, J Richards, E Revie, A Paisley, P Lamb, S Wigmore, C Smith, P Smith, D Rowley, D Dewhurst, M Begg, J Garden (University of Edinburgh, Clinical Surgery, Royal Infirmary of Edinburgh, 51 Little France Crescent, Edinburgh EH16 4SA, UK)

**Background:** The Edinburgh Surgical Sciences Qualification (ESSQ) was established by the University of Edinburgh and the Royal College of Surgeons of Edinburgh in 2007 as a response to the considerable changes in surgical training. Designed to support trainees in the early years of surgical training by means of a three year, part-time distance, e-learning Masters programme. It currently has 250 students from 36 different countries.

**Summary of work:** The programme was designed to be relevant to the students professional development and examination (Membership of the Royal College of Surgeons, MRCS). An innovative e-learning platform, uses collaboratively-developed virtual case scenarios based on the most common surgical conditions within the MRCS curriculum and these are underpinned by basic sciences content. Students learn through peer discussion boards facilitated by a multidisciplinary group of expert e-tutors, and regular formative and summative assessments including discussion board interaction.

**Summary of results:** Evaluation of the programme suggests strong student approval and demonstrates that EESQ students have out-performed other students (marks 15-20% higher) in the MRCS examination over the three year period the programme has been in existence.

**Conclusions:** The ESSQ programme leads to improved performance in the MRCS professional exam.

**Take-home messages:** The ESSQ on-line programme prepares students for their professional exam and for an ongoing career in surgery.

**4G5** Simulator training improves performance in thoracoscopic wedge resections

J Bjurström1, L Konge1, P Lehner1, CK Loumann1, H Jessen2, R Petersen2, C Ringsted3 (1University of Copenhagen, Centre for Clinical Education, Copenhagen, Denmark; 2Copenhagen University Hospital, Rigshospitalet, Department of Cardiothoracic Surgery, Copenhagen, Denmark)

**Background:** Performance of video-assisted thoracic surgery (VATS) is increasing. As this technique places certain demands on the surgeons, simulation-based training is proposed as an ideal way to overcome the initial, steep part of the learning curve. This study investigates the effect of simulation-based training, and if an educator is necessary during training.

**Summary of work:** Thirty novices were randomized: A control group (n=10), a self-guided training group (n=10), and an educator-guided training group (n=10). Training groups trained for three hours on scenarios of increasing fidelity and difficulty, before taking a standardized test. The control-group and a group of thoracic surgeons (n=10) took the test with no prior simulator training. The simulator-based test consisted of performing a wedge resection on a porcine lung. Tests were assessed blindly by two independent experts, using a validated assessment tool.

**Summary of results:** Inter-rater reliability was good – Cronbach’s Alpha = 0.83. The control and self-guided groups performed poorer than the surgeons - p=0.012 and p=0.010 respectively. There was no significant difference between the educator-guided group and the surgeons – p = 0.271.

**Conclusions:** This is the first randomized study concerning simulation-based thoracoscopy training. Brief, intensive simulator training with an educator enables novices to perform an acceptable wedge resection in a simple, simulated model.

**4H** Short Communications: Learning Resources

**4H1** Actualisation of work-based based learning by using ‘real’ to make ‘virtual’ patients

R S Patel1*, S I Fazil2*, K V Patel3, S J Carr1,4 (1Department of Nephrology, University Hospitals of Leicester NHS Trust; 2University of Leicester Medical School; 3Imperial College School of Medicine; 4East Midlands Healthcare Workforce Deanery, UK)

**Background:** Web-based virtual patient (VP) simulation allows users to develop problem-solving or decision-making skills. The costs associated with VPs can be significant, reportedly up to $10,000 per case, so medical schools are demanding further evidence about their pedagogical value before agreeing to formally adopt them within the curriculum.

**Resources**

**4H2** Simulation curriculum: A flexible tool for trainee education

S Lamb, S Wigmore, C Smith, P Smith, D Rowley, D Dewhurst, M Begg, J Garden (University of Edinburgh, Clinical Surgery, Royal Infirmary of Edinburgh, 51 Little France Crescent, Edinburgh EH16 4SA, UK)

**Background:** The Edinburgh Surgical Sciences Qualification (ESSQ) was established by the University of Edinburgh and the Royal College of Surgeons of Edinburgh in 2007 as a response to the considerable changes in surgical training. Designed to support trainees in the early years of surgical training by means of a three year, part-time distance, e-learning Masters programme. It currently has 250 students from 36 different countries.

**Summary of work:** The programme was designed to be relevant to the students professional development and examination (Membership of the Royal College of Surgeons, MRCS). An innovative e-learning platform, uses collaboratively-developed virtual case scenarios based on the most common surgical conditions within the MRCS curriculum and these are underpinned by basic sciences content. Students learn through peer discussion boards facilitated by a multidisciplinary group of expert e-tutors, and regular formative and summative assessments including discussion board interaction.

**Summary of results:** Evaluation of the programme suggests strong student approval and demonstrates that EESQ students have out-performed other students (marks 15-20% higher) in the MRCS examination over the three year period the programme has been in existence.

**Conclusions:** The ESSQ programme leads to improved performance in the MRCS professional exam.

**Take-home messages:** The ESSQ on-line programme prepares students for their professional exam and for an ongoing career in surgery.
**Summary of work:** Students on their cardiorespiratory care placement were invited to assist in the creation of VPs, and share their experiences afterwards. Students helped develop the communication sections of the case by exploring questions, which patients most wanted answered about their care whilst in hospital.

**Summary of results:** 250 questions, which could be asked by VPs during the ten case presentations, were generated by the exercise. One student chose to keep a reflective journal about her learning experience and will share extracts from it.

**Conclusions:** Students can help author VP cases, and develop communication skills at the same time. Persuading students to focus on the patient’s agenda, rather than solely on forming a differential diagnosis, may also help individuals recognise the patient’s unmet needs, as well as their own educational needs.

**Take-home messages:** If engaging students in VP creation results in the development of their emotional intelligence, these technologies may have utility beyond just mediums for improving reasoning or decision-making skills.

**4H2 E-learning system by students for students**

S Wessel*, N Becking, A Solnes Miltenburg, S Henar, E van der Meij, D Raphael, K Mesri, H Flinterman, K Reckens, J Bretschneider (VU Medical Centre, Department of Gynaecology and Obstetrics, Amsterdam, The Netherlands)

**Background:** Nowadays the Internet is indispensable, also in the educational world. Many articles point out that medical students use the Internet for studying, moreover literature shows that e-learning is an effective way of learning.

**Summary of work:** We, a group of 9 medical students, compile, sort and supplement digital teaching material by using the web-based e-learning system Fronter (http://com.fronter.info). We gather the teaching material and present this in learning paths on the digital platform. Every diagnosis is introduced in a small chapter, including the medical background (patients’ history, examination, therapy etc.) using text, visual media and hyperlinks to important content on Internet. We also include our own clinical pictures and video’s (like Podcasts where professionals give a summary of the highlights of the subject) to supplement the content if necessary.

**Summary of results:** We created, with cooperation of clinicians, an innovative online learning system for the department Obstetrics and Gynaecology of the VU Medical Centre in Amsterdam.

**Conclusions:** This E-learning system provides an attractive multi-medial overview of the most important education material for the next students. This system allows learning to be tailor-made, up to date and interactive.

**Take-home messages:** E-learning combined with social media is the new education for medical students.

**4H3 Making medical podcasts for the mobile generation**

H C Muir, D J Early, L Combe, S A Houston, A J P Robb*, B Stewart (College of Medical, Veterinary and Life Sciences, Room 427, Wolfson Medical School Building, University of Glasgow, Glasgow G12 8QQ, UK)

**Background:** Along with other Web 2.0 technologies, podcasts constitute interactive educational tools that have potential as part of a blended learning curriculum. The use of podcasts in Undergraduate medical training is sparse; existing material often lacking in quality.

**Summary of work:** Four medical students of the University of Glasgow produced a series of practical skills podcasts taken from the GMC ‘Tomorrow’s Doctors (2009)’ and under supervision of clinical experts. These were made available for download from the University Webpage. Qualitative evaluation by method of questionnaire was commenced.

**Summary of results:** Preliminary data from 45 students provided feedback about the format, usefulness and accessibility of podcasts. 98% of students thought that the podcasts were an appropriate length and included the correct content. They stated that their main goal for using the podcasts was to ‘learn for the first time’, ‘revise’ and ‘refresh skills’. 85% said they would download the podcasts onto personal devices, with 89% running a podcatcher program.

**Conclusions:** Evaluation will continue and in the future it will be possible to collect data on the impact on exam outcome. We hope to further develop the podcasts and make them available for other Universities.

**Take-home messages:** Well-produced practical skills podcasts provide a valuable learning resource and are evaluated highly by students.

**4H4 Students design virtual patients: an innovative educational activity**

E Dafli**, C Bratsas*, C Antoniadis², P D Bamidis¹

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**Background:** Virtual patients (vps) have proved to be remarkable educational modules. How could, however,
the design of a virtual patient scenario itself constitute a worthy educational procedure for the students?

**Summary of work:** 30 postgraduate students in dentistry were asked to design vps, including specialized cases according to their scientific orientation and field of expertise. The vps were initially evaluated by the course instructors. Students were then asked to evaluate not the utilization itself, but the design of vps as an educational procedure, by filling in specialized, purpose-built, evaluation questionnaires, consisted of a mix of both open-ended and likert-type questions. Completed questionnaires were subject to qualitative analysis, where emphasis was primarily given to answers to open-ended questions.

**Summary of results:** 15 branching vp scenarios were designed. The students’ (i.e. designers’) evaluation illustrated that the procedure of developing vps consists of an active, interesting, highly motivating type of learning per se. It increased the scientific interest for the designers/learners and was considered more useful and challenging in comparison to traditional learning or even classical active learning approaches.

**Conclusions:** The design of vps proved to be an innovative, interesting and effective type of educational activity that fosters motivation, independence and self directed learning.

**Take-home messages:** The design of vps allows trainees to take the role of healthcare professionals thereby consisting a more interesting and motivating type of educational experience compared to more traditional study methods.

4H5  **Student-led revision courses as an aid to faculty teaching**

A Nihat*, L Koizia* (Imperial College School of Medicine, Exhibition Road, London SW7 2AZ, UK)

**Background:** Curriculum developers are often faced with the difficulty of integrating and scheduling different aspects of their syllabus. This is particularly true of those courses which retain formal basic science lectures that must be balanced with clinical rotations, which cannot always occur in parallel. Imperial College runs a four week, lecture-based Pathology course at the beginning of its 5th (penultimate) year, which is examined 11 months later, which causes much anxiety amongst students.

**Summary of work:** We developed a student-led, informal lecture series in March-April 2010 to help 5th year students revise Pathology. After conducting two focus groups to identify difficult areas of the course, we recruited eight 6th year students to prepare and deliver six 2-hour revision lectures.

**Summary of results:** Attendance at the course was over 80% (285/350) of the year group. Overall, 90% of responders strongly agreed that the course had been useful, and that their understanding had been improved. 95% of responders agreed/strongly agreed that they would recommend the course to other students.

**Conclusions:** Student-led revision courses are beneficial in reinforcing faculty material and integrating theory and clinical medicine, in preparation for medical examinations.

4I  **Short Communications: Professionalism**

4I1  **Does professionalism decline over the course of medical education? Professionalism profiling using quantitative tools in an integrated medical curriculum**

M Kelly*, S O’Flynn, D Bennett, A Joy, M O’Rourke (University College Cork, Medical Education Unit, Cork, Ireland)

**Background:** Research has shown that professionalism declines over the course of undergraduate training. Recent curriculum reform should stem such trends.

**Summary of work:** To measure student attitudes to professionalism; specifically teamwork, empathy, life-long learning and reflective practice, following the introduction of an integrated curriculum. All students in Year 1-5, of a 5 year program and Year 2-3 of 4 year graduate entry completed a series of validated questionnaires. This included Jefferson Scale of Physician Empathy, Jefferson Scale of Physician Lifelong Learning, Self-reflection and insight scale & Readiness for Inter-professional Learning Scale (RIPLS). Data was analyzed in SPSS.

**Summary of results:** Our response rate was 73% (487). 54% of the respondents were female. Age range is 17–40 years. Irish students accounted for 55% of the sample. The mean empathy score was 97.56 (range 57-114, SD 6.79); the mean life-long learning score was 43.85 (range 28-56, SD 5.01), the mean RIPLS score was 78.33 (range 23-94, SD 9.24). There is no significant deterioration in empathy score between year 1 to year 5. The lifelong learning scores increased significantly between year one and year 5 (p<0.001). The RIPLS declined significantly (p<0.01) between year 1 and year 5.

**Conclusions:** Quantitative measures of professionalism varied throughout the course, emphasising the complex nature of professionalism.

4I2  **Medical Professionalism in Relations: A Cross-Cultural Study of Students’ Reasoning of Professional Dilemmas**

M Ho*, S Ginsburg* (1National Taiwan University College of Medicine, Taipei, Taiwan; 2University of Toronto, Canada)
Background: Medical educators internationally are faced with challenges of teaching and measuring professionalism as competencies within individual students. Some studies drew attention to contextual factors which influence students’ reaction to professional dilemmas. However, no research has examined this issue across cultures.

Summary of work: Structured interviews inquiring reaction and reasoning towards five video clips depicting students facing a professionally dilemmas were conducted with 24 final-year medical students in Taiwan. Interviews were transcribed and analyzed with the theoretical framework of prior Canadian studies using the same videos and interview questions.

Summary of results: The framework from previous Canadian research including principles, implications, and affects was generally applicable to Taiwanese students’ decision making with some distinctions. For instance, in addition to implications for patients, team members, or themselves, Taiwanese students think about the impact on multiple relations including patients’ family and alumni residents. Cultural norms are also articulated.

Conclusions: Medical educators must acknowledge students’ reasoning in professionally challenging situations and guide students to balance considerations of principles, implications, affects, and cultural norms.

Take-home messages: In addition to principles enacted by individual students, cultivation of medical professionalism must address implications on multiple relations in varying cultural contexts.

4I3 Beginning Reflection: Introducing quality improvement to first year medical students
M Singh*, D Carter-O’Gorman, P Spanos (Case Western Reserve University School of Medicine, Foundations of Clinical Medicine, 2109 Adelbert Road, School of Medicine Room E306, Cleveland, OH 44106, USA)

Background: Quality improvement methods are usually introduced to medical professionals during their graduate years in the clinical context, sending the message that quality improvement science has minimal application and not important. Recent calls for changes in medical education highlight the need to develop mindful practitioners who can engage in lifelong learning (Irby, Cooke, 2010). Introducing quality improvement methods in the context of professionalism in undergraduate medical education can help lay the foundation for lifelong learning while teaching quality improvement concepts.

Summary of work: First-year medical students are introduced to quality improvement using a web-based curriculum entitled “You, the Student Doctor” during Rotating Apprenticeships in Medical Practice (RAMP), an early patient-based experience. This interactive module introduces the process of self-reflection and tools such as the Model for Improvement. Students then complete Professional Learning Plans using the improvement model.

Summary of results: In the Class of 2014, 91% of students completing the module felt learning objectives were clear and met, and 93% of students indicated an understanding of basic QI concepts.

Conclusions: Using quality improvement concepts to facilitate learning of self-reflection during early clinical training allows for integration of these concepts to professionalism.

4I4 Peer-to-peer assessments of professionalism: A time dependent social network perspective
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Background: The Accreditation Council for Graduate Medical Education (ACGME) includes professionalism as a core competency. Through network analysis and related faculty ratings, we sought to identify characteristics of students who were seen by others (peers versus faculty) as the most professional.

Summary of work: At seven time points throughout the Basic Structure and Human Structure blocks, medical students were provided surveys regarding student-to-student perception of professionalism. Based upon these student responses, networks were created and compiled using Pajek network software. Dynamics of these networks were analyzed for common themes. The students chosen most by their peers as being the most professional were analyzed for commonalities and compared with faculty rankings.

Summary of results: Six of 48 students were chosen significantly more after compiling the maps together. These students had variable faculty ratings. They also scored above average in daily Audience Response System quizzes but also had diverse backgrounds and overall had variable performance in regards to undergraduate GPA, MCAT score, NBME exam score, dissection grade, and final course grades.

Conclusions: Our data indicate that students most perceived as professional by their peers are not readily identified by faculty, nor captured by other academic markers, thus raising the possibility that professionalism may exist along some other as-of-yet attribute.

4I5 A study to explore Foundation Year 1 trainees’ understanding of medical professionalism
A K Hossain (Department of Paediatrics, St. George’s Hospital NHS Trust, London UK)

**Background:** To appreciate what understanding junior doctors have of medical professionalism, compared to the Royal College of Physicians’ definition of medical professionalism (2005.)

**Summary of work:** An open-ended questionnaire was designed to survey the views and opinions on medical professionalism of Foundation Year 1 (FY1) trainees working at a District General Hospital in Surrey, UK. 24 out of 46 trainees responded. Manual thematic analysis was performed on data collected.

**Summary of results:** In their understanding of professionalism the following themes were identified—respect for both patients and colleagues, delivering patient centered care, interprofessional working, maintaining standards and displaying good conduct and behavior. The majority of respondents felt they learnt medical professionalism by observing role models. The respondents felt that their professionalism skills had developed in their first year of training, mainly their communication skills.

**Conclusions:** The findings of the project suggest that FY1 trainees are aware of a patient centred model of medical professionalism, but have not yet developed awareness of the physician’s professional responsibility to society, and also the individual doctor’s responsibility to maintain and develop knowledge and clinical skills as part of professional development. There is little evidence to suggest doctors are using reflective practice to learn about professionalism.

**Take-home messages:** Newly qualified doctors have a good understanding of a patient centered model of professionalism but need to develop awareness regarding others aspects of professionalism. Reflective practice may help trainees develop a better understanding of professionalism.

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**4J**  Short Communications: To Lecture or Not?

**4J1**  What happens when teachers do not give us handouts?

Apinut Wongkietkachorn*1, Jettbodin Prakoonsukapan*2, Danai Wangsaturaka2

1Chulalongkorn University, Faculty of Medicine, 4th Year Medical Student, Bangkok, Thailand;
2Chulalongkorn University, Faculty of Medicine, Department of Pharmacology and Medical Education Unit, Bangkok, Thailand

**Background:** Handouts have been a primary tool to help students learn in lectures. Some lecturers, however, do not give out handouts. Therefore, we aim to survey medical students’ opinions and behaviors when handouts are provided comparing to when they are not.

**Summary of work:** We conducted a cross-sectional study with the 3rd year and the 5th year students at the Faculty of Medicine, Chulalongkorn University using questionnaires.

**Summary of results:** Attitudes towards lectures without handouts were statistically significantly different between the 3rd year and the 5th year students (p = .000). When not having handouts, the note-taking behavior was decreased from 90.2% to 60.1% in clinical students and from 92.4% to 46.8% in pre-clinical students. This change was statistically significant in both groups (p = .003 & .000). This also resulted in the students’ increased use of their classmates’ notes for reviewing. There was no correlation between the students’ academic achievement and their handout-dependency in both groups (p = .203 & .055).

**Conclusions:** Handouts are essential in lectures for medical students. Taking them away could immensely reduce students’ capability to concentrate and study in lectures.

**Take-home messages:** Don’t forget to produce handouts for your next lectures. Your students need it!!!

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**4J2**  Implementation of podcasts in the curriculum of surgical education in the University of Heidelberg

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(University of Heidelberg, Department of Surgery, Heidelberg, Germany)

**Background:** Usage of podcasts in education is increasing. Students appreciate the convenience of delivery of information tailored to their individual preferences and learning styles. We implemented and evaluated podcasts in undergraduate surgical training and analyzed if they are adequate to set the theoretical basis for corresponding case-based seminars (CBS).

**Summary of work:** We generated podcasts on hernias and benign and malignant thyroid disease comprising narrated Powerpoint™ slides. The students used them to prepare for the corresponding CBS. Evaluation was accomplished by a questionnaire focusing on knowledge benefit compared to live lectures.

**Summary of results:** During winter term 2010 a total of 82 evaluation sheets were completed. 45.73% of the students stated that working with podcasts in combination with a CBS have a greater knowledge benefit compared to self-studies alone and even to live lectures (40.85%). 40.85% felt an improvement of their clinical and diagnostic thinking. For 54.27% of the students podcasts add to consolidation of theoretical basis.

**Conclusions:** Podcasts are helpful in establishing a theoretical basis for CBS. Students consider this
combination as supportive of their clinical and diagnostic thinking.
Take-home messages: Podcasts are a valuable tool to support compiling a theoretical basis.

4J3  Student performance and their perception of a patient-oriented problem-solving approach with audiovisual aids in teaching pathology: a comparison with traditional lectures
A Singh (Department of Pathology, Sri Venkateshwara Medical College Hospital and Research Centre, Pondicherry, India 605102)

Background: The patient-oriented problem-solving (POPS) system is an innovative teaching–learning method that imparts knowledge, enhances intrinsic motivation, promotes self learning, encourages clinical reasoning, and develops long-lasting memory. The aim of this study was to develop POPS in teaching pathology, assess its effectiveness, and assess students’ preference for POPS over didactic lectures.

Summary of work: One hundred fifty second-year MBBS students were divided into two groups. Group A was taught by POPS while group B was taught by traditional lectures. Pre- and post test numerical scores of both groups were evaluated and compared. Students then completed a self-structured feedback questionnaire for analysis.

Summary of results: The mean (SD) difference in pre- and post-test scores of groups A and B was 15.98 (3.18) and 7.79 (2.52), respectively. The significance of the difference between scores of group A and group B was determined by the z-test. Improvement in post-test performance of group A was significantly greater than of group B, demonstrating the effectiveness of POPS. Students responded that POPS facilitates self-learning, helps in understanding topics, creates interest, and is a scientific approach to teaching. Feedback response on POPS was strong in 57.52% of students, moderate in 35.67%, and negative in only 6.81%, showing that 93.19% students favored POPS.

Conclusions: It is not feasible to enforce the PBL method of teaching throughout the entire curriculum; however, POPS can be incorporated along with audiovisual aids to break the monotony of dialectic lectures and as an alternative to PBL.

Take-home messages: The POPS can be incorporated by individual teachers.

4J4  Educating without lectures: Active learning in the first year through the MUSC synthesis review module
J G Wong*, D J Hazen-Martín, D H Kern, M D McEvoy (Medical University of South Carolina, College of Medicine Dean’s Office, Charleston, SC, USA)

Background: At MUSC, students are organized into learning groups of 8-9 (COMTEAMS). The curriculum is horizontally organized into four year-long themes (Structure-Function, Molecules-Energetics, Homeostasis-Regulation, and Fundamentals of Patient Care) and separated into five systems blocks (Musculoskeletal, Cardiovascular/Respiratory, Renal/Gastrointestinal, Genitourinary/Reproductive, and Cognition). A video-taped patient-physician encounter starts each block from which subsequent learning objectives are generated. We describe a “Synthesis Review” module promoting self-directed learning, allowing independent group-work, and providing formal peer teaching and assessment.

Summary of work: Following the “Synthesis Review” video, review questions pertinent for mastery of each systems topic was generated. For this module, students were randomly allocated into systems topic groups; at least one student from each COMTEAM group was represented. In these groups, students worked collaboratively answering topical review questions and created academic posters. The module culminated in a Poster day where students reconvened in their original COMTEAM groups. Every student presented their work in a series of simultaneous oral poster presentations and evaluated their peers using a 5-point Likert-type scale instrument that assessed the quality of the presentation.

Summary of results: Evaluations from this module were extremely positive.

Conclusions: We successfully taught both content and process skills (poster-creation, oral presentation) to our students.

Take-home messages: An educational module, devoid of lecture, can successfully promote learning.

4K  Short Communications: International Medical Graduates

4K1  The Challenges for International Medical Graduates in the Canadian Residency Training Programs
W Alqurashi*, S Razack, F Bhanji, M Jabbour (Children Hospital of Eastern Ontario, Emergency Department, University of Ottawa, Ottawa, Canada)

Background: This study aims to assess perceived curricular needs of International Medical Graduates (IMGs) in residency programs at two different faculties of medicine in Canada.

Summary of work: We performed a descriptive, cross-sectional survey of all in-training, postgraduate IMG residents at the University of Ottawa and McGill University. The survey contained 33 items that explore the impact of communication, language, and
administrative issues on the IMGs’ residency training experience.

**Summary of results:** 137 out of 350 potential participants (40%) completed the survey. English language proficiency was not a major challenge for 113 (83%) of the respondents; however, 76 (56%) agreed that an orientation to communication skills at the beginning of their training would have been beneficial. Approximately 27 (20%) of IMG residents reported having difficulties articulating their thoughts and felt uncomfortable in group discussions. Obtaining legal documents to work in Canada was a confusing process for 87 (64%) of IMG trainees and 102 of the IMGs (75%) would have liked an orientation to legal and administrative issues relevant to working/learning in Canada.

**Conclusions:** The survey yielded several important findings that residency programs should consider when designing orientations and training curriculums for IMG trainees.

**Take-home messages:** Programs should consider helping IMGs with administrative challenges in order to improve the success of IMG residents and their sense of wellbeing.

4K2 Placement of multilingual international medical graduates in postgraduate training in the U.S.
A Opalek*, M van Zanten (Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, USA)

**Background:** About one quarter of the U.S. physician workforce are graduates of international medical schools (IMGs), many of whom are native speakers of languages other than English. A fifth of the U.S. population speaks languages other than English in the home.

**Summary of work:** IMGs certified by ECFMG in 2008 and 2009 and listed in a database of postgraduate trainees were identified. The native languages they reported were compared with local population language proficiency data as reported by the U.S. Census Bureau.

**Summary of results:** The most common native languages reported by IMGs were English (30.6%), Arabic (8.0%) and Spanish (7.4%). Native English speakers were most likely to have obtained a postgraduate position within a year of being certified, with Spanish speakers second most likely to obtain a position. Different non-English languages were more common in some states (Arabic: Michigan, New Jersey; Hindi: Pennsylvania; Persian: California).

**Conclusions:** Overall, native English speakers are more successful in obtaining postgraduate positions in the U.S., but there is regional variation in the recruitment of multilingual IMGs.

**Take-home messages:** IMGs are a valuable resource in enabling communication with patients who speak languages not spoken by domestically educated health professionals, but their skills do not always match local needs.

4K3 Incorporating critical reflection into the orientation of international medical graduates
A Harris*, C Delany (Maastricht University, Technology & Society Studies, Faculty of Arts and Social Sciences, Maastricht University, PO Box 616, 6200 MD Maastricht, Netherlands)

**Background:** International medical graduates (IMGs) must undergo adjustment to healthcare systems which are similar, yet unfamiliar, to those they have worked in previously. Often doctors’ orientation is brief, didactic and irrelevant, with little attention paid to IMGs’ experiences of adjustment.

**Summary of work:** Using techniques of critical reflection, our pilot educational program in Victoria, Australia, addressed these gaps. The program consisted of six fortnightly sessions attending to different aspects of the local hospital system, with a staff member invited to each. Drawing upon Lave and Wenger’s (1994) work concerning situated learning, we proposed that doctors’ transition to new workplaces would benefit from reflection amongst ‘old timers’ and each other.

**Summary of results:** Analysis of fieldnotes and evaluation cards revealed that IMGs developed new insights into the local system and better awareness of staff’s practice, while staff learnt more about IMGs’ experiences. Participants indicated an increased confidence to ask questions, and development of practical strategies helpful for their everyday work.

**Conclusions:** Our study emphasised IMGs as educators and learners during the adjustment process. The program can be easily tailored to many healthcare settings.

**Take-home messages:** When attending to IMGs’ adjustment to new workplaces, it is important to allow time for critical reflection amongst peers and old-timers, with attention to everyday practice.

4K4 Collaboratively researching and developing a communication and language multimedia resource for International Medical Graduates
R Woodward-Kron*, E Flynn, C Bow, J Pill, M Stevens, O Maxwell (University of Melbourne, Medical Education Unit, 202 Berkeley St, Parkville VIC 3010, Melbourne, Australia)

**Background:** International Medical Graduates (IMGs) must demonstrate English language proficiency prior to receiving restricted registration, yet concerns about IMGs’ interviewing skills, language proficiency, and
intercultural communication are ongoing. This paper describes ongoing research and development of a communication and language multimedia resource for IMGs.

**Summary of work:** Data informing the resource are from IMG communication training workshops run since 2009. In these workshops, IMGs role-play case scenarios with a simulated patient. Participants receive a feedback package with a video-recording of the interaction and the feedback from a medical educator, simulated patient, and a linguist. The interactions were analysed for linguistic and phonological aspects that hinder the success of the interaction. The feedback from the medical educators and simulated patients was analysed thematically, then triangulated with the interactional findings.

**Summary of results:** The findings indicate that the IMGs English language proficiency alone does not directly result in miscommunication, but that interactional skills e.g. picking up on the patient’s concerns were integral to successful interviews. Essential tasks of medical interviewing also warranted greater fluency.

**Conclusions:** These findings inform the development of Doctors Speak Up, a multimedia resource combining communication skills teaching with language (grammar, word choice and phonology/prosody for medical interviewing) instruction.

**Take-home messages:** Communication skills training for IMGs should combine medical interviewing skills teaching with language support.

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**4K5 The practice ready assessment of international medical graduates: factors predictive of success**

A-M MacLellan¹, C Brailovsky¹, F Miller¹, S Leboeuf², E Drouin², E Prégent² (¹Collège des médecins du Québec, Medical Education Division, Montréal, Canada; ²Université de Montréal, Faculté de médecine, Montréal, Canada)

**Background:** The Collège des Médecins du Québec, the medical regulatory authority in Québec, Canada, evaluates the practice readiness of international medical graduates with clinical assessments of 3 months duration in accredited university training sites across Québec. Only 60% of candidates pass the assessment in spite of having appropriate credentials and recent practice elsewhere in the world.

**Summary of work:** The files of 270 applicants for a permit to practice in either Family Medicine or in one of the other recognized specialties were analyzed. Besides the usual criteria of age, sex, origin of MD diploma and language, other criteria included the delay between the request and the assessment, the length of time between the MD degree and the assessment period, scores at the Medical Council of Canada Evaluating examination (MCCEE) and the disciplines in which they had trained.

**Summary of results:** Highly predictive factors for a successful outcome included a lower number of years since obtaining the MD degree and a higher score on the Evaluating examination. Other factors, also identified as predictive of success will be discussed.

**Conclusions:** Factors predictive of success in completing a practice ready assessment have been identified.

**Take-home messages:** This study can be helpful for international medical graduates before deciding to move to Canada.

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**4L Short Communications: Best Evidence Medical Education (BEME)**

**4L1 A Best Evidence in Medical Education (BEME) Systematic Review: The effects of audience response systems on learning outcomes in health professions education**

Cody Nelson¹, Lisa Hartling², Sandra Campbell³, Anna E Oswald⁴ (¹Medical Student, University of Alberta; ²Department of Pediatrics, University of Alberta; ³Public Services Librarian and Library Liaison to Medicine, University of Alberta; ⁴Department of Medicine, University of Alberta, Canada)

**Background:** The inadequacies of traditional lectures to stimulate active participation have prompted new interactive teaching strategies such as audience response systems (ARS). While ARS may have pedagogical value their impact on health professions education is unclear. This systematic review examines the effect of ARS on learning outcomes in this unique educational context.

**Summary of work:** A systematic review protocol was prospectively registered with the Best Evidence in Medical Education (BEME) organization. A comprehensive search was conducted and systematic methods were applied to studies for inclusion, data extraction, and methodological quality assessment. Comparative studies were included if they evaluated educational interventions using ARS as a teaching strategy among health professionals or trainees.

**Summary of results:** Screening of 1007 studies identified 21 for inclusion. Fourteen of the 21 included studies reported a significant difference in a knowledge assessment score favouring ARS. The greatest increases were observed when ARS were compared to non-interactive teaching strategies. A meta-analysis of knowledge outcomes was performed. Five of 6 studies reporting student reaction favoured ARS.

**Conclusions:** This review demonstrates that ARS can have a positive impact on knowledge scores and student reaction.
Take-home messages: With increasing numbers of health profession training programs using ARS, this review provides evidence to support its use to improve learning outcomes.

4L2 Teaching Musculoskeletal Clinical Skills to Medical Trainees and Physicians: A Best Evidence in Medical Education (BEME) Systematic Review of Strategies and their Effectiveness

Alexandra O’Dunn-Orto, Lisa Hartling, Sandra Campbell, Anna Oswald* (1Medical Student, University of Alberta; 2Department of Pediatrics, University of Alberta; 3Public Services Librarian and Library Liaison to Medicine, University of Alberta; 4Department of Medicine, University of Alberta, Canada)

Background: Musculoskeletal (MSK) complaints make up 12-20% of primary health visits and are a source of significant expenditures and morbidity. Despite this, MSK examination is an area of weakness among practicing physicians. Several studies have highlighted the need for increased MSK physical exam teaching. However, increased teaching time alone does not guarantee improvement in these skills. Thus, we aimed to identify interventions that are effective in promoting transfer of MSK clinical skills.

Summary of work: The review protocol was approved by the Best Evidence in Medical Education (BEME) organization. A comprehensive search was conducted and systematic review methods were applied. Data were not pooled statistically due to heterogeneity.

Summary of results: 5089 titles were screened; 24 studies were included. Eighteen of 24 studies focussed on undergraduate medical education. Five of nine studies favoured patient educator. Five of six studies favoured interactive small groups, two of four studies favoured computer-assisted learning, and two of two studies favoured peer learning. Individual studies demonstrated effectiveness of reminder sheets and Gait Arms Legs Spine teaching, respectively.

Conclusions: This study supports the use of several different instructional methods that engage learners and provide meaningful learning contexts.

Take-home messages: The majority of studies support patient educators and interactive small group teaching.

4L3 The effectiveness of case-based learning in health professional education: A BEME systematic review in progress

S Ekeocha*, J Thistlethwaite, J Kidd, D Davies, C Macdougal, P Matthews, J Purkis (1Institute of Clinical Education, Warwick Medical School, University of Warwick, Coventry, UK; 2Centre for Medical Education Research and Scholarship, The University of Queensland, School of Medicine, Brisbane, Australia)

Background: Case-based learning (CBL) is a learner-centred method for students to meet defined learning outcomes. It focuses on patient cases, and the performance of health professionals. There are numerous published accounts of CBL variations, but many are descriptive and without evaluation data. The aim of this systematic review is to explore the evidence for the effectiveness of CBL – not only whether it promotes learning, but how and under what circumstances.

Summary of work: We systematically searched six databases for articles (1965-2010), which included CBL for pre-qualification health professional students and an evaluation of outcome. Papers were coded for type of evaluation and quality, using a modified BEME coding sheet.

Summary of results: We excluded 797 papers and coded 82 papers for inclusion, with the final number expected to be about 115. The majority of these reports evaluation at the level of student reaction, with fewer than half assessing change in student knowledge/attitudes. There is a diverse range of group size, topic, presentation of cases and length of learning activity.

Conclusions: CBL is interpreted in different ways but there are core principles; student satisfaction is high. Evaluation data are of poor to fair quality but help identify best practice.

Take-home messages: CBL appears to benefit student learning particularly through interaction and discussion.

4L4 Creating a BEME review on the integration of basic science and clinical knowledge with qualitative research synthesis

M El-Adhari*, A Josephson, K Bolander Laksov* (Centre for Medical Education, Karolinska Institutet, 171 77 Stockholm, Sweden)

Background: This BEME review initiative was taken with the aim to review the initiatives on integration of basic science and clinical practice in undergraduate medical education. Although clear guidelines provided in previous BEME-reviews (no 2 and 3), issues of how to handle publications of qualitative and discussing character has become important to take into consideration.

Summary of work: This BEME review initiative was taken with the aim to review the initiatives on integration of basic science and clinical practice in undergraduate medical education. Although clear guidelines provided in previous BEME-reviews (no 2 and 3), issues of how to handle publications of qualitative and discussing character has become important to take into consideration.

Summary of results: Although the coding sheet made it possible to get a first understanding of the issues involved when initiatives to integrate basic science and clinical practice in undergraduate medical education, other issues have become prominent too. The
different interpretations of the meaning of 'integration' turned out to be at the centre of this work and will be presented.

Conclusions: The study may show that starting from the other end with proposed explanations, to the findings in the articles we review, similar to the method in realist reviews, is a better way to generate evidence than in the fashion of Cochrane.

Take-home messages: When conducting a systematic review, the design must be influenced by the underpinning epistemology of research that is to be included in the review.

4LS Feasible or not feasible, that is the question. Evidence on OSCE feasibility from a BEME Systematic Review

Madalena Patricia*, Miguel Julião¹, Filipa Fareleira¹, Meredith Young², Geoffrey Norman³, António Vaz Carneiro¹ (¹Faculty of Medicine, University of Lisbon, Portugal; ²McGill University, Canada; ³McMaster University, Canada)

Background: Since 1975 OSCE has been widely and exponentially used as an assessment tool in a variety of contexts. The aim of the study was to gather evidence on OSCE feasibility.

Summary of work: BEME methodology was applied by two independent coders who scrutinized literature from 1975 to 2008.

Summary of results: Clear evidence on technical viability was found based on all studies published by 625 institutions from 51 countries on 5 continents with OSCEs used in 26 professional fields. In terms of medical studies OSCEs were performed in 43 different subjects to assess 46 types of learning outcomes with an enormous variability in terms of design.

Regarding economic viability only 9 studies report on OSCE cost. From them only 6 identify the cost per student ($21-122) but data are extremely scarce and difficult to achieve the range of objectives that the OSCE did.

Conclusions: The doctors as teachers assessment tool is unambiguous, user-friendly and provides reproducible data essential for teacher evaluation and development.

Take-home messages: This multi-source feedback tool is valuable for teacher assessment and faculty development.

4M Short Communications: The Assessment of Teachers

4M1 Doctors as Teachers Assessment Tool

K A Nathavitharana*, A B Whitehouse, D W Wall, E Hughes (NHS West Midlands Deanery, St. Chad’s Court, 213 Hagley Road, Birmingham B16 9RG, UK)

Background: Assessment and evaluation are key components of medical education. Assessment of teachers, however, has received little attention.

Take-home messages: Editors of medical journals could turn their attention to this important area.

K A Nathavitharana*, A B Whitehouse, D W Wall, E Hughes (NHS West Midlands Deanery, St. Chad’s Court, 213 Hagley Road, Birmingham B16 9RG, UK)

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Background: Assessment and evaluation are key components of medical education. Assessment of teachers, however, has received little attention.

Take-home messages: Editors of medical journals could turn their attention to this important area.
guidance issued by the UK credentialing authority [General Medical Council]. A mixed qualitative and numeric analysis revealed confidence from the assessors and the assessed GP teachers as to the nature of the process. Learner evaluation is crucial throughout. Only reapproval [as opposed to first approval] should be conducted by peer review.

**Conclusions:** GP teacher peer review reapproval depends on an inclusive, supportive and well functioning local group of teachers. It was not found to be collusive, but was highly formative. Positive recommendations as to status were easily implemented, whereas negative outcome would be referred to faculty.

**Take-home messages:** Formal teacher reapproval status by peer review is a dependable method of defining teacher status. The short communication will describe the process, evaluation methodology, results and relevant theoretical context.

### 4M3 Do we get better with time? What is the Effect of Length of Teaching Experience?

*Dubravka Dodig*, Elizabeth Grigoriadis, Daniel Panisko, Edmund Lorens, Glen Bandiera (University of Toronto, University Health Network, Department of Medicine, Division of Neurology, Toronto Western Hospital, 399 Bathurst Street, Fell Pavilion, 4th Floor, Toronto, ON MST 2S8, Canada)

**Background:** It is believed that teaching effectiveness improves with teaching experience. However, the documentation of temporal trends in teaching effectiveness is lacking.

**Summary of work:** Teaching effectiveness scores (TES) have been used for assessment of medical teaching faculty by postgraduate trainees in the Department of Medicine at the University of Toronto (UofT) since 1992-93. Electronic submissions have been in use since 2003 using an Internet based system. The determinants of TES and the specific course of TES over time among various medical faculty groups at U of T were assessed. Data consisting of 28,907 records on overall teaching effectiveness measures were assembled on 545 teachers of varying job descriptions from the 2003-2004 academic year through to 2008-2009, inclusive and merged with key census demographic data. Mean overall TES measures were aggregated within sessions from 2003 to 2009 to examine TES progression over time by job description.

**Summary of results:** A repeated measures ANOVA suggests general improvement in mean TES performance over successive academic sessions, but with no remarkable inter-job category differences.

**Conclusions:** These results suggest that teaching effectiveness, as assessed by trainees, improves with teaching experience among both clinician teachers and researchers.

**Take-home messages:** Some teachers are born, but many can be made and improve with experience.

### 4M4 Faculty development and faculty evaluation: Two sides of the same coin

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**Background:** Faculty members are the most important asset of academic institutions. Indeed, it is quite clear that medical university faculty members are hired more for their content knowledge and skills than for their educational and scholarly expertise. Consequently, faculty may be asked to perform duties for which they have not received formal training. Because of this emphasis, faculty members are sometimes criticized for short comings in carrying out their meta-professions. Questions arise regarding what strategies are most suitable to prepare faculty members for their diverse tasks and how the performance of those professionals should be evaluated.

**Summary of work:** We have done a mixed method design in order to develop an instrument for appraising of faculty development (FD) programs and adopt international standards of faculty evaluation (FE). We investigated FE systems with the aim of achieving comprehensive FD programs.

**Summary of results:** The success of any FD initiative depends on several key factors: identification of the specific needs of faculty members, early involvement of faculty, introduction of programs such as faculty-oriented partnership, and securing the continuity of programs. Above all, FD is a necessary corollary to FE.

**Conclusions:** Although FE and FD should be two sides of the same coin, our most striking observation was dissociation between those two systems.

**Take-home messages:** We hope that the findings of this study will further encourage academic institution to give FD a central role in the strategic planning and leadership of those institutions.

### 4M5 Teaching Awards: Their Impact on Recipients and Institutions

*R Greenberg*¹², K Huggett², D Rao, B Richards (¹University of Louisville School of Medicine, Office of Medical Education, Dean's Office, 500 South Preston Street, Louisville, KY 40292, USA; ²Creighton University School of Medicine, Office of Medical Education, Omaha, NE, USA)
**Background:** Awards that recognize teaching excellence are common in medical education, yet our experience, based upon a pilot survey and formal discussions at medical education meetings, indicates that they vary greatly and little is known about their impact.

**Summary of work:** We reviewed English-language literature using multiple databases. After a review/arbitration process, we reduced a pool of 1302 publications to 120. Nineteen publications contained descriptions of 21 awards at 14 institutions; eighteen empirical investigations reported on the impact of teaching awards.

**Summary of results:** Teaching award recipients receive extrinsic rewards (money, plaques, award dinners) and intrinsic rewards (personal gratification or prestige, career advancement, retention). Teaching awards may also impact an institution in terms of prestige, support for the educational mission, or teaching effectiveness.

**Conclusions:** Teaching awards are generally viewed positively, but limited empirical evidence regarding their use and impact is available, since most of the literature focuses on description and opinion. Empirical studies of individual award winners and of the relationship between winning a teaching award and career advancement are needed.

**Take-home messages:** Teaching awards have the potential to impact recipients and institutions; however, investigations of their impact should be conducted to provide institutions with evidence-based guidance for using them most effectively.

**Intended Outcomes:** To understand the pedagogical principles and general procedure involved in formulating and writing learning outcomes, and its application to outcomes-based 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, and also whether learning outcomes will enhance or hinder learning. Closing Remarks / Summing Up.

**Who Should Attend:** All medical teachers will benefit by attending this workshop. The educational principles learned can be applied to, not only the design of a whole course curriculum, but also to a course module and even a lecture.

**Level of workshop:** Beginner.

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40 **Workshop: Two Worlds Colliding: The Clinician as Qualitative Researcher**

*C A Moulton*\(^1\), T Kennedy\(^2\) (\(^1\)Wilson Centre, University of Toronto, Toronto, Canada; \(^2\)Stan Cassidy Centre for Rehabilitation, 800 Priestman Street, Fredericton, NB, Canada, E3 B1J)

**Background:** Learning ‘how to do’ qualitative research is the goal of many clinicians pursuing research. What many do not anticipate is the parallel transition from a positivist world seeking the ‘absolute truth’ to an interpretivist world where an ‘interpretation of the truth’ is co-constructed with research participants.

**Intended Outcomes:** This interactive workshop will provide an opportunity for participants to:

1. Explore the perspectives of the positivist paradigm and how it might impede ‘good quality’ qualitative research, and 2. Explore the experience of clinician researchers who have a foot in two worlds: the positivist clinical world and the constructivist/interpretivist research world.

**Structure:** Introductory remarks will draw on the experience of the presenters, a surgeon and a physician who have recently earned PhDs in medical education research using qualitative methodology. The first small group discussion will explore paradigmatic perspectives in research, with discussion of the assumptions that participants brings to their own research. Key epistemological and methodological struggles encountered by clinicians doing qualitative research will be highlighted by the speakers, with examples from...
research proposals and publications. An interactive discussion will follow with participants sharing their own issues, experiences, and practical suggestions for clinicians straddling the two worlds of clinical practice and qualitative research.

Who Should Attend: Clinician researchers with an interest in qualitative research methods; qualitative researchers who collaborate with clinicians.

Level of workshop: Intermediate.

4P Workshop: How can clinical teachers encourage learners’ performance improvement after (multisource) feedback?

E Driessen*1, K Overeem*2, V Wass*3 (1Maastricht University, FHML/O&O, PO Box 616, 6200MD Maastricht, Netherlands; 2UMC St Radboud, Netherlands; 3Keele Medical School, UK)

Background: 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. 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 performance improvement in practice will be discussed, and teaching tips and background information will be shared.

Intended Outcomes: 1) Practice with techniques to stimulate reflection; 2) Better understanding of how to help learners to improve their performance.

Structure: After a short introduction, participants will have the opportunity to practice with delivering multisource feedback and encouraging reflection.

Who Should Attend: (Clinical) teachers, educationalists, policy makers.

Level of workshop: Beginner.

4R Workshop: Enhancing intrinsic motivation in medical students: Using Self-determination theory

Rashmi Kusurkar*1,2, Gerda Croiset*2, Olle ten Cate*1, Karen Mann*3 (1Center for Research and Development of Education, University Medical Center Utrecht, The Netherlands; 2Institute for Education and Training, VU University Medical Center Amsterdam, The Netherlands; 3Dalhousie University, Halifax, Canada)

Background: Motivation is considered important by virtually everyone in medical education. Students like motivated teachers and teachers like motivated students. When it comes to measures to assess or enhance motivation, many would welcome tools to work with. Self-Determination Theory (SDT) provides insights and practical solutions.

Intended Outcomes: Participants are able to discuss: 1. the concept of motivation and the general framework of SDT; 2. factors that influence motivation and factors that are influenced by motivation; 3. the impact of motivation on student learning, academic success and its role in selection.

Structure: 1. Introduction and grouping of participants (5 min); 2. Activity 1 (35 min); Procedure: Give different scenarios of motivation in medical students to participant groups to arrange in an extrinsic-intrinsic continuum (15 min); Discussion and presentation of SDT continuum (20 min); 3. Activity 2 (35 min); Procedure: Ask participant groups to generate factors that they think can influence motivation and factors that can be influenced by motivation (15 min); Discussion: Identify factors affecting and affected by motivation and then display findings of literature review (Kusurkar et al. 2011) (20 min); 4. Interactive discussion (10 min); 5. Summary and Reflection (5 min).

Who Should Attend: Teachers, teaching coordinators, curriculum developers, medical students

Level of workshop: Beginner.

4S Workshop: So, you are in the caring business?

A G Herbst (Subject Group Social Work, Faculty of Health Sciences, North-West University, Potchefstroom Campus, South Africa)

Background: A number of workshops with this theme were presented to a total of 213 participants from the broad spectrum of health care professionals in the private and government sectors in South Africa. The general aim was to improve emphatic communication between health care professionals and patients. The
movie ‘Wit’ is the central focus to stimulate interactive and reflective participation.

**Intended Outcomes:** The aim of this workshop is to increase emphatic communication in patient care by focusing on the following: 1) Compassion versus professionalism; 2) Ethical accountability; 3) Respect and dignity; 4) Dealing with the emotions of the health care professional; 5) Conflicts related to health sciences research.

**Structure:** The workshop starts with a personal reflection on the following: 1) Why am I in my profession? 2) Am I in the caring business? 3) What do I like about caring? 4) What do I hate about caring? The rest of the workshop is structured to include extracts from the movie ‘Wit’. These are followed-up with interactive reflections from participants around the themes included in the aim.

**Who Should Attend:** Participants from the broad spectrum of health sciences, including doctors, nurses, psychologists and social workers may benefit from this workshop.

**Level of workshop:** Advanced.

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**4T Workshop: Setting up OSCE examinations: Practical Considerations**

*K Khan*, P Pushkar, K Gaunt (1MMS, University of Manchester, LTHTR, Preston, PR2 9LT, UK; 2Mersey Deanery, Liverpool, UK)

**Background:** This workshop will be based on the forthcoming AMEE guide on ‘Setting up OSCE assessments: practical consideration’. OSCE techniques are widely used for assessment purposes in both undergraduate and postgraduate programmes. Many variations of the original OSCE techniques like OSPEs and OSSEs have been developed. To the best of our knowledge a comprehensive instruction manual does not exist in peer reviewed literature addressing the practical issues in relation to setting up and running OSCEs. This workshop will help to equip OSCE examiners and facilitators with the skills to address common issues in order to run the examinations smoothly.

**Intended Outcomes:** 1. Delegates will look at the Blueprinting and Mapping process. 2. Delegates will discuss how various types of OSCE stations could be used to achieve different outcomes. 3. Delegates will complete an exercise on developing scoring rubrics, and consider pros and cons of Analytical versus Holistic scores. 4. Delegates will complete video exercises on troubleshooting common OSCE problems and dilemmas.

**Structure:** The workshop will have a combination of facilitated small group activities, brain storming sessions and video based exercises.

**Who Should Attend:** Novice and Intermediate level OSCE facilitators and examiners.

**Level of workshop:** Intermediate.

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**4U Workshop: Teaching Medical Error Prevention**

*J Round*, S Vaughan, T Bate (Department of Paediatric Medicine, St George's Hospital, Blackshore Road, Tooting, London SW17 0QT, UK)

**Background:** Medical error is a leading cause of death, not caused by ignorance or laziness, but by cognitive mistakes and shortcuts, individual and systemic. Error reducing strategies must address cognitive mistakes, helping healthcare professionals understand how they process clinical situations, where errors arise, and how to avoid them. Any patient pathway has several key decision points. A poor decision at these risks a poor outcome. It is possible to identify these points and the faulty cognitive processes. Errors typically comprise 10 basic types. Practitioners can identify them during scenarios, in tutorials and clinical practice. Regular medical error case discussion has been a highly successful format in our institution, both in feedback and at actually avoiding errors.

**Intended Outcomes:** Participants will have understood the roots and types of medical error, and be able to identify errors as they occur. They will have tools to teach error avoidance themselves.

**Structure:** Medical error: Cognitive not Intellectual - Interactive Lecture; Identifying decision points in real cases - Small groups; Types of medical error - Interactive Lecture; Spotting errors in real cases - Small groups; Feedback - Group discussion; Teaching medical error avoidance - Interactive talk/video; Discussion.

**Who Should Attend:** Medical educators; healthcare practitioners; mentors.

**Level of workshop:** Intermediate.

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**4V Workshop: Engaging clinical teachers**

*S Trumble* (The Clinical Teacher, Melbourne Medical School, University of Melbourne, Australia)

**Background:** Most entry-to-practice courses for health professionals rely heavily on clinicians to provide clinical placements for their students. These clinicians are frequently busy, under-resourced and poorly prepared for a clinical teaching role. Course organisers need to be strategic in engaging with, recruiting and
supporting clinical teachers. A thoughtful approach can remove many perceived barriers to getting involved.

**Intended Outcomes:** Participants attending this workshop will: 1) Understand the motivating factors (and barriers) for clinicians becoming teachers; 2) Share effective strategies for overcoming these barriers to recruit and further develop clinical teachers; 3) Rehearse conversations with clinicians who are reluctant to participate; 4) Develop a plan for recruiting, developing and retaining clinical teachers upon return to their own contexts.

**Structure:** Structure includes a mix of brainstorming of objectives to be achieved, small group discussions on perceived motivations for teaching, and exploration of parallels with clinical models of behaviour. Role play will be used to rehearse skills of engaging and motivating clinical teachers. The workshop finishes with action planning for immediate implementation.

**Who Should Attend:** The workshop is suitable for all those involved in organising, developing or supporting clinical placements. It will also be useful clinical teachers themselves.

**Level of workshop:** Intermediate.

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**4W Workshop: How to design and facilitate focus groups for use in medical education: Part 2**

*J Tipping1, L Manchul2 (1Office of Continuing Education and Professional Development, Faculty of Medicine, University of Toronto; 2University of Toronto, Princess Margaret Hospital, Canada)*

**Background:** Based on requests from participants registered in the 2010 AMEE conference workshop session on focus groups in medical education and research, this workshop aims to provide the tools necessary for conducting and analysing the content of effective focus groups. Focus groups provide a means of gathering information for needs analysis, program development and evaluation, formative feedback and educational research. As a qualitative method, they can provide: invaluable information as to why people think the way they do as well as barriers that interfere with learning. Information that is difficult to ascertain through the use of standard quantitative methodologies can be determined through focus groups.

**Intended Outcomes:** In this practical and interactive workshop participants will: 1) Determine the importance of focus groups to determine learning needs assessments as they relate to principles of effective adult education; 2) Develop questions to pursue in the focus group; 3) Practice the skills of interview design; 4) Practice the skills of focus group facilitation; 5) Start to analyse the content of the focus group interview.

**Structure:** This workshop will be interactive, iterative, and provide ample opportunity to practice skills of interview design, conduct a focus group, and start to analyse focus group content. The structure will consist of a "fishbowl" focus group demonstration, a short didactic presentation on the role of focus groups and developing questions. The group will be tasked with developing focus group questions, conducting a very brief focus group, then start to analyse data for themes.

**Level of workshop:** Intermediate.

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**4X Posters: Clinical Teaching 1**

**4X1 Aged care residents: A resource for student clinical experience**

*N Koehler*, *C McMenamin (Monash University, Faculty of Medicine, Nursing & Health Sciences, Melbourne, Australia)*

**Background:** With the increase in the number of medical students and a decline in opportunities to access hospital patients, alternative methods of providing formative year medical students with a real clinical experience have to be found. Second-year medical students at The University of Western Australia currently visit low-care aged care facilities to interview residents to enhance their communication skills, learn how to establish rapport with patients and to practice taking a basic medical history. The aim of the present study was to examine medical students’ and residents’ perceptions of the interview and to establish whether residents would be willing to be physically examined by supervised medical students.

**Summary of work:** 187 second-year medical students and 24 residents completed an anonymous survey regarding their perceptions of the interview.

**Summary of results:** In general, medical students and residents rated statements pertaining to the interview favourably. The majority of residents indicated that they would be willing to be physically examined by supervised medical students.

**Conclusions:** The majority of medical students and residents had favourable perceptions of the interviews conducted within low-care aged care facilities. Communication skills including history-taking was enhanced for the students. In addition, residents indicated that they were willing to permit physical examinations by supervised medical students.

**Take-home messages:** Residents in aged-care facilities can provide formative year medical students with an alternative means to obtain a real clinical experience.
4X2 Training opportunities on the surgical wards: The patient’s perspective of medical students

P Stather*, H Cheshire (Northampton General Hospital, Cliftonville, Northampton NN1 5BD, UK)

Summary of work: A prospective survey of 80 patients on the surgical wards at two district general hospitals.

Summary of results: 40% of patients had been approached by a medical student previously, with all of these allowing the student to see them. 91% of patients would be happy to see students prior to seeing the doctor, with 90% of patients happy to undergo routine examinations, and 68% more intimate examinations by students. 91% of patients would permit a medical student to take blood, 80% would permit cannulation, and 50% would permit catheterisation. 7 patients declared that they would only permit a medical student to see them if they were directly supervised by a doctor.

Conclusions: Many of the patients questioned identified supervision of students as a key factor in determining whether they were willing to see students on the surgical wards. Although the majority of patients are willing to be seen by medical students to enhance their learning, uptake of this experience is lower than expected, demonstrating that surgical patients are being poorly utilised as an educational resource for students.

4X3 Non-mandatory cardiopulmonary resuscitation courses for health professionals in Croatia: Who is attending and why?

S Hunyadi-Anticevic*, G Pavlekovic*, D Milicic

Background: In order to gain knowledge and experience medical students must seek out learning opportunities in a broad variety of specialties, including history taking, examination, and technical skills. This study aimed to determine patient attitudes to medical students on the surgical wards.

Summary of results: 40% of patients had been approached by a medical student previously, with all of these allowing the student to see them. 91% of patients would be happy to see students prior to seeing the doctor, with 90% of patients happy to undergo routine examinations, and 68% more intimate examinations by students. 91% of patients would permit a medical student to take blood, 80% would permit cannulation, and 50% would permit catheterisation. 7 patients declared that they would only permit a medical student to see them if they were directly supervised by a doctor.

Conclusions: Many of the patients questioned identified supervision of students as a key factor in determining whether they were willing to see students on the surgical wards. Although the majority of patients are willing to be seen by medical students to enhance their learning, uptake of this experience is lower than expected, demonstrating that surgical patients are being poorly utilised as an educational resource for students.

4X4 Street Medicine: First aid training for first year student doctors and student nurses

J Rowles*, F Fossilini*, M Marshall, P Smith, C Walsh, A Burney (University of Sheffield, Academic Unit of Medical Education, 85 Wilkinson Street, Sheffield S10 2GJ, UK; Sheffield Hallam University, Faculty of Health and Wellbeing, City Campus, Howard Street, Sheffield S1 1WB, UK)

Summary of work: The day consists of lectures on first response with stroke, chest pain and epilepsy, followed by two one hour practical first aid stations, for mixed groups of 10 students, focussing on: (1) basic life support, choking and the recovery position; (2) bleeding, shock, fractures and splinting. The Peer Teaching Society recruited and trained senior students, who delivered the training. A full evaluation was undertaken.

Summary of results: 920 students completed the evaluation questionnaire (2 events). Students valued undertaking first aid training early in the course, as it increased confidence and was considered important to their training. The small group peer teaching was seen as a major strength. Students were positive about the opportunity to meet students from different professions. Issues reported with administration were resolved for the second event.

Conclusions: The Street Medicine event was a very successful way of delivering first aid training to student nurses and student doctors.

Take-home messages: First aid training can be successfully delivered by peer teachers.
4X5  Impact of tutorial section on the improvement of ambulatory clinical skills in Medical students

Pochamana Phisalpra*, Charoen Chouriyangune, Cherdchai Nopmaneejumruslers, Denla Pandejpong
(division of Ambulatory Medicine, Department of Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand)

Background: Medical students in ambulatory rotation had problems with their skills. They lacked knowledge and spent too long taking history and physical examination. This research aimed to study the impact of tutorial section on the improvement of ambulatory clinical skills.

Summary of work: Forty medical students in fifth year were enrolled and separated into two groups; previous learning method or self-learning group and new learning method or tutoring group. All of them were assigned to examine the patient in the outpatient room under supervision for 8 sessions per month. The students and patients completed a questionnaire about satisfaction and time spent per patient.

Summary of results: Twenty students in tutoring group had a better learning curve in the first 6 sessions measured by time spent for one patient (117 minutes vs. 140 minutes, p=0.004) but in the last 2 sessions, the self-learning group could improve their clinical skill and spent equal time with the tutoring group. The satisfaction of the patients in both groups were not significantly different. The final examination score in the fourth year of both groups were not different (70.2% vs. 71.4%, p=0.362). After tutorial section in the fifth year was introduced, the tutoring group had a significantly better score (72.9% vs. 76.2%, p=0.003).

Conclusions: This study suggests that medical students could improve clinical skills by themselves. Tutorial session could help them to early achieve a good learning curve and better score in final examination.

Take-home messages: Tutorial session is essential in the improvement of ambulatory clinical skills in medical students.

4X6  Attitudes and experience of medical students in performing sensitive male examinations

K Verma*, J Lo, R Turner, C Zimitat, N Sefton (University of Tasmania, Department of Surgery, GPO Box 252 – 68, Hobart TAS 7001, Australia)

Background: A nationwide Men’s Health policy is being developed to improve health service delivery to Australian males. Concurrently, the University of Tasmania is implementing a structured Men’s Health curriculum in 2011.

Summary of work: An anonymous questionnaire was given to final year medical students (FYS) to evaluate their experiences performing sensitive male examinations (SME). SME were defined as testicular (TE), inguinal (IE) and digital rectal examinations (DRE).

Summary of results: 90 of 104 FYS (86%) responded. 10% of FYS reported receiving no teaching on DREs; this figure was 39% for TEs. 9% of students had no clinical experience performing DREs. 54% and 36% of FYS felt they were not very, or not at all confident at identifying abnormal clinical signs in TEs and DREs respectively.

73% of students reported encountering limitations to performing SME, with lack of opportunity and low confidence being the most common limitations.

Conclusions: FYS are graduating with insufficient experience and confidence in performing SME. Our findings may reflect shortcomings within existing teaching methods.

Take-home messages: This research will inform development of the new curriculum to improve teaching of SME at the University of Tasmania; these findings may also be applicable in teaching institutions elsewhere.

4X7  Does structured work experience prior to applying to Medical School make a difference? 

E Webster*, A Cooper* (Rotherham General Hospital, Moorgate Road, Rotherham, S Yorkshire, S60 2UD, UK)

Background: Historically, students applying to Medical School came from medical families. This is now less of the norm and sixth formers cited the media as the source of their information for wanting to pursue a career in Medicine.

Summary of work: In an attempt to ensure that people were applying to university to study Medicine for the right reasons, the traditional model of work experience (following a consultant around) was abandoned in favour of a structured programme of talks and supervised clinical skills (on manikins) interspersed with trips to theatre, clinics and ward rounds.

Summary of results: Following the course, individuals were followed up in terms of their choices of university course and for those who eventually applied to study Medicine, whether or not they had been accepted.

Conclusions: Students who attended the early courses are now starting to appear amongst the cohorts of student doctors from the local Medical School. This model of work experience is being replicated in other hospitals.

Take-home messages: Exposing Year 12 students to this kind of work experience can help to reduce the number of problem doctors.

4X8  A tool to prepare veterinary nursing students for work-based learning placements

T Kinnison*1, H Orpet1, S Pullen1, J McNae1, C Bell2, S Baillie1 (1University of London, The Royal Veterinary College, 2Royal (Dick) School of Veterinary Studies, University of Edinburgh, Edinburgh, Scotland, UK)

Background: Exposing Year 12 students to this kind of work experience can help to reduce the number of problem doctors.
College, Hatfield, UK; University of Edinburgh, Royal (Dick) School of Veterinary Studies, Edinburgh, UK

Background: In the UK, veterinary nursing students spend approximately half of their training in placements (general practice). However, students’ preparation for this important part of their learning is often inadequate.

Summary of work: A Computer Aided Learning (CAL) tool was created based on the ‘EMS Driving Licence’, which was designed to assist veterinary students with placement preparation. Development involved consultations with nurses, nursing school staff and students. The CAL contains advice on preparation, working with people and professionalism and includes answers to students’ ‘frequently asked questions’. Student volunteers trialled the CAL and attended a focus group.

Summary of results: Five students attended the focus group. All highlighted positive aspects of the CAL such as the information on photos and confidentiality, which are “often forgotten” and the “advice on body language”. Suggested improvements included more videos and interactive features. Two Likert Scale statements were presented to the students (statement [mode]): ‘The CAL provides useful information for placements’ [strongly agree]; ‘I would recommend the CAL [agree].

Conclusions: Students thought the CAL provided useful advice on preparation for placements and would recommend it to others.

Take-home messages: Veterinary nursing students require assistance preparing for placements; a CAL has been developed for UK and overseas students and could be adapted for other health professionals.

4X9 How does being involved in undergraduate medical education change the attitudes and behaviours of patient educators? Shelley Fielden*, Rebecca O’Rourke, Sue Kilminster (University of Leeds, Leeds Institute of Medical Education, Leeds, UK)

Background: The aim of involving patients in the education of medical students is to ensure that the patient’s own personal perspective is used to enhance and inform doctor’s education. Patients are widely involved in medical education; some because of their ability, interest and enthusiasm become more closely involved, becoming a regular fixture year upon year. Do these individuals become ‘professional patients’?

Summary of work: Patient educators were invited to complete a questionnaire, and volunteer for a follow-up interview. Interviews were transcribed verbatim and qualitative data from the questionnaire and interview transcripts were grouped, coded and subject to thematic analysis.

Summary of results: I will present a summary of the research findings from this study and discuss the additional qualities that experienced patient educators bring to medical education, and the potential negative effects of an individual becoming a ‘professional patient’.

Conclusions: A clearer understanding of the effects on patient educators will help identify more effective ways of involving them in medical education and improving the experience for both patient and student.

Take-home messages: This presentation develops conceptual understandings about patient involvement in medical education and has implications for patient and public involvement in education and research.

4X10 Medical students’ attitudes towards holistic approach teaching in primary care setting J Budkaew (Khon Kaen Medical Education Center, Khon Kaen Province, CPIRD, Ministry of Public Health, Thailand, 40000)

Background: The primary care setting has posed a new challenge as an alternative surrounding for teaching and learning for medical students focusing on patient centered care. This study aimed to explore students’ attitudes towards the new learning environment.

Summary of work: Forty-eight sixth year medical students of 2010 academic year were assigned to practice in four Primary Care Units (PCU) using holistic approach with three-hour consultations in three-month interval. Interview using semi-structured questionnaire was conducted to identify students’ attitudes as well as a focus group discussion at the end of their academic year in four randomly selected students. All information was triangulated and analyzed qualitatively.

Summary of results: The students stated positive attitudes towards practicing holistic care at the PCU; the highlight themes were the core issues of holistic care: taking care of both diseases and illnesses (idea-feeling-function-expectation). The doctor-patient relationship was highly strengthened. Health promotion and prevention were actively implemented by students themselves. This approach model can be really embedded in everyday practice and in the professional career.

Conclusions: Active exposure to real patients in real situations and real time including triangulated dialogue at the PCU really enhanced students’ positive attitude towards holistic approach - patient’s mind-body-spiritual cohesion.

Take-home messages: Active, interactive learning and students’ reflection at the PCU relating to holistic care must be strongly emphasized.
4X11 The Patient-Centered Experience and the self-assessed abilities of patient-centered medical care in undergraduate medical students
K Mitsunami*, Y Takeuchi, H Tamura, T Hattori, T Bamba (Shiga University of Medical Science, Department of Family Medicine, Tsukinowa-cho, Seta, Otsu, Shiga, 520-2192 Japan)

Background: We are providing an elective course, the Patient-Centered Experience (PCE), for the first and second graders of our university. Students visit patients at their home every 2 months for a year.

Summary of work: We investigated whether the self-assessed abilities of patient-centered approaches are different between students with PCE and those without PCE. The third graders (n=86 in total) of our university, with (n=22) or without (n=64) PCE in their first and second years answered a questionnaire with self-rating scale (1: impossible to 4: possible).

Summary of results: Mann-Whitney U test revealed that the mean scores of the students with PCE were significantly higher (p<0.05) than those without PCE for the following questions: 1) Can you explain how a patient’s illness is influenced by his or her family and community? 2) Can you explain how trustful relations are built up between patients and doctors? 3) Can you explain how a patient’s illness is influenced by his or her life in the past? 4) Can you explain how a patient is influenced by his or her own enjoyment, motivation in life, and hope? 5) How many advantages of home care can you point out?

Conclusions: Scores for self-assessed abilities of patient-centered approaches were higher in students with PCE than those without PCE.

Take-home messages: Continuing patients’ home visits by medical students enhance or at least maintain their abilities of patient-centered medical care.

4X12 Student Reflections on a Patient-Centred Primary Care attachment
WY Chin (Department of Family Medicine and Primary Care, The University of Hong Kong, 3/F Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong)

Background: In Asia, many doctors are reluctant to provide, and remain skeptical towards, psychological counselling. One reason may be an inadequate undergraduate exposure, and subsequent low priority to develop further skills. In response to this, a curriculum was introduced to expose students to common psychological presentations, with the hope of changing attitudes towards the care of emotionally distressed patients.

Summary of work: Our final year Family medicine students attended a half-day, small-group (4 students) attachment to a primary care clinic with family doctors trained in counseling. Students were given the opportunity to observe and perform supervised patient-centred consultations. Skills coaching, feedback and debriefing were provided. Students were asked to write reflections on the learning achieved. Student reflections were transcribed and analyzed qualitatively.

Summary of results: Analysis was undertaken on 60 reflections. Students’ main learning outcomes were an enhanced awareness and ability to detect patient distress, and recognition of the importance of establishing a therapeutic relationship. Students expressed a wish to explore further psycho-therapeutic techniques, and felt that the attachment had made an impact on their future practice as a doctor.

Conclusions: A single, small-group, primary care attachment, focused on providing patient-centered care, was effective in raising awareness and producing positive attitudinal change towards the provision of psycho-social care.

4X13 Dyad learning - managing the patient encounter
MG Tolsgaard*, S Bjoerck, MB Rasmussen, A Gustafsson, C Ringsted (Center for Clinical Education, Rigshospitalet dep. 5404, Copenhagen)

Background: The number of students in clerkships and its impact on student learning has been a subject of discussion in recent literature. However, co-operative learning in pairs of two, called dyad training, might prove to be an advantage in terms of positive effects on learning outcome as well as other factors such as increased clinical confidence. The research question of the study was: How does dyad training affect clinical competence development when focusing on managing the patient encounter?

Summary of work: 48 year-4 medical students were trained in managing the patient encounter using 4 simulated patients. The students who were randomized to the dyad group shifted turns in acting the doctor. After 2 weeks, two year-1 residents assessed all students in two new cases using video-recordings.

Summary of results: The preliminary results suggest that there was no difference between the two groups. All data has not yet been analyzed though this will be provided in the final poster presentation including data analysis.

Conclusions: This study suggests that although students have half the training time, the dyad training is double as effective with regards to learning outcome.

Take-home messages: Dyad training might be a very effective and feasible way to train medical students in clerkships.

4X14 A study of patients’ perceptions and attitudes on assisting in undergraduate teaching
K Egan*, B Allan, HS Cameron (The University of Edinburgh, Centre for Medical Education, Edinburgh, UK)

**Background:** Research has demonstrated that learning from real patients is a valuable teaching aid for undergraduate students. Yet this is an under researched area especially when considering patients’ perceptions on participating in undergraduate teaching. This study aimed to explore patients’ perceptions and attitudes on assisting in Year 3 locomotor ambulatory teaching clinics.

**Summary of work:** Following ethical approval, semi-structured interviews were conducted with a small number of patients’ who participated in the ambulatory clinics introduced in the University of Edinburgh undergraduate medical curriculum. Semi-structured interviews were transcribed and thematically analysed.

**Summary of results:** Patients’ attitudes were affected by their involvement in teaching in a multitude of complex ways, such as altruism, social interaction, satisfaction and active facilitation of students’ learning. A full summary of the results will follow at the presentation.

**Conclusions:** Patients who participate in undergraduate teaching immensely value this experience where they can share their stories and impart their knowledge with students in a highly interactive way.

**Take-home messages:** Involving real patients in teaching presents a wide range of positive and far reaching effects for not only the student but also very much for the patient who has specific contributions to make to medical students education.

**4X15 Undergraduate medical students’ attitudes towards death**

L Niemi-Murola (Department of Anaesthesiology and Intensive Care Medicine, University of Helsinki, Finland)

**Background:** Educators should provide emotionally supportive settings in which to teach students about death and suffering. The aim of this survey was to improve strategies in regards to adherence to CPGs and death seems to be satisfactory. The third year students agreed more with item “Caring for dying patients is depressing” than first year students (mean 3.31 vs. 4.20, p<0.01). The first year students agreed more with item “I believe that I’ll learn to alleviate patient’s suffering” compared to third year students (mean 6.48 vs. 5.27, p<0.001).

**Conclusions:** During their preclinical years the students seem to become more pessimistic about their future capability to deal with death.

**Take-home messages:** End-of-life care should be explicitly discussed already during pre-clinical years.

**4X16 Systematic literature review: Factors promoting and inhibiting adherence to clinical guidelines**

S Ismaile*, J McLachlan, M Sawdon (Durham University, School of Medicine and Health, C106 Medicine Office, Holiday Building, Stockton-on-Tees, UK)

**Background:** Nurses, doctors and Allied Health Professionals (AHPs) nationally and internationally are expected to adhere to clinical practice guidelines (CPG). Adherence or non-adherence has significant implications for the delivery of evidence based health care. Although there is a body of literature relating to these professions separately, this area has never, to our knowledge, been studied on a comparative basis between the professions.

**Summary of work:** BNI and MEDLINE data bases were searched and 1058 articles were initially identified. 191 articles were selected where at least each article described either a promoter or a barrier. The researchers used abstracts and/or full bibliographic citations to identify articles. The 191 articles included 43 possible barriers and 12 possible promoters.

**Summary of results:** Our systematic literature review identifies factors that explain the reasons behind both adherence and non-adherence across health-care disciplines. Doctors are influenced by agreement and applicability in implementing CPG, whereas nurses and AHPs are more influenced by decision support, feedback and team work.

**Conclusions:** The individual literature across the different health professions regarding adherence to clinical guidelines is unlikely to be applicable across professional boundaries and institutions.

**Take-home messages:** This summary will help to improve strategies in regards to adherence to CPGs and also it highlights the need for future research.

**4Y Posters: Virtual Patients / eLearning**

**4Y1 Can use of a virtual patient affect the perceptions and attitudes of physicians in training regarding the importance of the autopsy?**
WT Gunning1, JN Kniep1, U Fors2 1University of Toledo, Department of Pathology, Toledo, Ohio, USA; 2Stockholm University, Department of Computer and Systems Science, Kista, Sweden

Background: Fifty percent of all deaths occurring during hospitalization in the USA were once autopsied. Current autopsy rates have declined to such an extent that pathology training programs are encountering difficulty fulfilling training requirements. Some programs have residents share autopsies to meet the minimum required number of autopsies performed per trainee. We are utilizing a virtual patient (VP) to educate internal medicine residents and faculty regarding the importance of the autopsy. Our goal is to emphasize the importance of the autopsy and influence clinician attitudes and perceptions of the autopsy’s role in medical education.

Summary of work: Our study includes two web-based surveys, one prior to interaction with a VP and one following disclosure of the autopsy findings. Participants are currently being solicited at USA pathology and internal medicine training programs. Our pre/post questionnaires includes demographic questions and statements to assess attitudes and perceptions regarding the autopsy.

Summary of results: Results to be presented include comparison of institution size and geographical location and Likert scale assessment of respondent attitudes and perceptions of the autopsy.

Conclusions: We believe this study will demonstrate that active learning via VP interaction can affect attitudes and perceptions regarding the autopsy.

Take-home messages: Virtual patients may be useful to demonstrate the importance of the autopsy.

4Y2 Using Virtual Problems (vp) for Teaching Veterinary Chemistry
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Background: Virtual patients are used in veterinary clinical education to foster diagnostic reasoning. This study examined if similar tools can be used by students in basic science.

Summary of work: A first online survey collected the students opinion about learning chemistry. Afterwards one group was presented a vp about polysaccharides (CASUS). In a second online survey only these students were asked. Later, chemistry exam results of the different groups were compared.

Summary of results: 107 of 150 students (71.3 %) answered the survey. Vps were thought useful by 89.9% of the students. 35 of 52 students (67.3%) initiated the given vp while 24 (48%) finished it. The students on average learned 54.9 min with vp and solved 43.4% of the questions. The second survey was answered by 31 students (88.6%). The vps were evaluated as easy to use (92.8%) and helpful for the exams (67.9%). In polysaccharide part of the exam students that finished the vps got significantly better results (73.7% vs. 63.4%, p<0,01). But they also achieved significantly better results in the whole exam (73.9% vs. 64.8%, p<0,01).

Conclusions: The vp need further adaptation and to guide the poorer students to them.

Take-home messages: It is possible to use virtual problems in education of basic veterinary science.

4Y3 Learning clinical skills through the Virtual Patient Pool
Anette Määttä*, Reetta Peltonen, Jani Pirinen, Kari Heinonen, Kalle Romanov and Eeva Pyörälä (University of Helsinki, Faculty of Medicine, Helsinki, Finland)

Background: The Virtual Patient Pool (VPP) was introduced at the University of Helsinki, Finland, in February 2007. It simulates a real doctor’s reception, where medical students can freely utilize various methods of examination.

Summary of work: During the clinical period of their studies, the medical students at the University of Helsinki can use the web-based VPP to practice examining patients. A new patient case is presented every month, and different specialities are represented in turn. After reaching a diagnosis, the students can see a ranking list, which shows their performance compared to that of the others. During the last two years, nearly half of the students have been regular users of the VPP, each one having solved at least ten cases. Since January 2011, the monthly cases have been available also in Swedish, which is the second official language in Finland. In the poster we’ll present opinions of the medical students on the VPP and the ranking lists as well as on the bilingual examination option.

Take-home messages: Virtual patient databases offer a practical and fun way of learning clinical skills and logical problem solving. They can also help the students to learn the medical terminology in different languages.

4Y4 Using virtual patients as preparation for paediatric bedside teaching – a blended learning approach
A Simon1,2, R Lehmann1,2, G F Hoffmann2, B Tönshoff2, S Huwendiek1,2 (Centre for Virtual Patients, Medical Faculty, Ruprecht-Karls-University Heidelberg, Im Neuenheimer Feld 153, 69120 Heidelberg, Germany; 2University Children’s Hospital, Im Neuenheimer Feld 430, 69120 Heidelberg, Germany)

Note: AMEE 2011 Abstract Book: 29-31 August 2011, Vienna, Austria
**Background:** We have developed teaching videos to demonstrate how to perform physical examination of children. These are intended to help students better prepare for bedside teaching so that the limited time available is used more effectively. The evaluation of the pilot trial demonstrated that students gauged the videos as a positive learning experience. Virtual patients (VPs) are increasingly used in medical education to prepare students for interactions with actual patients. Currently there are no studies comparing conventional videos with VPs in preparing students for bedside teaching.

**Summary of work:** Four cardinal symptom-based VP cases related to physical examination of children were developed. These cases emphasize important steps of pediatric physical examination, which are demonstrated through integrated videos. During the upcoming summer semester these VP cases will be implemented along with four conventional teaching videos to prepare students for bedside teaching. Through focus group analysis, design, curricular integration, and educational value of the VPs will be compared to the conventional videos.

**Summary of results:** The results of the focus group analysis will be presented.

**Conclusions:** The conclusions of our results will help to optimize methods for preparing students for bedside teaching with support of videos and VPs.

**Take-home messages:** We expect VPs to prove more effective at preparing students than conventional videos.

**4Y5 Using ‘virtual patients’ to teach medical undergraduate and postgraduate students: a qualitative study of different design properties.**

*J Bateman*1,2, ME Allen2, D Davies3 (*1University of Warwick, Institute of Clinical Education, Coventry, UK; 2University Hospitals Coventry and Warwickshire NHS Trust, Coventry, UK; 3University of Southampton)*

**Background:** “Virtual patients” (VPs) are web-based representations of clinical cases, best placed to teach clinical reasoning skills. There is only limited research to support different VP designs, and no direct research into the influence of these designs in different training grades.

**Summary of work:** Contrasting VP design properties (e.g., branching types, questioning, feedback) were derived from a literature review and open access VPs. They were used to author two musculoskeletal VPs specifically for this study. Following institutional ethics approval, four focus groups (n=6–8) of undergraduate and postgraduate medical trainees were completed. Volunteers individually completed two 30-minute VP cases, case evaluations, and a one-hour moderated focus group.

**Summary of results:** Computerized thematic analysis suggests (1) all training grades found the same cases useful and (2) there are differences in the effectiveness of design properties across training grades. For example, explicit hypothesis generation and sifting were judged more relevant to junior trainees. Undergraduates suggested branching pathways increased case realism at the expense of their educational impact, when compared to linear cases.

**Conclusions:** We present data to support a new hypothesis that branching cases have potentially conflicting effects on case realism and learning outcomes, influenced by training grade.

**Take-home messages:** VP design properties may influence their educational impact in different training grades.

**4Y6 Integrating neurology clinical teaching from year 1 of undergraduate medicine using Virtual Patient**

*SJ Slaght*4, A Webb5, S Choi6 (*1Department of Neurology, Southampton General Hospital, Tremona Road, Southampton SO16 6YD, UK; 2MP820, School of Medicine University of Southampton, Level 2, SAB, Southampton General Hospital, Southampton, SO16 6YD, UK)*

**Background:** Neurophobia continues to be a problem for medical students and doctors. Neurology is perceived as a difficult subject and can be poorly taught. Integration of early clinical experience helps highlight the relevance of basic science knowledge to the diagnosis and treatment in Neurology. Virtual patients (VP) provide structured learning of both basic sciences and clinical neurology, illustrating realistic patient journeys.

**Summary of work:** A VP with a brachial plexus injury, integrating neuroanatomy with clinical reasoning, has been developed for the Year 1 Nervous and Locomotor course at the University of Southampton. Its effectiveness has been investigated using a mixture of qualitative and quantitative methods.

**Summary of results:** 181 out of 213 students took part in the study. They found the VP a useful learning tool, helping them contextualise their learning and improve application of basic knowledge in Neurology. The improvement between the pre- and post-tests is 17%. The students’ perception of their understanding in neurology before and after has improved by 55%. Further analysis is being conducted.

**Conclusions:** A VP can help students improve knowledge of basic and clinical Neurology.

**Take-home messages:** VPs can help students apply basic neuroscience knowledge in clinical context, aiding their learning and can be an important tool in overcoming neurophobia.
4Y7  A pilot study exploring the utility of virtual patients (VPs) to final year medical students preparing for an OSCE in emergency medicine

M Charlton*, S Corry*, R S Patel, J Acheson, S J Carr (University Hospitals of Leicester NHS Trust, Leicester, UK; East Midlands Healthcare Workforce Deanery, Leicester, UK)

Background: Medical students should demonstrate competence in a variety of contexts when managing acutely unwell patients presenting to the emergency department. The experience of students is dependent upon case-mix and may vary depending on the time of year they learn the specialty, or their timetable during the placement.

Summary of work: The utility of VPs to medical students in addressing this problem and ensuring they met learning objectives prior to assessment was explored. Eight virtual patients were released to 49 medical students over a seven-week undergraduate rotation. Usability data (e.g. scenario completion, error-free rate and task completion time) were collected alongside subjective assessments from focus group discussions for the evaluation.

Summary of results: 12% of students completed 5 or more cases (‘high-users’), however, 63% of students completed one or no cases. The majority of ‘high-users’ were below the 50th centile for academic performance. Students cited practice in a safe environment and responsibility for managing emergency situations as benefits. Technical problems and case completion times were negatives.

Conclusions: VPs provide authentic learning opportunities for medical students learning emergency medicine. Uptake of VPs may be correlated with perceived usefulness for passing at assessment, or prior academic performance at medical school.

Take-home messages: VPs may provide opportunities for developing undergraduate clinical reasoning skills in emergency medicine.

4Y8  Making a case: Validating criterion-referenced guidelines for virtual patient case authoring

N Posel (The Lady Meredith House, McGill University, 1110 Pine Avenue West, Suite 18, Montreal, Quebec, Canada H3W 1Z7)

Background: This dissertation explored virtual patient (VP) cases in undergraduate medical education; developed guidelines for VP case-authoring based on principles of pedagogy, theories of cognition (1), and technical specifications; and validated these with nine expert VP case authors. Research questions: 1. How are VP cases developed and utilized in the schools of medicine represented by the research study participants? 2. Do the guidelines represent VP case-authoring processes used by study participants?

Summary of work: A qualitative multiple-case study design was utilized. A purposeful sample of nine educators from six medical schools with expertise in VP case-authoring individually completed two activities in the field. These included (a) a semistructured interview that explored the use of VP cases in participants’ schools, as well as specific VP case design elements, and (b) a written review of the VP case-authoring guidelines.

Summary of results: Themes that emerged from the semistructured interviews suggested that VP cases (a) facilitated the integration of basic sciences with clinical encounters, (b) provided opportunities for deliberate practice (2), (c) addressed gaps in existing curricula, (d) permitted access to uncommon or unavailable situations and longitudinal care trajectories, and (e) modeled professional approaches to therapeutic dynamics. Participants noted limited research, evidence, and peer-reviewed publications. Participants underscored the importance of case design elements such as case narrative, aligning complexity with the level of the learner, integrating assessment and feedback, and using active learning methodologies. The guidelines were then presented to participants. Of the 205 elements represented in the guidelines, participants actively agreed with 178, added 17, and disagreed with 8. This activity resulted in revised VP case-authoring guidelines. Participants recalled 112 design elements during the semistructured interviews, but recognized as relevant 172 when they reviewed the guidelines. This disparity suggested that VP case-authoring guidelines could provide authors with a structured and comprehensive framework.

Conclusions: Participants provided extensive rationales to support the use of VP cases as part of core curricula, and validated that the guidelines, developed for this research, were consistent with their design strategies. The guidelines were revised to include participant feedback in addition to their initial theoretical frameworks; and knowledge of VP case-authoring design methodologies was extended. The new guidelines will support future VP case authors.

4Y9  Making medical podcasts for the mobile generation

H C Muir*, D J Early, L Combe, S A Houston, A J P Robb, B Stewart (College of Medical, Veterinary and Life Sciences, Room 427, Wolfson Medical School Building, University of Glasgow, G12 8QO, UK)

Background: Along with other Web 2.0 technologies, podcasts constitute interactive educational tools that have potential as part of a blended learning curriculum.
The use of podcasts in Undergraduate medical training is sparse; existing material often lacking in quality.

**Summary of work:** Four medical students of the University of Glasgow produced a series of practical skills podcasts taken from the GMC ‘Tomorrow’s Doctors (2009)’ and under supervision of clinical experts. These were made available for download from the University Webpage. Qualitative evaluation by method of questionnaire was commenced.

**Summary of results:** Preliminary data from 45 students provided feedback about the format, usefulness and accessibility of podcasts. 98% of students thought that the podcasts were an appropriate length and included the correct content. They stated that their main goal for using the podcasts was to ‘learn for the first time’, ‘revise’ and ‘refresh skills’. 85% said they would download the podcasts onto personal devices, with 89% running a podcatcher program.

**Conclusions:** Evaluation will continue and in the future it will be possible to collect data on the impact on exam outcome. We hope to further develop the podcasts and make them available for other Universities.

**Take-home messages:** Well-produced practical skills podcasts provide a valuable learning resource and are evaluated highly by students.

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**4Y11 Evaluation of satisfaction and changes in medical student knowledge after introduction of a depression web module**

*W Jordan*, J Purcell, P Joo (Albert Einstein College of Medicine of Yeshiva University, Montefiore Medical Center, Department of Family and Social Medicine, 3544 Jerome Ave, Bronx, NY 10467, USA)

**Background:** Depression is among the most common illnesses in primary care settings, yet most cases still go undetected and untreated.

**Summary of work:** To strengthen education on depression in our 4-week family medicine clerkship, in December 2009 we added a web module to an existing lecture. Module objectives included applying knowledge of guidelines on screening and diagnosis.

**Summary of results:** Comparing 41 students from December 2008-June 2009 to 45 students from the same period of 2009-2010, the percent of students answering correctly increased from 90.2 to 100 on exam item 1 (p=0.0477, Fisher’s exact test) and from 82.9 to 93.3 on exam item 2 (not significant, p=0.1827), with no change in self-perceived knowledge (p=0.8292). The average score on a 5-question web module post-test was 4.62 (SD=0.68). 62% of students completed the module in 1-2 hours, 84% agreed or strongly agreed with positive statements about module format, and 93% felt the module improved their understanding.

**Conclusions:** Attitudes of family medicine clerkship students were favorable towards the content and format of a web module on depression. Knowledge improved but the small sample size limited the ability to confirm this.

**Take-home messages:** A web module is satisfactory to students and may be effective for teaching about depression in a family medicine clerkship.

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**4Y12 SDL triggering capacity of online formative: Is that fit for the 3rd year Thai Medical students, the lesson from Thammasat University**

*N Suealek*, S Kongkham, P Chatiketu, A Taylor, W Krudprathum, K Wittayavanichai, S Eiawsakul, P Ropjibulstit (Faculty of Medicine, Thammasat University)

**Summary of results:** Of the 110 students approached, 70 consented and completed pre-tests. Thirty-five (50%) received PDAs. Pre-test scores were 27.1 ± 4.5 vs. 24.1 ± 3.7; post-test scores were 30.6 ± 4.0 vs. 26.3 ± 8.3, p=0.072; difference between pre- and post-tests were 4.5 ± 3.3 vs. 2.0 ± 6.9, p=0.201; NMBE scores were 74.1 ± 8.6 vs. 72.6 ± 7, p=0.430; for the PDA and control groups respectively. PDA group reported improved self-perceived learning and experience, p <0.01.

**Conclusions:** Rapid and convenient access to medical knowledge on a portable computing device improved student’s perception of learning but no improvement in objective parameters of learning.

**Take-home messages:** Future studies with adequate power may demonstrate better learning utilizing handheld technology.
Discus cases from their clinical practice providing a basis for discussion with tutor feedback. Participants were then assigned to complete questionnaires for evaluating SDL skills and satisfaction on each learning material using five rating scales. Data were analyzed by using Paired t-test.

**Summary of results:** The results (64% response rate) showed that online format had lesser capability for both triggering the SDL skills and achieving satisfaction (p-value < 0.05).

**Conclusions:** This result implies that today’s learner loved to assess online information this was favored more for their own entertainment. Especially in Thai culture, the students preferred face to face communication for discussion on the content rather than one-way communication as an online module.

**Take-home messages:** It is necessary to design an online format in a more flexible approach, with more automatic corrections, more interaction and even a real-time discussion.

**4Y13 E-learning dermoscopy: An innovative approach to teaching a clinical skill**

_4Y13 E-learning dermoscopy: An innovative approach to teaching a clinical skill_  
_R Gamanya*, M Gonzalez (Department of Dermatology & Wound Healing, Cardiff University, Cardiff, UK)_

**Background:** Central to a physician’s ability to effectively manage skin cancer is the acquisition of relevant clinical examination skills. Dermoscopy is a technique in which an instrument – the dermatoscope is used to examine skin lesions. Competency in dermoscopy improves diagnostic skills and reduces unnecessary surgical excision of benign lesions. Most dermoscopy courses require face-to-face interaction, occur away from the workplace and require time off busy work schedules. To address these restrictions a novel approach to teaching dermoscopy, delivered entirely through a collaborative virtual learning environment was developed.

**Summary of work:** The aim is to develop competency in using the dermatoscope in the diagnosis of skin cancer. The ASSURE model underpinned by a constructivist epistemology was utilized in instructional design. Collaborative learning occurs through highly interactive asynchronous as well as synchronous case-based discussions with tutor feedback. Participants discuss cases from their clinical practice providing a platform for real-life learning. The ‘virtual dermatoscope’, a tool simulating the real dermatoscope using authentic clinical cases with instantaneous feedback, enables participants to practice the skill.

**Conclusions:** This innovative e-learning dermoscopy course enables acquisition of a job-related clinical skill in a flexible convenient environment.

**Take-home messages:** Used appropriately virtual learning environments can effectively be used to teach clinical skills.

**4Y14 E-learning Course for Students of Dentistry**

_4Y14 E-learning Course for Students of Dentistry_  
_T Dostalova*, J Feberova, M Stankova, M Seydlova, S Stipek (Charles University, 2nd Medical Faculty, Department of Paediatric Dentistry, Prague Czech Republic)_

**Background:** Computer-aided learning was first employed in 1971 at University of Kentucky and has since been developed in three main directions – computer-based training, web-based training and the learning management system, the most advanced method of e-learning.

**Summary of work:** Sample of 240 students from our dental clinic was evaluated. Courses were developed using an LMS Moodle. Research was then focused on the visit rates of different parts of the program, with this then being followed by evaluation.

**Summary of results:** Students mainly utilized the e-learning program in gnatology (171 persons – average 2.03 accesses per lecture, median: 1.42 and SD: 1.82). Significant pattern was also discovered in the visit rates of study materials. Wilcoxon Sign Rank Test was also utilized following Bonferroni correction. Students mostly turned to the PPT format in Prosthetic Technology and Materials course, with 24% returning to at least one lecture after 7 days and 10% after 3 months.

**Conclusions:** Our 5-year prospective study confirmed the advancement of dental teaching and learning through the use of modern information and communication technologies.

**Take-home messages:** The overall shortage of teachers at dental schools, necessity of lifelong education of dentists and the emphasis placed on practical skills are the main factors leading to the creation of e-learning programs.

**4Y15 Implementation of a web-tool for management of individual development plans in the Health Care System of Andalusia**

_4Y15 Implementation of a web-tool for management of individual development plans in the Health Care System of Andalusia_  
_M Perianez*, T Esposito, A Castro, A Boza-Rivera, V Reyes-Alcazar (Andalusian Agency for Healthcare Quality, Seville, Spain)_

**Background:** The students in the new millennium are interested in learning on the internet. It fascinated us whether the online format has more ability to trigger self-directed learning (SDL) skill than paper-based (in-class) format in Thai Medical students in Thammasat University.

**Summary of work:** 40 multiple-choice question (MCQ) format in reproductive system were assessed online and 42 MCQ format were assessed in-class by the 3rd year Medical students. They were then assigned to complete the questionnaires for evaluating SDL skills and satisfaction on each learning material using five rating scales. Data were analyzed by using Paired t-test.

**Summary of results:** The results (64% response rate) showed that online format had lesser capability for both triggering the SDL skills and achieving satisfaction (p-value < 0.05).

**Conclusions:** This result implies that though today’s learner loved to assess online information this was favored more for their own entertainment. Especially in Thai culture, the students preferred face to face communication for discussion on the content rather than one-way communication as an online module.

**Take-home messages:** It is necessary to design an online format in a more flexible approach, with more automatic corrections, more interaction and even a real-time discussion.
Background: This experience is from the Quality Observatory for Health Care Training. The objective is the online construction of the individual itineraries of learning of the professionals from Health Care System of Andalusia (SSPA).

Summary of work: The Web-tool allows the online construction of improvement plans, which starts from the reflection of the professionals about their initial level of qualification in the specific practices. Also it allows a decentralized and independent management by the care units, favouring the exchange of knowledge. Functionalities: Configuration of type maps for each job and individual maps; Self-evaluation; Detection of gap of each professional; Construction of the individual plan and units training Plan: automatic prioritization of practices with greater need of development; Construction of the training plan for the organization.

Summary of results: The web-tool was implemented in 62 care units from 24 care organizations. Nowadays 380 professionals of different disciplines already have their individual development plans. Throughout 2011 it will be spreading to the totality of the professionals.

Conclusions: The construction online of this individuals plans, through learning itineraries, facilitate the evaluation of the training in the development of the professionals.

Take-home messages: The web-tool is favouring the implementation of the corportive model of management of competences in SSPA.

4Y16 The Design of New Teaching Model of Neuroanatomy to Prevent Neurophobia in Preclinical Medical Students
John Yung-Sung Cheng1,2, Ting-Kuang Yeh2, Chu-Yen Chang2 (1Department of Neurosurgery, Taipei Medical University Hospital; 2Graduate Institute of Science Education, National Taiwan Normal University, Taipei, Taiwan)

Background: Neurophobia, being described as “a fear of the clinical neurosciences”, is a longstanding problem among preclinical medical students. The lack of knowledge in the complexity of neuroanatomy is regarded as one of the most important reasons. Therefore, a new teaching model of neuroanatomy was developed.

Summary of work: We combined traditional method and contemporary virtual reality technologies to design this new teaching model of neuroanatomy, including anatomical atlas sketch, pretest and posttest of reading brain computed tomography scans, and teaching with dextroscope. During July 2009 and July 2010, fifty-five medical students in Taipei Medical University Hospital were enrolled in our study.

Summary of results: The significant improvement between the mean scores of pretest and posttest was observed. Questionnaire results revealed that most of the students express strong positive attitude toward learning in dextroscope, and the teaching model of neuroanatomy. Moreover, they also showed more confidence on learning neuroanatomy after being taught with dextroscope.

Conclusions: A carefully designed teaching model of neuroanatomy could possibly help medical students to overcome neurophobia. Besides, dextroscope is a friendly learning environment of virtual reality.

Take-home messages: The traditional method of teaching neuroanatomy could be integrated with new virtual reality technologies to innovate a curriculum of the future.

4Y17 A new approach to teaching anatomy using computer-based interactive activities
Amy Rubio1,2, Octavio López Albors2, Raymond Macharia3, Nick Short4 (1Royal Veterinary College, Royal College Street, London NW1 0TU, UK; 2University of Murcia, Spain)

Background: Medical and veterinary students often experience problems in studying anatomy due to the need to interpret 2D textbook images as 3D anatomical structures. Recent advances in technology offer new ways of teaching anatomy including the use of annotated video and animation to promote a 3D appreciation of real life structures. These new approaches appear to complement existing teaching practice in the identification of gross structures and help to promote deep learning.

Summary of work: This paper describes the development and application of a range of computer based interactive anatomy activities using the Dragster®, (Webeducate.net) software package. This program allows students to label anatomical images and videos using a browser based drag and drop application. Students then receive immediate feedback and instructors can analyse cohort results. In this project, drag and drop labels had direct links to the relevant page in WikiVet where students could read up on any structures that they did fully understand.

Summary of results: These interactive resources have been trialed with pre clinical veterinary students from both the Royal Veterinary College and University of Murcia, Spain.

Conclusions: The results show that the interactive activities not only enhance the recognition of anatomical structures but also appear to encourage deeper learning.

4Y18 Students’ views on integrating virtual patients with tutorials.
M Robbins*, A Chu, J Fuller (Barts and The London, Queen Mary School of Medicine and Dentistry, Institute of Health Sciences Education, London, UK)
**Background:** There are various ways that tutorials can affect how virtual patients are utilised; from improving understanding by discussing with peers to providing extrinsic motivation to ensure they are completed. This study sets out to explore these different factors.

**Summary of work:** 50 volunteers were taken from the three clinical years at Barts and the London School of Medicine. Access to four newly designed virtual patients was provided over four weeks via the universities’ virtual learning environment. Tutorials were organised for students and focused on some of the higher cognitive skills and knowledge that were required to complete the virtual patients. Questionnaires, focus groups and interviews were used to both record how often the virtual patients were used and establish the students’ opinions on how integrated tutorials would affect their learning. Many questions focused on virtual patient use within the third year as the current plan is to introduce the virtual patients into the 3rd year PBL curriculum. Other questions focused on tutorial content and format as well as different motivating factors.

**Summary of results:** The presentation reports on the findings of this study.

**4Y19 Tablet and touch screen technologies in medical education**
J Kirtley, D Evans*, D Roland (University Hospitals of Leicester, Clinical Education Centre, Glenfield Hospital, Groby Road, Leicester LE3 9QP, UK)

**Background:** The availability of tablet computers has opened up a number of opportunities to enhance the delivery of medical education. However as with all new technologies it is important to remember that relevant and valid function is vital regardless of how attractive the form is.

**Summary of work:** We hosted a “touch screen” technology information sharing group at a large tertiary hospital and invited health care professionals, medical educators and knowledge specialists. The group had the purpose of discussing a number of themes: • Scene Setting; • Data protection and other security issues; • Basic guidance on functionality; • Application Availability.

**Summary of results:** 12 participants attended and interestingly most participants were not active tablet users but were extremely interested in learning about their use in education. Learning groups emerged between participants, especially the clinical librarians (users) and non active clinical practitioners. Knowledge of current education applications was not as good as we had expected.

**Conclusions:** The group has enabled us to define some themes to assist other medical educators in running tablet, mobile or android technology users groups. We suggest the following format: 1. How is the technology being used currently? 2. What future developments are of interest to the users? 3. What are the barriers to current and/or future use? 4. What support and resources are required to overcome these barriers?

**Take-home messages:** In order to maximise the potential of this new and potentially useful educational tool, information sharing frameworks should be established.

**4Y20 Exploring medical students’ use of and attitudes towards educational SMS text messages**
S Bdesha*, J Alcolado (Barts and the London School of Medicine and Dentistry, Centre for Medical Education, London, UK)

**Background:** The computing power of the new generation of ‘smart’ mobile telephone is generating considerable interest about their potential use in medical education, which has fuelled the development of a number of ‘Apps’ aimed at this market. The aim of this project is to study the potential use of SMS text messaging in medical education as it has the advantage over ‘Apps’ of being available on all mobile telephones. SMS text messages are also straightforward to send to a large group of people by using web-based software and offer an immediate channel to reach students away from the classroom.

**Summary of work:** 142 first year students and 169 second year students at Barts and the London were sent one or two text messages a day to their mobile telephones during their 3 week module of ‘Locomotor’ and ‘Human Sciences and Public Health’, respectively. The content included textbook references, questions based on recent lectures and and general questions designed to get students to think about a specific topic. Questionnaires and focus groups are then used to discover how the students used the messages, whether they found the text messages acceptable, and their perceived usefulness and benefits.

**Summary of results:** The presentation reports on the finding of this study.

**4Y21 Quality criteria for Blended Learning:**
Administration and implementation of a curriculum for Blended Learning in postgraduate continuing medical education in Germany
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**Background:** Quality criteria for E-Learning in undergraduate medical education were developed through a multimodal process. The
Bundesärztekammer established a working group which defined guidelines and criteria for good E-Learning in continuing medical education. Based on these guidelines a curriculum should be developed for the implementation of these guidelines.

Summary of work: Based on the DIN PAS 1032, 1068 (Public Available Standard) Norms and the development of facultywide quality guidelines, a process was developed to transform these rules into a curriculum to train the trainers and organizer of such courses. Outcomes for a two day workshop were defined. An evaluation was conducted after trainees have taken part in the training sessions.

Conclusions: Implementation of accreditations rules for E-Learning in CME should be sustained by federal institutions. Transformation of general quality criteria like the DIN PAS standard to the special needs of CME and the development of training curricula for organizers of technology based CME-scenarios is a helpful step in the facilitation of new learning technologies into daily practice.

4Y22  Effects of SMS and e-mail application on GP participation in CME
A Yakhforoshha*, S Sadeghipore (Qazvin Medical University, Iran)

Background: According to continuing medical education law in Iran all the persons who are involved in the health care system should pass education courses held by universities. Using new information technologies such as SMS and E-Mail in university’s CME programs will play an important role in participation rates. This study will review the effect of SMS and E-Mail application on general practitioners’ participation in continuing education programs.

Summary of work: In this qualitative research, information has been gathered with the semi structured interview and focus group discussions with 25 of the GP participating in CME program of Qazvin Medical University. The accuracy of data has been confirmed by participants and reviewed by external monitors.

Summary of results: Findings from review, sorting and evaluation of topics of interviews showed that use of SMS and E-Mail on CME programs promoted easy access to information, prevention of waste of time, awareness of program changes, reduction in costs and transportation.

Conclusions: Participants found these methods more useful and effective than traditional methods of information such as posters and pamphlets.

4Z Posters: OSCE

4Z1  Targeted supplementary skills teaching for students at risk of failing the end-of-year OSCE
M F F Mueller*, K Boardman, E MacMahon, D Evans (School of Medicine at Guy’s, King’s College and St Thomas’ Hospitals, London, UK)

Background: The MBBS part-3 exam board at King’s College London introduced a new rule exempting students who pass two “in-course OSCEs”, held sixteen weeks apart, from the end-of-year OSCE. This innovation allows the course organisers to identify students at risk of failing the end-of-year assessment and offer supplementary skills teaching.

Summary of work: Students were invited to attend four two-hour long skills learning sessions based on the Evans-Brown constructivist model for skills learning. The focus of the sessions is on learning how to learn clinical skills.

Summary of results: The first in-course OSCE identified 49 students at risk of failing the year. 23 students attended at least three or more teaching sessions. Evaluation showed students reported increased confidence in learning clinical skills and would recommend the course to fellow students in difficulties.

Take-home messages: In-course training in metacognitive skills instead of cramming clinical skills is acceptable to medical students.

Conclusions: Short intervention promoting learning metacognitive skills instead of teaching to the test is acceptable to medical students.

4Z2  I failed the OSCE. Help me to pass!
R Sugden*, R Phillips, R Tilley (King’s College London, Department of General Practice, London, UK)

Background: Having failed Finals, medical students repeating the preparatory year for practice in the NHS, have a strong desire for teaching to “pass the test”. KCLSM offers an academic support programme for such students. Some students appear not to fully appreciate the complexities involved in the process of ensuring they are safe to graduate and practice as doctors. We report an initiative aimed to address this.

Summary of work: Fifteen students took a formative OSCE. In addition to being a candidate at every station, each was assigned the role of examiner at one station rating a peer’s performance using global scores. Afterwards, students re-considered OSCE performances using a reflective tool.

Summary of results: Students reported increased understanding of factors affecting functioning under examination conditions, especially aspects of professional behavior and patient safety, putting the
learning from the examination into the context of future work in the NHS. They also reported better understanding of the examiner’s task.

**Conclusions:** Students were enabled to develop greater insight of the task as a whole as opposed to trying to learn the OSCE score sheet.

**Take-home messages:** A simple intervention can help students develop new metacognitive skills, improving their ability to assess their own performance and learn from the experience.

**423 Exploring the Utility of Videotaped Objective Structured Clinical Examination in the Assessment of Pediatric Examination Skills of Medical Students**

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**Background:** Our objective was to determine whether assessment by videotaped OSCE is as reliable as live OSCE assessment.

**Summary of work:** A 2-station Pediatric OSCE was administered and the performance was assessed by experienced pediatricians on OSCE stations. The stations were also videotaped and scored by another pediatrician independently at the same time.

**Summary of results:** Mean values for the hematuria OSCE checklist were 17.3 by live assessment and 16.6 by video and 18.6; and 16.4 for live and video vaccination assessment, respectively (n = 75). Intraclass correlation coefficients for hematuria and vaccination checklists were 0.69 and 0.47, respectively, indicating moderate reliability between live and video scores for the OSCE checklists. Global rating scale scores were 80% and 76% agreement in the classification of examination grades (kappa = 0.36, P = 0.001 and Kappa 0.32, P = 0.002, respectively).

**Conclusions:** Pediatric video OSCE has the potential to be reliable as live OSCE and offers some advantages. Further work is needed to support our findings and to implement and evaluate the quality assurance issues identified in this work.

**424 VDO Objective Structured clinical Examination in the history taking**

_O Akaraborworn (Department of Surgery, Faculty of Medicine, Prince of Songkla University, Thailand)*

**Background:** Objective Structured Clinical Examination(OSCE) is the clinical skill assessment tool that is widely used. The reliability of this tool depends on many factors such as the number of stations, time used in assessment, the standardized patients and the raters. VDO assisted OSCE assessment is the method that might replace a real time rater and increase the reliability.

**Summary of work:** In the objective structured clinical examination for the fifth year medical students in the emergency medicine rotation, we had a 5-minute OSCE station about the history taking of a rape victim of a total of 15 students. The test was held as the standard method and the VDO recorder was used during the test. The real time rater and the VDO rater were not the same person, but using the same checklist. We compared the total score and the global scales of the real time assessment with the assessment score from VDO record.

**Summary of results:** Both total score and the global scale from the real time assessment and the VDO record assessment are not statistically different. The average total score from the real time assessment was 64.13 while the total score from VDO assessment was 59.93. (P=0.242)

**Conclusions:** The VDO assisted OSCE assessment is a reliable method in a history taking station.

**425 Interrelation among level of difficulty of OSCE stations, trainees’ self-rating, and examiners’ rating on postgraduate OSCE performance**

_Cheng-Yuan Wang_2, _Jo-Chu Yen_3, _Yu-Chih Lin_1, _Yung-Yun Chang_2, _Kun-Tai Li_2, _Jeng-Hsien Yen_2, _Jer-Chia Tsai_2

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**Background:** Quality assurance of OSCE should be achieved by multiple sources of evidence. This study aims to investigate the interrelation among level of difficulty of OSCE stations, trainees’ self-rating, and examiners’ rating on OSCE performance.

**Summary of work:** The studied subjects included 67 PGY trainees and 53 examiners and 12 OSCE stations. Level of difficulty of OSCE stations was measured by Rasch model. Self-rating on OSCE performance was measured by a scale of 1 to 9. Examiners’ rating was based on passing rates using “Borderline method” or “Borderline regression method” as standard setting.

**Summary of results:** The passing rate ranged from 55.1% to 95.7% for each station. There was a negative significant correlation between trainees’ self-rating and level of difficulty (r=-0.623, p<0.05). Moreover, self-rating correlated with examiners’ rating by “Borderline regression method” (r=0.612, p<0.05) but not with examiners’ rating by “Borderline method”.

**Conclusions:** A significant interrelation between self-rating and level of difficulty of OSCE may suggest trainees’ self-awareness on their OSCE performance. Borderline regression method might be more suitable than borderline method for standard setting from the viewpoints of trainees’ self-rating.
Take-home messages: Trainees’ self-rating on OSCE performance corresponds to level of difficulty of OSCE and also more closely relates with examiners’ ratings by borderline regression method.

426 Is Cronbach’s alpha always the best tool to assess OSCE reliability?
P Cooles (Ross University School of Medicine, PO Box 266, Roseau, Commonwealth of Dominica, West Indies)

Background: Cronbach’s alpha is widely used to assess reliability of OSCE exams.

Summary of work: End of second year OSCE exam results were examined for reliability and compared with the reliability of examiner training sessions.

Summary of results: Low values were found consistently in assessing otherwise apparently valid OSCE exams but higher values in examiner training sessions.

Conclusions: Cronbach’s alpha may not be the best index of reliability in exams with stations which change and test quite different skills.

Take-home messages: Other tools to assess examiner consistency may be more useful in assessing OSCE exams.

427 How we use a combined medical sciences OSPE and clinical skills OSCE to examine students in an integrated medical course
Predrag Bjelogrlic*, Andrew Wood, Susan Whiten, Jim Alton (School of Medicine, University of St Andrews, St Andrews, KY16 9TF, UK)

Background: The School of Medicine at the University of St Andrews uses an Objective Structured Practical Exam (OSPE) and an Objective Structured Clinical Exam (OSCE) to examine both medical sciences and clinical skills. The aim of this exam is to examine the practical medical sciences and clinical skills components of the course in an integrated manner in all three years of undergraduate course.

Summary of work: We performed a review of all exam questions in the question bank and provide relevant examples of integrative questions. We analysed the test results for each of the three years in our undergraduate medical course.

Summary of results: Student performance in practical and written exams were analysed and compared and the results will be discussed.

Conclusions: It is possible to examine medical sciences and clinical skills in a combined OSPE / OSCE. These exams sample scientific knowledge and clinical skills ability. They encourage students in the early years of training to integrate medical sciences and clinical skills.

Take-home messages: A combined OSPE / OSCE explicitly confirms the links between medical sciences and clinical skills proficiency and demonstrates that this examination offers convergent validity.

428 Using Pre-exam Video Training to Improving Rater’s Consistency in Summative Objective Structured Clinical Examination
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Background: This study aims to explore the raters who received pre-exam video-simulation practice performances and consistency in summative objective structured clinical examination (OSCE) and performed better than those who did not receive pre-exam video-simulation practice.

Summary of work: Three hundred and sixty raters participated in this study in OSCE rater training workshops. After 2 hours introductive lecture, they received 40 minutes of scenario-one pre-exam video-simulation rating practice. Then they separated into four groups, and received 20 minutes of scenario-one through four pre-exam reading and checklist discussion. Then they went through three examinees OSCE real time rating test. All raters’ checklist scores and data were all collected and analysis.

Summary of results: Group 1 raters who received the pre-exam video-simulation rating practice in scenario-one show little consistency improving than group 2. (Duncan=0.07) Although they did not demonstrate a consistency of improvement in performance over other two groups.

Conclusions: The consistency (Kendell W) of four groups as below: Group 1: 0.531, 0.676, 0.732, 0.718, 0.533, 0.644, 0.446, 0.745, 0.681, 0.669. Group 2: 0.538, 0.394, 0.0433, 0.220, 0.507, 0.502, 0.426, 0.480, 0.409, 0.107. The one-way ANOVA has significant difference, p: 0.02. Post Hoc Duncan method show no significant for inter-group comparison, but only Group 1 was better than Group 2 (Duncan: 0.07).

Take-home messages: Pre-Exam video-simulation rating practice seems to be a acceptable method to improve raters’ performance and consistency in summative OSCE.

429 Perceptions of educational effectiveness and design of OSCE between postgraduate trainees and examiners
Jer-Chia Tsai*¹,², Jo-Chu Yen², Cheng-Yuan Wang¹, Yung-Yun Chang³, Jeng-Hsien Yen²,³, Chung-Sheng Lai³ (¹Department of Internal Medicine; ²Department of Clinical Education and Training; ³Department of Surgery, Chung-Ho Memorial Hospital, College of
Background: Core competences of trainees need to be assessed to assure the quality of postgraduate (PGY) medical program. The aim of this study is to evaluate the utility of OSCE as a rational assessment for PGY training in terms of reliability, educational effectiveness, and acceptability from the perceptions between PGY1 trainees and examiners. Summary of work: The study subjects consisted of 67 PGY1 trainees (46M/21F) and 53 examiners (40M/13F). Twelve-station OSCE were designed to evaluate ACGME core competencies. Survey was performed with 5-point Likert scale questionnaire. Reliability was measured by Rasch analysis. Summary of results: Trainees’ reliability was 0.58 and station reliability was 0.91. Ratings on educational effectiveness of OSCE were significantly higher by examiners than by trainees in the aspects of validity in assessing core competencies, concordance with learning objectives of PGY training, and self-improvement. Satisfaction ratings on design and practice of OSCE were lower by trainees than by examiners in stations of clinical judgment, patient education, and medical interview. Conclusions: Utility of OSCE as a rational assessment method for PGY training is warranted by its high reliability and educational effectiveness. Quality improvement of OSCE could be initiated by indentifying the discrepancies of expectations between PGY trainees and examiners. Take-home messages: Concurrent surveys between trainees and examiners may enhance quality improvement on design and utility of OSCE assessment for PGY training effectiveness.

4210 Does realism add to the authenticity of assessments in OSCEs?
Kumta Shekhar*, Andrew Bud, Alex Yung, Lorraine Lo, Joseph Leung (Faculty of Medicine, The Chinese University of Hong Kong)

Background: The difficulty of using real patients in OSCE examinations is well appreciated. The use of “moulage” and special effects techniques to mimic wounds has been very effective in casualty-simulation exercises. We therefore simulated realistic wounds on volunteers and used them in 2 OSCE stations in a graduating OSCE examination. Summary of work: Special effect techniques were used on volunteers to enable their use as surrogate patients in two OSCE stations: Station 1: Assessment of a Burn Wound; Station 2: Assessment of a Finger Laceration. At both stations experienced Clinicians and Specialist nurses assessed the students on their skills at communication aseptic handling of wounds, manual dexterity and knowledge of wounds and care. Summary of results: Mean scores for the 20-stations OSCE were 129.03 (Range 89-155); 76% of students passed the OSCE examination. In Station 1, 40% of students failed while in Station 2-30% of students failed the examination. The correlation between the station scores and the overall exam results was 0.12 (Station 1) and 0.30 for Station 2, while the discrimination index was 0.12 and 0.08 respectively. Conclusions: All the students felt they were examining real patients. Some felt they should have had more real-patient encounters in the wards and lamented on their lack of exposure. The use of experienced nurses as assessors added to the authenticity of the experience.- they identified with the ratings very well. Take-home messages: Special effects techniques add realism and authenticity to an OSCE encounter and may find wider use in examinations.

4Z11 Does the Observer's Expertise Influence Global Rating In OSCE?
A Valenzuela*, J Bloomfield (Universidad del Desarrollo Clinica Alemana, Facultad de Medicina, Oficina de Desarrollo Educacional, Chile)

Background: Global Rating added to a checklist has been suggested to rate clinical performance in OSCE. A correlation between both instruments has been described in the literature. Summary of work: During 2010 we introduced global rating in OSCE stations. The faculty who observe the station do the global rating and completes the checklist. Our question was if the aforementioned correlation exists in our OSCE and if this correlation was related to faculty’s expertise. 18 stations of Internal Medicine OSCE were analyzed; 39 students rotated in each station. Each observer rated the student’s achievement by checklist and by a global rating. For each station correlation between both scores was analyzed (Pearson). The Observer’s expertise was measured by the following indicators: years of professional practice, years of teaching and medical education instruction (magister or diploma). Correlation was measured by Pearson’s Coefficient. Summary of results: 1) There was a positive correlation between checklist and global rating in all 18 stations, (coefficients 0.41 to 0.88); 2) tutor’s expertise wasn't correlated with aforementioned results (0,034). Conclusions: 1) There is a correlation between global rating and checklist; 2) Tutor’s expertise doesn’t influence this correlation. Take-home messages: Global rating seems to be objective.
4Z12 How to introduce medical OSCE in Western Balkan Faculties of Medicine
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Background: All Western Balkan Faculties of Medicine have a traditional clinical exam assessment. Medical OSCE provides a standardized way of assessment of students’ clinical competence and the quality of training. It also serves to identify areas of weakness in the curriculum and/or teaching methods, and can be considered as a mechanism to improve educational effectiveness.

Summary of work: Faculty of Medicine University of Niš would like to start the initiative and activities regarding a possible project in the form of an regional project (8 WB and 5 EU universities are involved), under the working title: “Medical OSCE (Objective structured clinical examination) introduction in WB higher education institutions (MOSCE-WB)”. It would be realized through the practical training session for the improvement of pedagogical and communication skills of the university medical teachers. OSCE modules would be developed and implemented in medical curriculum. Medical OSCE Skills Labs would be established in different WB university clinics and hospitals under the supervision of EU partner institutions. Finally, the medical OSCE network would be also developed between the partners countries serving for e-learning.

Conclusions: The purpose of this presentation is the promotion of our project regarding a possible exchange of different experiences in medical OSCE introduction.

4Z13 Introducing pre-ward medical students’ competencies and OSCE to Slovenia undergraduate education
R Hrzic*, M Zdravkovic (Simulation Laboratory, Faculty of Medicine, University of Maribor, Slomskov trg 15, 2000 Maribor, Slovenia)

Background: Medical community in Slovenia has not yet determined required students’ clinical competencies before meeting patients objective national assessment approaches. We introduced a student-selected component (SSC): Year-3 medical students train selected clinical skills on manikins under Peer Tutors guidance. OSCE was used for assessment, conducted for the first time in undergraduate studies in Slovenia. Initiating such an incentive we have been asking ourselves whether students find themselves content with the teaching and what is their perception of OSCE quality and self-clinical skills competency level?

Summary of work: Seventeen students applied for the SSC. Following first OSCE they filled in a questionnaire assessing perception on success of two innovations: Peer Teaching and OSCE.

Summary of results: All agree that OSCE score objectively depicts the skill competency level, consider themselves competent for performance on patients and believe to be better in internal medicine than classmates. Nobody thought that the initial lack of theoretical knowledge lowered the quality of educational process. Teaching and knowledge score for Peer Tutors was excellent.

Conclusions: Students’ perception on Peer Teaching and OSCE quality is excellent. More importantly, they feel competent to perform acquired skills on patients.

Take-home messages: Peer Tutor guided OSCE training is effective for developing clinical skills and confidence for future student-patient interactions.

4Z14 Meta-evaluation in the assessment of clinical competence of final year medical students
C M L Maffei*, M F A Colares, L L K Elias, M A Hyppolito, V E F Ferraz, F J C Reis, L E A Troncon (University of Sao Paulo, Faculty of Medicine of Ribeirao Preto, Ribeirao Preto – Brazil)

Background: Mastering fundamental clinical skills constitutes a primordial goal of medical student education. We hypothesized that evaluation of student perception on skills assessment using an objective structured clinical examination (OSCE) can improve assessment and fulfill a formative role.

Summary of work: Final year medical students (N=84) answered a structured questionnaire about their perceptions about an institutional 11-station OSCE covering different areas, which they had recently volunteered to undergo.

Summary of results: Nearly all (98%) students were positively impressed about the experience on being assessed with an OSCE. More than 70% of them considered all the stations adequate to both assessment and learning. Instructions on how to work in the stations and the time available were also perceived as satisfactory. Excessive stress was reported by 60% of the students, which however were not ascribed to the presence of an observer in the station. This was perceived as mostly positive since allowed feedback and enhanced learning. Students were in general very critical in self-evaluating their clinical competence.

Conclusions: Volunteer participation in a clinical competence assessment is seen by students as a positive experience which enhances learning.
4Z15 Assessing clinical competence at an early stage of a Pbl curriculum.
T Mohamed Abdel Gadir*, Mohi Magzoub* (National Guard Health Affairs, King Saud bin Abdelaziz University for Health Sciences, College of Medicine, King Abdelaziz Medical City, Riyadh 11426, Mail Code 22490, Saudi Arabia)

Summary of work: Assessing clinical skills at an early stage of the curriculum is a big challenge to medical educators; in our curriculum clinical skills are assessed using an instrument known as OSCE. It is a performance-based exam in which students are observed demonstrating various clinical skills as they rotate through a series of stations. Each station usually tests a different component of clinical competence such as taking a history, conducting a physical examination, ordering diagnostic tests, making a diagnosis, planning treatment, or communicating with real or simulated patients. Faculties are requested to write OSCE items according to four forms. The first form describes the type of station and what adjectives are tested, the task, time required, and the materials needed. The second form includes the checklist for examiner, the third form describes the instructions for students, and the last form describes the instructions for the simulated patient or regular patient. At COM KSAU-HS, an OSCE’s time is 7 minutes for the preclinical students in phase two, and 9 minutes for the clinical phase exams.

Summary of results: Reliability was found to be 0.5. Conclusions: Introducing and assessing clinical competence early in the curriculum increase relevance and authenticity, OSCE was found to be valid, reliable & acceptable. However it requires a lot of logistics & preparations. Feedback from different stakeholders were found to be helpful to improve the exam.

4Z16 Assessment of clinical competence during internship with an OSCE at UNAM Faculty of Medicine in Mexico
A Trejo-Mejia, A Martinez-González, S Moralesó, J Peca-Balderas, M Sánchez-Mendiola (UNAM Faculty of Medicine, Secretariat of Medical Education, Mexico City, MX)

Background: Internship is a critical period during which fifth-year medical students develop clinical competence. UNAM Faculty of Medicine currently uses an OSCE exam for end-of-career summative purposes, but there is a need to use it for formative purposes in the clinical years. The objective of the study was to assess the effect of the internship experience in the development of clinical competence with an OSCE.

Summary of work: We applied an 18-station OSCE to 278 medical students before the start of internship to assess clinical competence, and an equivalent OSCE at the end of the year. 114 Clinician raters and 124 trained standardized patients participated in both tests.

Summary of results: Pre-test OSCE global mean score was 55.4±6.3 and the post-test score was 62.6±5.6 (p<0.001). Cronbach’s alpha was 0.62 for the pretest and 0.64 for the post-test. Separate scores were obtained by discipline (Emergency medicine, Obstetrics & Gynecology, Internal Medicine, Family Medicine, Pediatrics and Surgery) and by type of clinical skills.

Conclusions: The OSCE is an excellent instrument to assess the development of students’ clinical competence during internship, both for formative and summative purposes.

Take-home messages: The OSCE exam provides useful feedback information for students, medical school and faculty.
**Conclusions:** This study suggests additional feedback and supportive career advice is required by some trainees to enable them to further their medical career.

**4AA2 Learning to Assess and Manage Children with Developmental Problems**

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**Background:** Paediatric training in the assessment of children with developmental delay is reported to be poor. The researcher wanted to better understand how paediatric trainees learnt to assess and manage developmental delay; to identify barriers and facilitators.

**Summary of work:** Semi-structured interviews about learning experiences were conducted with a convenience sample of 6 paediatric trainees from the Northern Deanery, UK. Interviews were audiotaped, transcribed and analysed for themes using content analysis.

**Summary of results:** Trainees often felt less confident in assessing children with developmental delay than managing children with other clinical problems. They identified that their learning was optimal when occurring as part of clinical practice, particularly when allowed to take clinical responsibility, but with predictable, flexible clinical supervision. Doctors were only one group of teachers. Allied Health Professionals (AHPs) were powerful gatekeepers to patients and could facilitate or hinder learning. Poor physical clinical environments and rigid timetables were both barriers to learning.

**Conclusions:** Described in Lave and Wenger’s concept of ‘situated learning’ as a ‘community of practice’, this combination of professionals (AHPs and consultants), with the child and family should be considered in the organisation of paediatric training.

**Take-home messages:** Many parties appear crucial to the trainees’ learning. Faculty development should take care to include all relevant players.

**4AA3 A new postgraduate training program in cooperation with seven medical schools and regional affiliated hospitals in Japan**

M Hirakata*, T Monkawa, Y Tamura, T Mitsuhashi, H Yamagishi, S Kuribayashi (Keio University School of Medicine, Graduate Medical Education Center, Tokyo, Japan)

**Background:** In Japan, high quality postgraduate training (PT) programs to educate physician residents and fellows with skill, knowledge, professionalism, and research ability, have been required. Moreover, insufficient numbers and maldistribution of doctors in the clinical specialties has become a significant social problem in recent years.

**Summary of work:** To resolve this problem, we started, in 2009, new PT programs in cooperation with seven medical schools (Keio, Tokai, Saitama, Kyorin, Iwate, Toyama, and Tokyo Dental College) and their affiliated hospitals. We have developed (1) a wide range of 135 training courses in each specialty that are closely associated with these hospitals, (2) a web-based registration system of trainees, (3) an internet conference and seminar system between medical schools and affiliated hospitals, and (4) an electronic journal consortium with linkage to the affiliated hospitals.

**Summary of results:** We have established a flexible, wide range of professional courses designed to improve clinical skills and physician scientist development with the tight linkage of seven medical schools. The web-based program systems improved a regional gap in the qualities of graduate medical education.

**Conclusions:** The residents and fellows have been highly motivated to be good doctors or physician scientists in this training program.

**4AA4 Assessment of Anaesthesia Residents’ Proficiency 2005-2010**

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**Background:** Analysis of anaesthesiologists’ confidence and of patient complaints in Denmark have previously indicated, that proficiency in difficult airway management (DAM) requires both technical and anaesthesia non-technical skills (ANTS) such as situation awareness, decision-making, teamwork and task management.

**Summary of work:** Aims: To develop, conduct, evaluate and implement a course for anaesthesia residents in the national mandatory programme. A working group was established to develop the course based on needs assessments. A course including lectures, practical skills and simulation based training followed by debriefing was developed. To assess the effect on residents’ proficiency, a pre- and post-course test and a questionnaire concerning residents’ knowledge, experience and self-assessed competence in DAM were developed.

**Summary of results:** A total of 240 residents participated in the courses, 83% passed the test before the course and 96% after. Significant improvements were seen pre- to post-course in the self-assessment of technical skills and ANTS. Based on positive evaluations of the course and assessment of the participants, the
course was implemented in the programme for residents.

Conclusions: A course in DAM was successfully developed, conducted and implemented in the national programme for residents.

Take-home messages: Implementation of courses should be based on needs-assessment, selection of appropriate methods and evaluation.

4AA5 New curriculum for trainees in occupational and environmental medicine downunder

D Goddard (Australasian Faculty of Occupational & Environmental Medicine, Royal Australasian College of Physicians, Sydney, Australia)

Background: The Australasian Faculty of Occupational & Environmental Medicine has 350 Fellows and 100 trainees in Australia and New Zealand. In the years up to 2006, a low completion and pass rate among candidates signalled a need to improve training. The training program lacked formative assessment and rigour, and there was difficulty in supervising some remotely located trainees.

Summary of work: Work commenced in 2008 to build the current training program in consultation with Fellows and trainees. The new training program was based on pre-existing competencies and mirrored work led by the College’s Education Services. Clinical skills and professional qualities are prominent in the new curriculum. The development phase included three drafts for review by AFOEM members, other physicians, external professionals, and by the College’s Education Services. The 172 learning objectives have been distributed between a basic stage and two advanced stages, and the scope of learning has been defined for each objective.

Conclusions: Implementation commenced this year. It included the facility to prepare learning plans online, a suite of formative assessments, and plans to gradually re-shape summative assessments. It is too early to gauge its effect, but the broad involvement of Faculty members in its development and implementation appears likely to motivate involvement to meet what it requires. Trainee experience and feedback will be of utmost importance.

Take-home messages: Embrace of a new curriculum is more likely if there has been the opportunity for wide involvement in its formulation.

4AA6 Implementation of a regional framework for focussed educational appraisal of Paediatric Tutors

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Background: UK Paediatric tutors’ roles have become increasingly important in ensuring education and training is undertaken in hospitals according to Royal College and Deanery Paediatric guidelines. Regionally it was recognised that a robust process was needed to engage, stimulate and support tutors to continue to fulfil their role effectively.

Summary of work: In 2009, process documentation including an appraisal template was drawn up and circulated to all Paediatric tutors with an invite to participate.

Summary of results: 21/24 (88%) Paediatric tutors had focussed educational appraisal undertaken by 2 regional Paediatric School Board panel members. Information gathered about the training and time available for tutors in their training roles showed marked differences between hospitals. Tutors reflected on two aspects of postgraduate training in their hospital done well and two aspects to improve over the next 12 months. Support received by tutors at local, regional and national levels was also explored. Following the appraisal process a half day was held to share and disseminate good practice.

Conclusions: Focussed educational appraisal for tutors stimulated reflection on the strengths and weaknesses of training units.

Take-home messages: Tutors can be supported more effectively by undertaking appraisal and building up a regional picture of training in each hospital.

4AA7 Does perception of performance change rates of evaluation completion?

R Hemphill†, P Shayne, S Hopson, S Santen (Emory University School of Medicine, Department of Emergency Medicine, Atlanta, GA, USA)

Background: The purpose of this study was to explore whether faculty who less likely to complete resident assessments if the resident was assessed to have poor performance. And alternately would the faculty be more likely to complete assessments on residents, they felt performed well?

Summary of work: Faculty can choose to complete resident evaluations. We looked for correlations between better residents (higher global scores) and number of faculty evaluations. In addition we looked at the scores for faculty who rarely completed resident evaluations.

Summary of results: Faculty completed 2342 assessments on 54 residents during their 3 years of training. Each resident received an average of 43 assessments. We found no correlation (R=–0.02) between the number of assessments a resident received and their global assessment score. Residents performing in the top quartile of scores did not receive more or less evaluations than those in the bottom quartile of scores. Faculty who complete only a few
assessments were just as likely to score resident excellent or low.

Conclusions: In a system where resident assessment by faculty is discretionary and not anonymous, residents with lower performance scores receive a similar number of evaluations compared to residents with excellent performance.

Take-home messages: Faculty will voluntarily complete high and low performance assessments.

4AA8 Integrating the healthcare matrix into morbidity and mortality conferences for resident training.

Pei-Chun Lin*, Yun Chen1, Shu-Hsun Chu2 (Far Eastern Memorial Hospital, 1Department of Medical Education; 2Center of Cardiovascular, New Taipei City, Taiwan)

Background: Traditionally, morbidity and mortality conferences (M&M) are focused on avoiding medical errors and performing better. However, the dimension of discussion is linear. The healthcare matrix (HM) mixed the IOM aims and the ACGME core competencies has developed to improve patient care. Since M&M is focused on practice-based improvement, we integrate HM into M&M conferences for complex episode that occurring in multidisciplinary patient care.

Summary of work: A workshop was held for our faculties to be familiar with HM and introduced as a new reporting format in M&M by the superintendent officially. After then, M&M has expected to have a multidimensional and patient-centered presentation for improving resident’s thinking process. Residents were evaluated by questionnaires for course satisfaction and protocol scores within and without using HM.

Summary of results: The course satisfaction in average was increased from 82% to 88%. Questionnaires showed residents were get used to think the whole after applying. Protocols were improved as well. Initial findings highlight residents enrich the quality of protocol and the completeness of case presentation.

Conclusions: The HM creates a systematic learning format in M&M. Residents were trained to systems-based thinking and patient-centered healthcare.

Take-home messages: Through integrating HM in M&M can enhance resident’s systems-based thinking in patient care.

4AA9 Ultrasound Training for Internal Medicine Residents: Beginning of a New Era of Safe and Quality Care

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Background: Ultrasound (U/S) guidance is recommended for thoracentesis and central line placement; however these skills are not routinely taught in Internal Medicine residencies.

Summary of work: We developed and implemented a didactics and simulation based U/S training workshop to train Internal Medicine residents. Sixty-five residents completed skill tests and image identifications of pleural effusion, ascites, kidney, and thyroid. Skills tests involved image acquisition and compressibility of internal jugular vein (IJV) with appropriate gain/depth settings. Individual identification numbers allowed for direct pre- and post-intervention comparisons. Data analyst was blinded to identity.

Summary of results: There was improvement in all identifications: ascites (10 – 58%), kidney (43 - 97%), thyroid (31 – 97%), and pleural effusion (6 - 9%). Participants able to set gain improved from 42% to 94% and depth from 30% to 88%. Participants able to locate and compress the IJV improved from 61% to 94%. Participants obtaining image in under 2 minutes rose from 64% to 88%; mean procedure time in this group decreased from 73 (SD 27) to 50 (SD 27) seconds. P<0.001 for all comparisons.

Conclusions: Simulation based U/S training for Internal Medicine residents is feasible and effective.

Take-home messages: Appropriate training and timely use of U/S by residents may lead to improved procedural outcomes and safety.
displaying the facts through bullet points and clear graphics
Other important ingredients identified included critically discussing the paper at end of presentation, providing practical examples from experienced members, and a simple take-home message as a concluding remark.

**Take-home messages:** The study shows the important role of consultants as credible source in enhancing learning among trainees. Importantly it revealed that the dialogue which occurs between consultants offered a real time learning opportunity for trainees which ranked higher than the peer discussions previously identified as the main learning source in JC.

**4AA11** The Ambulatory Care Learning Environment Measure (ACLEEM). Development of an instrument to measure residents’ perceptions in postgraduate ambulatory setting programmes in Chile
Arnoldo Riquelme1-4,*, Oslando Padilla3, Cristian Herrera, Trinidad Olivio, Jose Antonio Roman, Nancy Solis2, Margarita Pizarro2, Patricia Torres2, Sue Roff6
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**Background:** Students’ perceptions of their educational environment (EE) have been studied in undergraduate and postgraduate curricula. However, there are no instruments available to measure the EE in postgraduate settings. The aim of this study was to develop such an inventory.

**Summary of work:** Summary of work: A mixed methodology was used including 3 stages: 1) grounded theory (focus groups); 2) Delphi technique to identify consensus and 3) pilot study.

**Summary of results:** Summary of results: Three quota samples of approximately 60 stakeholders were formed, one as Focus Groups and 2 as Delphi panels. 1) Eight focus groups were carried out including 58 residents (Latin-American Spanish speakers) from 16 postgraduate programmes. The results were analysed and 173 items were offered in the first round to a National Delphi panel drawn from 9 Medical Schools of Chile. 2) Sixty-one residents and teachers identified 64 items that were considered important by the panel. In the second round, the Delphi panel (58 respondents) reduced the number of important items to 54 items. 3) The 54-item questionnaire was then piloted with 63 residents. A 50-item inventory was refined after the pilot study.

**Conclusions:** The 50-item inventory is a valid instrument to measure the EE in postgraduate ambulatory setting in Chile. The next stages of this study include a large-scale administration and measurement of the ACLEEM questionnaire’s psychometric properties.

**Take-home messages:** Take-home message: ACLEEM questionnaire will be a useful instrument to measure the EE in ambulatory setting in Spanish speakers’ countries (FONDECYT # 1100436).

**4AA12** Educational Appraisal (ARCP): Providing Support - Preparing for Challenge
D Williams (East Midlands Healthcare Workforce Deanery, University of Nottingham, Nottingham, UK)

**Background:** Educational appraisal is an important element of confirming progress in training. In UK postgraduate medical education this is structured within an annual process (ARCP). Where progress is delayed it is essential to demonstrate what is delayed and the steps being taken to address the matter (remediation). Sometimes the decision is challenged through a formal appeal.

**Summary of work:** A system is described for ensuring that evidence for the initial decision is collected; and support through a ‘performance support unit’ is provided. This is co-ordinated through an educational governance framework. As a consequence documentation to support any decision & action is generated which also provides evidence in the case of any appeal.

**Summary of results:** Some vignettes of cases and associated appeals are described, along with lessons learned to improve processes.

**Conclusions:** This is an evolutionary system that is able to respond to increasing levels of challenge to educational decision making.

**Take-home messages:** It is possible to integrate support to trainees having difficulty making progress and preparation for potential challenge to decision making.

**4AA13** Differences between residents with or without a doctoral degree: Findings from a German graduate survey
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(1University of Freiburg, Faculty of Medicine, Deanery of Student Affairs, Freiburg, Germany; 2University of Freiburg, Faculty of Medicine, Medical Psychology, Freiburg, Germany)

**Background:** In Germany, about 60% of physicians hold a doctoral degree. We wanted to find out more about person characteristics of residents who already had completed their thesis, those that were still working on it and those who never had started a thesis in the first place.

**Summary of work:** 514 graduates from five German medical schools were surveyed 1 – 1.5 years after graduation. 94% are residents (61% female).
Summary of results: 55.4% had completed their thesis, 38.9% were still working on it, 5.3% had not started a thesis yet. Compared to their colleagues the latter had the best final school grades and had more children. Residents holding an MD had achieved better results in their final exam, were more self-assertive and more confident with regard to their ability to apply scientific methods. They also had completed clinical rotations in foreign countries more often. Residents who were still working on their thesis had more professional experience prior to medical education.

Conclusions: Residents holding an MD degree might be more goal-oriented. Residents who never started a thesis seem to be more engaged in family life. Little can be said about residents having not yet completed their thesis.

4AA14 Assessment of Experience and Satisfaction of the 2-Month Rotating Internship in Pediatrics, Songklanagarind Hospital, Thailand
Wassana Khotchasing (Songklanagarind Hospital, Thailand)

Background: According to The Medical Council of Thailand requirements, a 2-month rotation in pediatrics is compulsory for any medical graduate doing an internship. Songklanagarind Hospital has been approved by the Medical Council as one of the hospitals qualified to offer the internship rotation since 1994. During the 2-month pediatric rotation in Songklanagarind Hospital, the interns are assigned to rotate at the Out-Patient Department, the acute care general pediatric ward, and the non-communicable disease pediatric ward. The clinical clerkship performance is evaluated by the attending OPD and ward staff at each rotation.

Summary of work: Interns who completed the 2-month pediatric rotation during the academic years 2004-2009, filled in a questionnaire.

Summary of results: There were 221 interns who completed the questionnaire. All interns agreed that 2-month rotation in pediatrics was appropriate for the internship program, and that the three 20-day segments in different sections of the pediatric department was an appropriate approach, with a Likert score of 4.25/5.00. They also felt positively involved in the decision making involving their patients with a score of 4.22/5.00. They also felt positively about their experience gained from working with the pediatric residents/attending staff at a level of 4.0-4.5.

Conclusions: Residents holding an MD might be more goal-oriented. Residents who never started a thesis seem to be more engaged in family life. Little can be said about residents having not yet completed their thesis.

4AA15 Quality improvement in patient handover – A pilot study of General Internal Medicine in-patients
P Tam*1, V Douaevkskaid9, T Lee*, V Paldal1 (1University of British Columbia, Department of Medicine, Vancouver, Canada; 2University of Toronto, Department of Medicine, Toronto, Canada)

Background: Miscommunication during patient handover can adversely affect patient safety. Strategies for optimal handover have been suggested, but there remains a lack of research evaluating outcomes.

Summary of work: Our pilot study used a literature-based multifaceted intervention to improve handover of General Internal Medicine in-patients. We sought to determine the effect of the intervention on resident satisfaction and handover items reflective of patient outcomes.

Summary of results: Fifteen residents on the General Internal Medicine in-patient service were surveyed. Pre-intervention, 1/11 (9.1%) residents reported events occurred on-call which could have been anticipated for which they were not adequately prepared. This did not change post-intervention (3/15, 20.0%, p=0.4). The following elements increased in our audit of written handover after the intervention: updated active issues (96.5% to 98.9%, p=0.001), degree of illness explicitly stated (4.3% to 17.2%, p<0.001), contingency plans provided (37.7% to 42.0%, p=0.04), code status documented (87.5% vs. 97.1%, p<0.001) and record updated daily (56.9% to 67.0%, p<0.001).

Conclusions: This pilot study was underpowered to show a difference in resident satisfaction and reporting of events. Nevertheless, our study showed that a multifaceted intervention to improve handover can have a significant impact on the content of written handover which could translate into improved patient safety.

4AA16 The benefits of a regional journal in optimising knowledge and patient care: a quantitative study
P Patel*, A Sengupta, J Lambert, A Jackson (Mid Yorkshire Hospitals NHS Trust, UK)

Background: The first edition of Mid Yorkshire Medical Journal was introduced in January 2010. It is a quarterly, predominantly peer-reviewed journal disseminated to medical students and trainees across the region. Its primary objective is to provide an innovative resource for clinical guidelines and local policies, in addition to presentation of pertinent case reports and audits relevant to the region.

Summary of work: In this study, we explored the benefits of such a journal as a tool to enhance education and learning for readers. Questionnaires...
were distributed to all medical students and regional trainees within the month of January 2011, and there were 102 replies in total. 85% of responses were from trainees, and the remainder (15%) from medical students.

**Summary of results:** 78/102 (76%) deemed the journal to be of overall benefit. 61/102 (60%) felt that articles directly enhanced their understanding of the topic in question. Of these replies, 11 were from medical students (constituting 73% of total responses from students). The most beneficial components of the journal were deemed to be as follows: clinical guidelines (62%), case reports (56%) and audits (34%). 56/102 (55%) would advocate the production of a similar resource in other regions.

**Conclusions:** It is apparent that the availability of a regional journal may be of benefit in providing a succinct, accessible resource for junior trainees. We therefore strongly advocate its use as a modality to optimise learning and, ultimately, patient care.

### 4AA17 A template for development of customized program level "Survival Guides"
*Gerald Whelan (Educational Commission for Foreign Medical Graduates, 3624 Market Street, Philadelphia PA 19104, USA)*

**Background:** Doctors in training arriving at new programs can benefit from "Survival Guides" which provide information and contacts for local resources helpful in getting them settled into their new programs and locales. Compiling this information can be labor intensive.

**Summary of work:** A template for creating guides at the individual program level was designed and posted online with instructions for use, to be freely downloaded. It provides generic information on a range of topics but allows edits and insertion of local contacts and other information for local publication. The guides created from it can help new arrivals find information about housing, shopping, transportation and other needs of daily living as well as basic program policies and procedures.

**Summary of results:** In the first nine months of posting, downloads were made by 112 US and 30 international users. Initial design did not allow identification of users for follow up but that function has been added to allow future queries regarding use and utility.

**Conclusions:** A template for creating local “Survival Guides” can facilitate and encourage the production of these extremely useful resources by individual programs.

**Take-home messages:** Similar templates could be designed for use in other countries and for other generic resources that might be of value to GME programs worldwide.

### 4AA18 Participant evaluation of a British Paediatric Postgraduate Clinical Examination
*A Mathew, A Chinoy* (Department of Paediatrics, Whiston Hospital, Warrington Road, West Sussex, BN11 2DH, UK)

**Background:** The MRCPCH Clinical exam in the UK assesses whether candidates can be awarded the Membership of the Royal College of Paediatrics and Child Health (MRCPCH). Hospitals are invited to host these examinations.

**Summary of work:** A questionnaire survey qualitatively evaluated the views of parents and children who participated in the exam.

**Summary of results:** 35% of families completed their questionnaire (42/120). Assisting in education and training was the most popular reason for participating. 21% of participants thought it ‘may help in getting better care’. 10% of participants felt inadequately prepared. Hospitality issues were rated highly. All 42 responders felt they would be happy to participate again.

**Conclusions:** It is encouraging that all responders would participate again in future exams. Improvement in managing families’ expectations prior to the examination is necessary. That 21% of participants thought that involvement in these examinations ‘may help in getting better care’ at a later date is particularly disappointing, as these exams rely on goodwill, and participation has no implications on subsequent clinical care.

**Take-home messages:** Diligent preparation, efficient implementation, hospitality and information-sharing ensure successful clinical examinations, reflected when participants express willingness to participate again. Parents should not feel under any obligation to participate, and their expectations on the day should be appropriately managed.

### 4AA19 Filling the gap: Management of acute gastrointestinal bleed
*K Clark*, A Ngo, J Doyle, R Graham, G Prtichard, A Bassi (Whiston Hospital, Warrington Road, Prescot, Merseyside UK)

**Background:** Acute upper gastrointestinal bleeding is a common medical emergency affecting 50-150 per 100,000. It carries a mortality of 11% with inpatient mortality significantly greater at 33%. Despite this, many junior doctors are not aware of the potential causes, identification of risk and appropriate management.

**Summary of work:** All junior doctors within the Trust were asked to complete a questionnaire regarding this condition. Questions assessed knowledge of causes, pharmacological precipitants, acute management and...
risk stratification specifically the Rockall and Blatchford scoring systems. Junior doctors then took part in a 60-minute interactive case-based discussion led by a member of the Gastroenterology firm. One month later the same doctors were asked to complete the questionnaire.

**Summary of results:** There was a statistically significant improvement in the knowledge base post teaching intervention.

**Conclusions:** Taking into account time constraints faced by junior doctors, this questionnaire highlights that their day-to-day experience and training can be supported by focused teaching sessions led by those with experience in that field.

**Take-home messages:** Despite an emphasis being placed on self-directed learning, it is important to recognise that simple educational intervention can improve knowledge, which will ultimately improve patient care, and this method can be applied to additional clinical scenarios.

### 4AA20 The council of medical interns – a way to create greater influence and better quality of education for interns

**F Nilsson*, A Josefsson*, H K Einalt, B Gatenholm, J Liljencrantz, S Lindgren, K Nordenstrom, D S Olsson, N Sargisian, M Strese, U Strandman, P Andrèll, C Finizia (Sahlgrenska University Hospital, Administration Staff Torggatan 1a, 431 35 Mölndal, Sweden)**

**Background:** At the Sahlgrenska University hospital, the medical interns do their clinical rotations at three different hospitals with 25 separate clinical departments, which makes coordination complex. A continuous work of improvement, in which the interns are directly involved, is operated by the Program Directors at the hospital. As a part of this, the Intern Council was formed to enable the interns to actively participate in the proceeding development and improvement of their education.

**Summary of work:** The Intern Council continuously arranges lunch meetings with all interns to discuss both problems and positive aspects on the clinical rotations. The Intern Council then regularly meets with the Program Directors to identify areas in need of improvement and to convey the general opinions of the interns. Based on this, the members of the council operate specific enhancements projects and participate in meetings with discipline specific program directors to express the interns’ views.

**Summary of results:** The council serves as a reference group and initiates and operates enhancement projects. Areas in need of improvement are identified and Program Directors get direct feedback from the interns, enabling fast responses.

**Conclusions:** The Intern Council enables both influence at all levels, and operation of diverse improvement projects. This improves quality of postgraduate education for physicians.

### 4BB Posters: Teacher Evaluation

#### 4BB1 Design and application of E-educational portfolio in QUMS

**A Yakhforooshha (QUMS, Iran)**

**Background:** E-educational portfolio is a set of materials made by a faculty member. It is an instrument for teaching evaluation, and a vehicle for presenting information which may include results of evaluations and which may itself contribute to evaluation. The purpose of designing this portfolio is to help faculty at the University of QUMS to assess and document their educational activities for the purpose of appointment, promotion and tenure.

**Summary of work:** Our method was a document review and search of relevant sites.

**Summary of results:** E-educational portfolio can include: personal details, teaching philosophy and plans, results of student and peer evaluations, professional development activity, a summary of any future developments, a plan for improvements in teaching, conference presentations, publications, awards and grants related to learning and teaching, appendices. Using it would have the following benefits: Evidence of teaching that helps Promotion and Tenure Committees value teaching in their decisions. The stimulus for faculty development resulting from the faculty member’s reflection on her/his philosophy of education, assessments, continuing education, and strategic planning. Access to information related to the faculty member easily available. Upgrading of current portfolios immediately.

**Conclusions:** We find that design and application of these portfolios is appropriate for teacher training and assessment in QUMS.

#### 4BB2 The tutor of the year

**Maria Ehlin Kolk (Presenter: A Lundberg) (Swedish Medical Student Association (SMSA))**

**Background:** SMSA is the largest voluntary organization for medical students in Sweden. One of our main focus is the quality of the clinical semesters and especially the tutorship. We have for several years conducted a survey at the late semesters of medical education that has showed us that good tutorship on clinics are very important. Sadly a lot of doctors feel that tutorship only takes time from the clinic that is a threat to the quality of the clinical education.

**Summary of work:** Therefore we decided to create a prize for good tutorship – The tutor of the year. We started off by summary results from our surveys and...
collected information from our six local organizations. This resulted in local prizes. We also created a national prize.

Summary of results: The winners of the Tutor of the year got media space and a lot of attention at their university. By letting the students on each university nominate their best tutor the prize also got a lot of attention by students and all the winners felt that they got more energy to good tutorship in the future.

Conclusions: As a student organization it’s easy to create a prize to give more attention to good tutorship. It gives better quality of medical education by increasing the status of tutorship.

Take-home messages: Student organizations and medical faculties – praise good tutorship! It increases the quality of education by giving clinical semesters better tutors!

4BB3 Do undergraduate students and residents perceive clinical teaching skills differently?
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(1Department of Internal Medicine, School of Medicine, Pontificia Universidad Catolica de Chile (PUC); 2Center for Medical Education, School of Medicine, Pontificia Universidad Catolica de Chile, Lira 63, Santiago, Chile)

Background: What makes a great medical teacher is often discussed. Numerous publications enumerate students’ opinions on characteristics the ideal teacher should have. However, little is known about how the perception of their teachers’ skills may vary according to level of training. Is a good teacher for an undergraduate student (UDGST), good for a resident? Clinical teachers in internal medicine at PUC, Chile deliver simultaneous training to UDGST and residents working in teams of 2 to 6 members.

Summary of work: To compare perceptions of UDGST and residents on clinical teaching skills of faculty. During 2008 and 2009, 13 internal medicine clinical teachers were simultaneously evaluated by 134 UDGST and 119 residents. The instrument, a 30-item questionnaire developed locally, addresses 8 clinical teaching domains: Patient-based teaching, Objectives, Evaluation, Promotion of Understanding, Promotion of Self-directed Learning, Control of Session, Feedback and Learning Climate. Scores were compared with Student’s t test.

Summary of results: Scores varied between 3,5 (Evaluation) and 4,0 (Learning Climate) in a 4-point scale. There were no differences between perceptions of UDGST and residents in any of the 8 dimensions evaluated.

Conclusions: Both groups felt equally satisfied with simultaneous teaching. Our data might support training UDGST and residents simultaneously.

Take-home messages: Perceptions on clinical teaching skills are similar between UDGST and residents.

4BB4 Medical Teachers assessing their own teaching skills. How can it be important in Medical Education?
M Oliveira da Silva*, V Pires da Silva* (Faculty of Medicine of Lisbon, University of Lisbon, Lisbon, Portugal)

Background: Knowing teachers’ expectations about their involvement and quality in medical teaching skills is essential in assessing the needs and promoting initiatives in Medical Education.

Summary of work: An anonymous questionnaire for self-assessment was sent to all the teachers of the Faculty of Medicine of Lisbon - 144 out of 504 (29%) responses were received and a statistical analysis of the data was performed.

Summary of results: 64% of the teachers never attended any specific training in Medical Education; among these, 71% consider attending one in the future. “Previous experience” and “Theoretical Self-Learning” were considered to be “Very Important” when holding a teaching position; “Specific training in Medical Education” and “External Evaluation” were considered “Important”. Most teachers considered themselves as punctual and assiduous, and concerned for students learning difficulties. Furthermore, many teachers considered being able of transmitting knowledge.

Conclusions: Teachers have a positive outlook regarding their teaching skills and their involvement in Medical Education. However, few have specific training in Medical Education.

Take-home messages: Although self-learning and experience are important, specific training in Medical Education should also be taken into account. Through this training, teachers will be able to improve their educational skills and increase the levels of excellence, which is desired in any Institution with high quality standards.

4BB5 Student satisfaction: a method to determine the quality of faculty teaching
S Raiyaya*, S Pongudom (Medical Education Centre, Udornthani Hospital, 128/1 soi Nonpiboon 1, Supakitjunya Road, Amphur Muang, Udornthani 41000, Thailand)

Background: Medical Education Centre, Udon Thani Hospital is originally a service oriented hospital. At present 60 medical students are rotated through 3 years clinical clerkship. A faculty development program in basic medical education was implemented after strength, weakness, opportunity, threat (SWOT) analysis.

Summary of work: The self constructed Likert scale questionnaire was distributed to 60 fourth and fifth
year medical students in 2010 with 100% returns. It consisted of student satisfaction towards teacher behavior and teaching methods.

**Summary of results:** From student assessment, the significant difference was shown on satisfaction among 12 disciplines (p value <0.001). The highest scores were anesthesia and lowest in surgery (p value<0.001). High ranking scores were anesthesia, rehabilitation and community medicine (4.86, 4.79, 4.74). Overall negative comments included difficulties of subjects, assignment overload and passive learning.

**Conclusions:** Student satisfaction assessment could reflect the teaching performance and student expectation. Further research is needed to identify the primary cause of low score areas.

**Take-home messages:** The teaching assessment should be carefully planned to triangulate information quantitatively and qualitatively.

**4BB6 Teaching performance evaluation by students’ opinion: A four year study at UNAM Faculty of Medicine in Mexico**

A Martínez-González*, J Martínez-Stack, F Flores-Hernández, I Martínez-Franco, M Sánchez-Mendiola (UNAM Faculty of Medicine, Secretariat of Medical Education, Mexico City, Mexico)

**Background:** Teachers’ evaluation is an important aspect of quality assurance and improvement in medical education. The evaluation of teacher performance by students’ opinion is a valid and reliable source of information, and is a frequently used source in most universities.

**Summary of work:** Teacher performance evaluation data were analyzed over a four-year period (2006-2009) using an instrument with documented validity and reliability. We registered the results obtained with students’ anonymous questionnaires of every basic science course at the end of the academic year. We compared yearly performance, and identified those whose variations in scores required attention, either for recognition, when there was a positive change or to suggest appropriate training, when the change was negative.

**Summary of results:** In general, the performance of teachers tends to be consistent, the scores at the beginning of the follow-up period tended to be similar throughout the years. In some cases it showed an increase and in other cases a decrease over the years.

**Conclusions:** The development and implementation of a continuous tracking system allows a better picture of faculty competence.

**Take-home messages:** The monitoring of teaching performance can provide the basis for better interventions, for recognition or faculty development.

**4BB7 Development of validated instrument for assessing a clinical teacher**

Makoto Kikukawa*, Sei Emura*, Oda Yasutomo*, Makoto Ono, Shunzo Koizumi (Department of Medical Education, Kyushu University, Saga, Japan); Center for Graduate Medical Education Development and Research, Saga University Hospital, Saga, Japan; Section of Medical Education, Saga Medical School of Medicine, Saga, Japan)

**Background:** There are several instruments for resident physicians to assess a clinical teacher in western countries. However, no validated instrument is reported from Japan.

**Summary of work:** We developed a validated instrument for assessing a clinical teacher at Saga University Hospital, using a modified Delphi method. Two round modified Delphi method was conducted. The panelists were 10 randomly selected residents, 12 well experienced clinical teachers from a variety of departments and 4 educational experts. 53 initial item list was made, combining items of previous instruments with the characteristics of a good clinical teacher extracted from five focus group interviews in resident physicians. Through two round Delphi, the number of items were reduced and some items were revised.

**Summary of results:** 24 item instrument was developed.

**Conclusions:** Modified Delphi method was useful to make consensus among stakeholders. It is required to check reliability of the instrument for the further study.

**4BB8 A national survey of undergraduate teaching skills training in England**

O Shariq*, A-S Alexopoulos*, F Razik, N Salooja (Faculty of Medicine, Imperial College London, UK)

**Background:** The GMC has recommended that medical students be taught how to teach. There are many potential ways in which such training could be integrated into undergraduate curricula.

**Summary of work:** We investigated the number and characteristics of existing undergraduate teaching skills courses by sending a questionnaire survey to all 24 English medical schools.

**Summary of results:** 16/24 (67%) universities responded, 14 (88%) of which offered teaching skills training. 7/14 included compulsory courses and 3/7 additionally offered optional training. Content of compulsory courses included small- (6/7) and large-group (6/7) teaching skills, feedback (6/7), evaluation (4/7), education theory (4/7), bedside teaching skills (4/7), and clinical reasoning (3/7). Most used small-group teaching methods to deliver the course, but large-group, computer- and portfolio-based methods were also used. 7/14 schools offered optional courses.
only and these included speciality choice modules (5/7), intercalated BScs (3/7), workshops (2/7) and seminars (3/7). The main challenges identified by course organisers were the limited numbers of teachers and implementing training to students who did not perceive the value of teaching-skills.

Conclusions: Teaching skills courses are being implemented at numerous English medical schools, varying considerably in design and content. Take-home messages: Communication between medical schools may be helpful in responding to the shared challenges of delivering teaching skills training.

4BB9 Burnout in clinical teachers: a preliminary survey

W Bunpromma (Khon Kaen Medical Education Center, Khon Kaen Hospital, Khon kaen province, CPIRD, Ministry of Public Health, Thailand 40000)

Background: Being a doctor is always stressful throughout the professional career because it is dealing with a matter of life, and no single mistake can be allowed to happen. To be a clinical teacher is even more stressful physically and mentally. This study aimed to identify the prevalence and associated factors of burnout in clinical teachers.

Summary of work: Modified Maslach Burnout Inventory (MBI) examined the burden of three dimensions in 70 clinical teachers at Khon Kaen Hospital. Data included demographic data, teaching/service and administrative workloads, teaching expectation, working relationship and conflict, head department expectation. Summary of results: The response rate was 52 of 70 clinical teachers (74%) aged between 31-40. 20 of 52 teachers reported one or more burnouts: one dimension in 13, two dimensions in 6, and all dimensions in 1. The primary causes were emotional exhaustion 14 – not prefer teaching 4 (p-value 0.038), personal accomplishment 9, depersonalization 5 – high head of department expectation 4 (p-value 0.023).

Conclusions: Burnout problem was observed in clinical teachers. Teaching rejection and high head of department expectation were the two significant factors associated with burnout. Take-home messages: Burnout is the result of both intrinsic and extrinsic factors. However, we should focus on the amendable factors in the right person and right department.

4BB10 Teacher consultations for teaching effectiveness: A program of structure peer teacher review

R M Jay (Department of Medicine, Faculty of Medicine, University of Toronto, Canada)

Background: Health Sciences Institutions not only must provide competent teachers to deliver academic curricula, but mechanisms for evaluation and improvement of teaching effectiveness. Medical Education initiatives to improve our Department of Medicine’s overall teaching effectiveness prompted development of a peer review program using structured observation protocols to assess individual teachers in common teaching settings. The goals were to provide teaching effectiveness assessment, formative feedback and specific educational suggestions for improvement.

Summary of work: Observational Worksheets were developed to assess effectiveness of micro-analytic teaching skills in common teaching settings: large group/lecture, small group/seminar, ambulatory care, bedside. Teaching Consultations were then performed on clinical teachers ranging from postgraduate resident-trainees to senior established faculty. Fifty(50) consultations have been completed with provision of written formative feedback and educational suggestions.

Summary of results: Feedback forms from initial 25 consultations evaluated acceptability, feasibility and utility of the Teacher Consultation process. Further analysis on self-assessment of improvement in teaching effectiveness, areas of common teaching strengths, weaknesses and educational suggestions will be presented.

Conclusions: Teacher Consultations provide a useful instrument for improving teaching effectiveness. However there are challenges in providing this labor-intensive process and objectively assessing efficacy. There were common areas of weakness in teaching effectiveness and educational suggestions provided.

4BB11 The impact of teaching fellow posts on undergraduate medical education - The student’s perspective

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Background: Currently, there is a lack of data regarding the perspective of medical students about the value of formal teaching fellow posts in medical education.

Summary of work: A total of 308 clinical year medical students from the (University of Leicester and Nottingham) were asked a series of open and closed questions regarding their perception of the usefulness of clinical teaching fellows in their medical education via a structured questionnaire.

Summary of results: 1) generally full time clinicians didn’t have adequate time to teach and therefore
there was a demand amongst medical students to have full time academic teaching fellows with a clinical background employed to teach however 3) the majority did not feel that formal teaching qualifications were required to deliver the best teaching and 4) there was concern over the financial viability of sustaining such full time posts.

**Conclusions:** Medical students value the teaching fellow posts highly however issues such as financially sustaining these roles on a large scale nationally and the need for formal qualifications in teaching to deliver effective medical education need to be further analysed.

**Take-home messages:** Medical students value being taught by teaching fellows due to the personalised attention and regularity of teaching with no last minute cancellations as is the case with clinicians.

### 4BB12 Looking for more effective methods in education of PhD students – own experience

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**Background:** After analysis of PhD study system at JFMCU in Martin we realised its weaknesses. One such area is education of PhD students. So, we decided to look for a better education system.

**Summary of work:** To improve the organisation, content and effectiveness of recent education system of PhD students. Preparation of plan for regular brainstorming-like meetings (BS-LM) of PhD students JFM CU in Martin.

**Summary of results:** From 2009 up to now we organised 23 BS-LM with average attendance of 66 PhD students/one meeting. Content of meetings was devoted to PhD students’ presentations related to topics of their PhD thesis and to their social and economic status. We observed immediately some positive effects of meetings - students were better informed on the research at JFMCU, used research methods, on possible co-operation with other PhD students, improvement of formal quality of presentations, higher ability to discuss, and to defend the results of research.

**Conclusions:** We suppose that BS-LM has a potential to improve education of PhD students. Supported by EU Project ITMS 26110230031

### 4BB13 A survey of medical technology curricula and careers of graduates in 20 national universities in Japan

J Kameoka**, K Kawakami**, M Miura**, S Ishii**, H Kanatsuka** (Tohoku University Graduate School of Medicine; **Office of Medical Education, Sendai, Japan; **Department of Health Sciences, Sendai, Japan)

**Background:** In Japan, education of medical technologists took place in colleges of allied health sciences until the early 2000s when departments of health sciences were established in 20 national four-year universities. Moreover, graduate school programs have been established for master’s degree (-2008) and doctor’s degree (-2010) in all these universities.

**Summary of work:** To evaluate the present status of education for medical technologists, we conducted a national survey. All 20 national universities completed the survey.

**Summary of results:** Total time for lecture and in-school training, duration of on-site training and research training varied a lot among universities. PBL tutorial education has been introduced in 9 universities. Among 2162 graduates from 20 universities between 2006 and 2008, 1249 (57.8%) were working in hospitals as medical technologists, 188 (8.7%) were working in medical institutes as medical researchers, 45 (2.1%) were working as non-medical workers, and 574 (26.5%) went on to graduate schools. The average numbers of graduate students per university were 11.1 for master’s degree and 1.42 for doctor’s degree.

**Conclusions:** Education system for medical technologists in Japan has changed, resulting in diverse curricula and careers of graduates.

**Take-home messages:** A new concept is required to develop medical technologists capable of doing research and education as well as performing laboratory tests.

### 4BB14 Relation of the Scientific level of Faculty Members and Teaching Methods

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**Background:** Evaluation of teaching methods of faculty members is a process that aims to improve teaching quality and increase promotion of education in most universities. The purpose of this study was to investigate the relationship between the scientific level and teaching method, and in the students’ point of view if the scientific proficiency of the professor is effective in their teaching method.

**Summary of work:** This descriptive-analytical study was performed using 2400 evaluation forms, completed by students of Medical University and analyzed by independent t-test and SPSS programs.

**Summary of results:** Pearson correlation showed significant relationship between scientific level scores and teaching method (R=0.91 and p<0.001). Average
4BB16  The study of effective features of an instructor from the viewpoint of Nursing and Midwifery students of Shiraz University of Medical Sciences

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Background: Higher education is the highest educational level in a community. Academic members have the most important role in quality improvement. Needs assessment and determining the academic members’ educational needs can lead to design, implementation and evaluation in education.

Summary of work: This was a triangulation study. In qualitative stage content analysis was done by interview and literature review. 134 codes in 6 main groups were: educational needs in education and learning, Universal, Evaluation, research, Information technology, and English language. Then a questionnaire was compiled and sent via email to academic members. Sample was 300 but 120 responses were received.

Summary of results: The greatest educational needs in education and learning domain was related to teaching methods, learning styles, clinical skills education. In universal domain it was about communication skills, in evaluation related to clinical evaluation, students’
Evaluation tests, determining validity and reliability of tests. In research domain it was about writing articles, use of statistical software, health statistical application in medical research. In information technology and English language it related to writing English papers and use of electronic sources.

Conclusions: Attention needs to be paid in carrying out academic duties in education and research domains. Workshops, educational career structure, continuous medical education, self learning and virtual learning are suggested as ways in which this can be achieved.

4CC Posters: Student in Difficulty

4CC1 Psychological health of first year undergraduate students in the Gulf Medical University
K G Gomathi*, S Ahmed, S Al-Omar, J Sreedharan (Gulf Medical University, Department of Biochemistry, Ajman, United Arab Emirates)

Background: First year undergraduate students in the Gulf Medical University face a number of challenges including academic pressures, staying away from home and being in a multiethnic university.

Summary of work: Psychological health of students in the first year of studies in the Gulf Medical University was assessed using the 12-item General Health Questionnaire (GHQ12). Factors associated with psychological morbidity in the students were also studied.

Summary of results: Psychological health of 125 students in the first year of studies in the Gulf Medical University was assessed. 64.5% were female and the rest male. Response rate was 92.8%. 92% of the students were 17-21 years old. GHQ12 showed the prevalence of psychological morbidity to be 33.6% using a threshold score of 4/5. Psychological morbidity was more in female (36.6%) students compared to male (30.8%). Psychological morbidity was also higher (40.6%) in students who had a language of instruction other than English in high school compared to those who had studied in English (31%).

Conclusions: Psychological morbidity is seen in approximately 1 in 3 students in the first year of studies in the Gulf Medical University, Ajman, UAE.

Take-home messages: Early detection of psychological distress and factors responsible can help in planning appropriate measures to help the students.

4CC2 Coping mechanisms as a predictor of mental health in first year students of Kashan University of Medical Sciences
M Mahdian*, F Mirhosseini, A Aliasgharzadeh, A Omidi, Z Zanjani, F Atouf, M Shahshahani (Kashan University of Medical Sciences, Qutb-e Ravandi Blvd, Po.code:87155/111, Kashan, Iran)

Background: To measure coping strategies in first year students and its relationship to their mental health.

Summary of work: Participants were first year students of Kashan University of Medical Sciences. Data were gathered from responses to two self-report questionnaires: The CISS (Coping Inventory For STRESSFUL SITUATIONS) and the GHQ-28 (GENERAL HEALTH QUESTIONNAIRE). Two above questionnaires were completed by the first year students. Data were analyzed through descriptive statistics. A P value less than 0.05 was considered significant.

Summary of results: Participants were 193 first year students of Kashan University of Medical Sciences from different faculties (Medical, paramedicine, Nursing and health). The entire sample comprised 61 men and 132 women and the mean ages of participants were 19.38±1.27 years. This study indicates the students are more likely to experience emotional - oriented coping strategies when facing stressful situations. Task-oriented coping is a significant negative predictor of GHQ (β= -0.282, r²=0.80, P<0.0001) whereas emotional - oriented coping is a positive predictor of GHQ (β= 0.518, r²=0.268, P<0.0001).

Conclusions: Task-oriented strategies more than other strategies and task-oriented strategies predict lower GHQ scores and therefore better mental health.

4CC3 The health and well being of doctors and medical students: Education is a required part of the national response
R Fielke*, M Bonning, D Mao*, K Austin* (Australian Medical Association Council of Doctors-in-Training, PO Box 6090, Kingston, ACT, 2604 Australia)

Background: The rates of mental health problems such as suicide are higher within the Australian medical profession when compared to the general population and the barriers to accessing healthcare are different.

Summary of work: A national position education statement on the health and wellbeing of doctors and medical students has been developed to guide the development of specific health services for the medical profession.

Summary of results: Medical Practitioners and students need to be supported to actively engage in their own health and wellbeing. A significant proportion of medical practitioners (including 34% of medical students) have been shown to be resistant to seeking help for depression. Multiple barriers to accessing health care have been identified; significantly these include perceptions of stigma and negative impacts on career progression. Education of the profession is required to overcome these perceptions.

Conclusions: A comprehensive health program, underpinned by the national position statement is
required, in part, to provide education for the profession on these issues.

**Take-home messages:** Profession-wide education, as well as, system and cultural reforms need to occur to enhance the health and well being of the medical profession. The first steps in education are being achieved by the development of an Australian national position statement on doctor’s health and wellbeing.

**Summary of work:** A group of complex trainees is identified. Cases 'simple' and 'complex' to remediate have been described and common features identified, including results of cognitive assessment.

**Summary of results:** Performance problems were difficult for their trainers to describe. Often they were diffuse difficulties and included 'prioritisation' and 'appropriate clinical decision making' - particularly in unstructured real life clinical situations. Underlying inflexibility of thinking suggested educational psychological assessment would be helpful; some of the unexpected findings from cognitive assessment are presented.

**Conclusions:** Further research needs to be undertaken to identify how far these cognitive profiles are relevant to clinical performance, and predictive of the likelihood of successful attainment of independent medical practitioner status.

**Take-home messages:** It is possible that some cognitive profiles may be linked to types of poor performance, that are difficult to remediate.

**Summary of work:** This pilot study aims to explore the coping strategies used by UK doctors with SpLDs. Interviews were conducted with 3 General Practitioners with suspected or diagnosed SpLDs to explore their coping strategies in the workplace.

**Summary of results:** Using thematic analysis 9 key themes were identified from the data, including: 'strengths', 'weaknesses', 'strategies employed', 'hiding weaknesses' and 'error'.

**Conclusions:** A number of important themes concerning the effects of SpLDs on doctors were identified indicating that SpLDs do have an impact upon doctors in the workplace and the results have provided a basis for a questionnaire for the next stage of the project.

**Take-home messages:** Doctors with dyslexia recognise strengths and weaknesses in their own performance and employ a range of coping strategies to reduce any negative effects of their dyslexia. Further research will investigate this on a larger sample.

**Summary of work:** An investigation into how doctors deal with Specific Learning Difficulties (SpLDs) in the workplace.

**Summary of results:** A number of important themes concerning the effects of SpLDs on doctors were identified. Factors that dissuaded students from taking part in the remediation program. Teachers weren’t considered good intervent in remediation programs, making it a factor for students not to attend the program. Other themes related to how students coped with failure, and varied between pride and inability to admit failure.

**Conclusions:** The primary finding was that the use of teachers to conduct the remediation was the main factor that dissuaded students from taking part in the program.
Take-home messages: The profile of who is assigned to interact with students in support programs should be one of the major focuses of attention when thinking about remediation programs.

4CC7 Anxieties Prior to Starting Medical School: Medical Students Perceptions

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Background: Anxiety is highly prevalent among medical students, with levels peaking particularly in the first year of medical education. This study aimed to explore students’ opinions of sources of anxiety before medical school. If identified, early intervention would be an effective strategy of minimising the impact.

Summary of work: Qualitative focus groups were undertaken with current medical students at one UK medical school. Following a review of the literature an interview guide was developed. Discussions were recorded and transcribed. Data was then subjected to thematic analysis by two independent researchers.

Summary of results: Six key themes on sources of anxiety materialised: academic failure, commitment to a career in medicine, financial constraints, length of study and social aspects. Ideas to alleviate such anxieties predominantly revolved around increased opportunities to converse with current medical students, and the chance to experience the nature of studying undergraduate medicine.

Conclusions: Common causality that arose for the anxiety that may occur prior to medical school are a lack of information on academic expectations and the day to day life of a medical student.

Take-home messages: Anxiety does develop prior to starting medical school. Therefore efforts to ease these anxieties through additional support may prove effective in minimising potential effects.

4CC8 Use of preparatory and remedial activities within Biomedical Sciences

Eveline Bruneel*, Bart Rombaut, Hendrika Jaspers, Anne Boyen (Vrije Universiteit Brussel, Faculty of Medicine and Pharmacy, Brussels, Belgium)

Background: The Biomedical Sciences course is characterized by a heterogeneous intake in terms of learning capabilities, scientific preknowledge and motivation. In a summer program at the VUB freshmen get the opportunity to refresh and update their preknowledge. During the year, students with poorer exam results can participate in exercise sessions after midterm evaluation, in addition to Q&A sessions before examination and feedback options after examination.

Summary of work: The participation in summer activities and in-year activities by target- and non-target groups is numerically compared.

Summary of results: 77% of the participants for the summer courses is part of the target group. 22% of that target group followed the course. 73% of the participants for the in-year activities (exercise sessions after midsemester evaluation and Q&A sessions) are part of the target group. 42% of that target group participated in those in-year activities. Only 18% of the target group for the feedback options after examination made use of this opportunity. The interest of the original group of summer class students is not prolonged during in-year activities because those students have only a 30% attendance rate at the in-year activities.

Conclusions: Preparatory and remedial activities do reach students, but not always the ones who most need it. Activities prior to examination are more attractive than activities post-evaluation.

Take-home messages: Imposing only those students within the specific target groups to attend the activities might create a subgroup of students who feel marginalized. Imposing all students to attend these activities might not result in progress for the whole group.

4CC9 Are They Lonely, Anxious and Depressive?

N Karaoglu (Medical Education and Informatics Department, Selcuk University, Meram Faculty of Medicine, Konya, Turkey)

Background: Medical students define medical education as the greatest source of stress. Studies say that students are becoming more anxious and depressive during education. In addition there is a decrease on their humanistic values. There is also a coincidence of loneliness and depression which may be an exaggerating factor especially for depression. So the aim of this study is to compare the loneliness and the anxiety and depression scores of the first two years medical students.

Summary of work: We applied a questionnaire to the randomly selected students consisting three parts: 1- Socio-demographic data; 2- UCLA scale; 3– Hospital Anxiety and Depression Scale (HADS). Chi-square and Kruskal–Wallis tests for non-parametric variables, Student’s t-test and one-way ANOVA for parametric variables were conducted.

Summary of results: Overall 71.3% satisfied with the career they chose. The mean anxiety, depression and UCLA scores were 12.73±3.39, 5.82±3.51 and 33.54±9.79, respectively. Although the mean depression score was 5.43±3.31 in the first year it increased to 6.22±3.70 in the second year (p>0.05).
Conclusions: In this study it seems that while becoming lonelier the anxiety scores decrease but depression scores increase.

Take-home messages: There is a need for more studies exploring students’ loneliness and other psychological problems.

4CC10 Remedial Program for National Competence Examination for Indonesian Health Professional Failure
R Estiasari*, Mardiastuti, Tridjaya B, Farida, I Chair (University of Indonesia, Medical Education Unit, Jakarta, Indonesia)

Background: National Competence Examination for Indonesian Health Professional (NACE) started in 2007. Every year not only the number of participants increased but also the failure rate. To solve this problem Joint Committee of NACE initiated a remedial program which is done by medical institution including Faculty of Medicine University of Indonesia (FMUI).

Summary of work: To describe the remedial program of NACE in FMUI.

Summary of results: The remedial program has taken place 5 times since 2010. The duration of the remedial program was 2-3 weeks consisting of 7 sessions each of 1 hour. It took place at least 2 weeks before the next NACE. Participants were guided by a facilitator with ratio of 1: 5. Facilitators help to identify their weakness and help to solve them. Participants’ problems were that they were not familiar with the item form that was used in NACE, they did not master the material, some who were re-taking felt shame to take the exam.

Problems that were encountered by the program itself were the limited number of facilitators, communication problems between facilitators and participants and difficulty in evaluating the program since FMUI sometimes could not get the result of the exam.

Conclusions: This program can help to identify the difficulties and overcome them to achieve success in the next NACE.

4CC11 Attitudes of Babol University of Medical Sciences students regarding practice of University advisors
M Tayebi*, M Gharekhani, A Khani, Sh Sum (Babol University of Medical Sciences, Center for Medical Education, Babol, Iran)

Background: University plays an important role in increasing competency and ability of students. Students do not become successful just on their own and the University advisor can be a key to success. The aim of this study was assessment of students’ attitudes and awareness regarding University advisors practice.

Summary of work: This cross-sectional study was performed among 231 students of Babol University of Medical Sciences. Data were collected using a self-made questionnaire consisted of demographic information and 27 questions regarding practice of University advisors. Validity and reliability of questionnaire was confirmed (α = 0.8).

Summary of results: The results show that 71.7% of the students had a few monthly visits with their advisors. Only 13.4 % of the participants had a proper awareness of the role of University advisors. Majority of them (87.1%) agreed with having mentoring beside the advisor. Most of the students were not satisfied with their advisor’s practice (M = 35.4). Students’ satisfaction of advisors’ practice was predicted by the times of visiting (β = 0.369) and their field of study (β = 0.238).

Conclusions: As data revealed students have little awareness of University advisors’ practice and are not satisfied with their advisors’ practice. Creating a good advisor-student relationship is strongly recommended.

4CC12 Factors impacting on the success of MB, ChB students in their final examinations (2008)
A Bawoodien*, B van Heerden, M van Heusden (University of Stellenbosch, Centre for Health Sciences Education, Cape Town, South Africa)

Background: In 2008 14% (n=24) of final year students in the Faculty of Health Sciences, Stellenbosch University, South Africa, were unsuccessful in their MB, ChB final examinations, implying that they had to repeat between one to five modules in 2009. Identifying the causes contributing to being unsuccessful provided valuable information for improving academic and psychosocial support to future students in the final year of study.

Summary of work: A retrospective, qualitative study using Semi-structured interviews was conducted on 58% of the students who had been unsuccessful in the final examinations. Ethical approval for the study was obtained Participation in the project was voluntary and with informed consent.

Summary of results: Acute and chronic, pre and intraexam ination stressors were the main causes identified. The order in which the modules were assessed, perceptions by students of level of standardization of content and assessors as well as poor preparedness were also identified amongst others as a cause.

Conclusions: Student, faculty administrative and curriculum related causes were identified. Success of the at risk final year students can be improved by addressing the faculty and curriculum matters at an institutional level and implementing remediation for the student related factors.

Take-home messages: Low resilience to stress and institutional factors can impact on success of qualifying senior students.
4CC13  Stressful conditions in a simulated ambulatory setting generate a high level of stress without modifying performance of diagnostic judgment and communications skills in medical students.

P Pottier*, T Dejoie, J B Hardouin, A G Le Loupp, B Planchon, A Bonnoud, V R Leblanc (University of Nantes, Department of Internal Medicine, Nantes, France; Nantes University-Hospital Center, Department of Biochemistry, Nantes, France; University of Nantes, EA 4572 Clinical Research and Subjective Measures in Health Science; Wilson Centre - University of Toronto, Canada)

Background: We previously have shown that, in naturalistic conditions, stress responses were higher during ambulatory consultations than during in-hospital consultations. Our current objectives were to examine whether an acute state of stress could be recreated in simulated scenarios with standardized patients (SP) and whether it would modify diagnostic judgment and communication skills.

Summary of work: At day 1, 41 volunteer year 6 students participated in non-stressful simulated patient consultations. At day 2, participants were randomized in two groups according to the presence of additive stressors during the consultations. Stress was measured using visual analogical scales, Spielberger Trait-Anxiety Inventory, cognitive appraisals and salivary cortisol.

Performance of reasoning was assessed by SP from predetermined checklists and from forms written by the students. SP also rated communication skills.

Summary of results: All stress measures were significantly higher in the stress group (p<.05) with no individual influence of SP. No differences were found for performance and communications scores.

A high stress was induced with the stressful scenarios during the consultations. Stress was measured using various analytical scales, Spielberger Trait-Anxiety Inventory, cognitive appraisals and salivary cortisol.

Conclusions: Further studies should be conducted to ensure that the absence of effect of stress on diagnostic judgment is due neither to a lack of strength nor to a lack of sensitivity of our measurement tool.

4CC14  Ways of Coping as Predictors of Satisfaction with Curriculum and Academic Success in Medical School

MK Alimoglu*, E Gurpinar, Sumer Mamakli, Mehmet Aktekin (Akdeniz University, School of Medicine, Department of Medical Education, Department of Public Health, Antalya, Turkey)

Background: The study aimed to determine coping strategies of medical students and to investigate effects of coping strategies on student satisfaction and academic achievement with different instruction methods.

Summary of work: One-hundred-and-fifty-two medical students were followed throughout the first two years of medical education between 2008 and 2010. The students completed a socio-demographic questionnaire and revised form of Ways of Coping Questionnaire both at the beginning of the first year and at the end of the second year. At the end of the second year, the participants also completed a satisfaction questionnaire asking their satisfaction with lectures, PBL and practicals. Block, PBL and practical exam scores of the past two years were used as academic achievement indicators.

Summary of results: No socio-demographic variable was related to coping strategy. The majority of the students (80.9%) adopted problem-focused coping. Problem-focused coping scores increased over time. Problem-focused coping positively correlated with satisfaction with practicals and practical exam scores, whereas emotion-focused coping showed the same correlation negatively. Main coping strategy also predicted satisfaction and exam success in practicals.

Conclusions: Main coping strategy seems predicting student satisfaction and academic achievement with some student-centered instruction methods.

Take-home messages: Determining undesired coping strategies may provide an opportunity for intervention to prevent relevant dissatisfaction and failure.

4CC15  Why do students fail?

M Patel*, T Adam, M H Sattar, M Abdur-Rahman, M Hoque* (London, UK)

Background: Learning is a complex phenomenon that is influenced by many different factors. This paper integrates various studies each proposing specific factors that influence students' success rates.

Summary of results: Entwistle (1981) distinguishes deep learning and surface learning. Bruning et al demonstrates those who integrate various methods are most successful. Following one method of learning may not necessarily be advantageous in being most successful. The findings in this paper may be utilised by students to form their own distinct learning methods. Bandura’s Social cognitive learning theory argues the interdependent nature of the variables affecting learning. We have also highlighted key factors identified from various studies which affect learning: self-efficacy (Bandura), intelligence, behavioural response to success (Bruning et al., 2004), explanation of success (Attribution theory), intrinsic versus extrinsic motivation (Dweck), social aspects including the environment of learning, the socio-economic and ethnic background of the learner and environmental factors such as style of course (Johnston, 1997).
**Take-home messages:** Educators should attempt to take a holistic view of their learning environments and reflect upon whether any improvements can be made to reduce failure rates. Comparisons with other institutions (who have a lower failure rate) can also be made to identify any significant differences.

**4CC16 Survey about bullying in workplace in Medical pre grade students during community service**

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**Background:** This study was carried out to identify the workplace bullying of medical pre grade students during community service in México. This kind of practice is characterized by a strong compromise of students in severe environmental conditions, including social, economic and geographic challenges. Some articles report relative high frequency of bullying at work place in European countries, but we should predict that in our country it is highest due to historic background.

**Summary of work:** Anonymously we applied a translated questionnaire designed by Quine, which collected information about state of the country, sex, institutions of health represented, and a scale with their experience about bullying over past 12 months when ending their community service.

**Summary of results:** We present results involving 17 states of Mexico and of 220 questionnaires of a total of 526 students. The frequency of some kind of bullying was 75%, which is significantly higher than the report for European countries; the greatest frequency was about “persistent attempts to belittle and undermine their work” (45%), the lowest was “physical violence” 7%.

**Conclusions:** Considering the highest result about to belittle and undermine their work, we suggest preventative measures and continuous supervision by educational authorities.

**4CC17 Time use and academic performance of irregular students at the Facultad de Medicina UNAM in Mexico**

A Hamui*, A Díaz, R Aguirre, D Gómez (Universidad Nacional Autónoma de México, Faculty of Medicine, Postgraduate Division, México DF)

**Background:** This is a time use study carried out to learn about the academic performance of medical students and the duration of their activities.

**Summary of work:** Identify associations between academic problems and the condition of being an irregular student (re-attendants to courses due to a failure mark).

**Summary of results:** A total of 3029 undergraduate medical students answered the questionnaire; 84% freshmen (1309 out of 1555), 73% second year students (682 out of 927), 94% third year students (806 out of 850), and 66% fourth year students (531 out of 802). Only 13% re-attendants were interviewed; most of them were women (70.2%) and in their first academic year (80.7%). Also 50.6% of the re-attendants and 17.2% of the regular students had an overall mark less than 7 (p=0.00). A 5% significant association was found between being or not a regular student and looking for additional printed or electronic textbooks, looking for assistance to organize their time, and having difficulties in understanding medical texts or in performing clinical procedures. Irregular students were unsure about finishing their careers and, compared to regular students, enjoyed less their academic activities.

**Conclusions:** Re-attendants had poor cognitive and technical skills as well as logistic problems that hindered a solution to their low academic performance and lack of motivation.

**Take-home messages:** Irregular students need advice in areas such as reading comprehension, time management and academic incentive.

**4CC18 Factors that influence quality of life of medical students**

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**Background:** Medical course can affect the physical and mental health as well as the quality of life (QOL) of medical students.

**Summary of work:** We developed and validated a questionnaire to evaluate QOL of medical students and applied this questionnaire to 779 medical students (423 males and 356 females) from 75 medical schools in Brazil. This questionnaire has 50 items (Likert scale). Students also graded 0-10 their QOL in medical course. We compared the students that gave lower grades to their QOL (≤7, 44.3%) to those that gave higher grades (>7, 54.7%).

**Summary of results:** Medical students with scores >7 were more satisfied with the course (59% vs 37%, p<0.001), reported satisfactory management of time (86% vs 67%, p<0.001) and were happier with their affective and sexual life (49% vs 28% and 42% vs 28%, respectively). In contrast, more medical students with scores of QOL ≤7 considered their life as medical student bad (77% vs 35%, p<0.001). They also reported more anxiety (75% vs 55%, p<0.001), unhappiness (68% vs 41%, p<0.001) and stress (86% vs 60%, p<0.001). In contrast, students with QOL scores > 7 reported more access to psychological support (50% vs 35%, p<0.001).
Conclusions: Access to psychological support, good management of time, satisfaction with affective and sexual life and good perception of learning environment are associated to good perception of quality of life by medical students.

Take-home messages: Many factors that lower and increase QOL in medical school can be modified by changes in curriculum design, student support and medical school environment.

4DD1 Secrets of Success 3

4DD1 How well do you know your curriculum?
P Horner*, S Cotterill*, G Skelly, S Ball, A McDonald, J Peterson (Newcastle University, School of Medical Sciences Education Development, Newcastle-upon-Tyne, UK)

Background and description of innovation: Curriculum maps have an important role in learning, teaching, quality assurance and curriculum management (Harden, 2001), but key challenges are complexity and demands on staff time (Willett, 2008). Newcastle University have developed “Dynamic Learning Maps” (DLM) to help address these challenges, and this software is now used across the medical degree programme at Newcastle.

What is particularly interesting about the innovation? DLM is unique in being able to demonstrate the formal curriculum as prescribed by the university, while providing a mechanism for personal learning, allowing individuals to make private connections between concepts and to reflect on any area of the curriculum. It provides a picture of where teaching and learning activities fit within the wider curriculum; reducing unwanted repetition and providing clarity where repetition occurs within the spiral curriculum.

Demonstration: The presentation will demonstrate how DLM is being used in the Medical programme at Newcastle. The audience will be given the opportunity to steer the session to make it both interesting and relevant to their requirements.

Why participants should come to the demonstration: By demonstrating Newcastle’s success with DLM, we will stimulate discussion around how curriculum maps, and DLM in particular, could be utilised within participants’ own degree programmes to enhance learning provision.
Increasingly important to seek innovative resources to support training.

**What will be demonstrated:** We identified the need for an online curriculum map and portal to a blend of learning resources mapped to specific competences. We developed a bespoke on-line tool to ‘signpost’ information and resources.

**What is particularly interesting about the innovation/How it could be implemented?:** Key areas were identified and developed as part of an easy-to-use graphical website providing both information and links to key local, regional and national training resources. Learning opportunities were mapped using our innovative ‘Signpost Tool’ to enable users to browse the medical curriculum and identify resources which facilitate achieving specific competences. These include e-learning, face to face courses and ideas for innovative training in the workplace. Importantly, all users can write reviews, give a star rating and add resources, creating an open, dynamic, user-driven tool.

**Why participants should come to the demonstration:** Curriculum mapping provides clarity and demonstrates links between learning opportunities and the curriculum. Signpost achieves this and provides a portal for all users to contribute quality resources in real-time.

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**4DD4 Model for Preclinical Medical Lecture and Question Analysis**

*J Looney, F Rawlins* (Edward Via College of Osteopathic Medicine, Simulation and Technology Center, 2265 Kraft Dr, Blacksburg VA 24060, USA)

**Short description of innovation:** The Edward Via College of Osteopathic Medicine (VCOM) has created a novel approach to pre-clinical lecture and question analysis.

**What will be demonstrated:** A categorization method is used to show a mapping of each lecture and question that is presented to the students. This categorization starts with a master topic and sub-categorizes into a more defined symptom. For example, cardiac failure can be found under diseases of the myocardium, which ultimately results in cardiovascular disorders. This mapping allows for a graphical view of lectures and questions based on topics.

**What is particularly interesting about the innovation/How it could be implemented:** Faculty submit their lecture topics and exam questions with categorizations on a web-based form for submission into a structured query language database. The questions are assimilated into an exam format given to the students. Upon completion, statistical analysis is performed on each question determining the distractor index, item difficulty, and point biserial. The exam metrics are used to analyze the question and lecture quality.

**Why participants should come to the demonstration:** The result of this multivariate analysis is to improve lecture and question quality and eliminate any redundancy.
TUESDAY 30 AUGUST

SESSION 5: SIMULTANEOUS SESSIONS

5A Symposium: What is Evidence?
Different perspectives

Chair: Jill Thistlethwaite (University of Queensland, Australia); Panel: Marilyn Hammick (BEME Consultant, UK); Huw Davies (University of St Andrews, UK); Trisha Greenhalgh (Blizard Institute & Barts and the London, UK); Tim Dornan (Maastricht University, Netherlands); Ross Scalese (Miller School of Medicine, University of Miami, USA)

With the increasing interest in research in medical education and as the Best Evidence Medical Education (BEME) Collaboration enters its second decade, it is timely to review the nature of the evidence that is needed to assist educators in the decisions they make about their teaching practice, curriculum design and education policy. In this symposium a panel of five authorities on the subject present briefly their own perspectives as to the nature of the evidence that should be used to inform decisions about medical education. This will be followed by an open discussion with symposium participants, leading to conclusions that can help to inform further work in the area.

5B Symposium: A Calling to Medicine: International Perspectives on Physician Career, Admissions and Professional Development

Chair: Nicole J Borges (Wright State University Boonshoft School of Medicine, USA); Panel: R Stephen Manuel (University of Cincinnati College of Medicine, USA); Eva E Johansson (Umea University, Sweden)

Calling as it relates to the vocation of medicine is an important area of inquiry for discussion and application in medical education for several reasons--especially given heightened attention to professionalism and professional identity development. Calling to the vocation of medicine will be discussed and panelists will address calling as it relates to medical school admissions and the Multiple Mini Interview (MMI); calling across the medical education continuum; calling and professional development of medical students; and students’ gender related attitudes to calling and their expectations for the future.

5C Short Communications: Learning in the Curriculum

5C1 The role of blended learning in the clinical education of healthcare students: a systematic review
Michael Rowe (Physiotherapy Department, University of the Western Cape, Private Bag X17, Bellville 7535, Cape Town, South Africa)

Background: Clinical education provides students with learning experiences that cannot be replicated in a classroom. However, understanding practice knowledge is complex and difficult to teach. Blended learning integrates face-to-face and online engagement to provide greater flexibility in teaching and learning but little is known about its potential in clinical education.

Summary of work: The aim was to determine the impact of blended learning in clinical education. Articles published between 2000 and 2010 were retrieved, and included multiple research methodologies. Search terms were derived following a preliminary review of relevant literature.

Summary of results: 97 articles were retrieved and following critical appraisal, 7 were kept for the review. Each study evaluated the use of a blended learning intervention in a clinical context, although each intervention was different. Three studies included a control group, and two were qualitative in nature. Six showed an improvement in some aspect of clinical education.

Conclusions: There are few well-designed studies looking at the role of blended learning in clinical education and those that were published were not homogenous, making comparison difficult. In addition, sample sizes were small, making results hard to generalise to other populations.

Take-home messages: A blended approach to clinical education may facilitate deeper understanding of practice knowledge, improve reflective skills and enhance clinical competencies.

5C2 Supporting Scottish dental education through collaborative development and sharing of digital teaching and learning resources – a model for other healthcare professions?
D Dewhurst*, J A Harrison, A H Forgie, M Begg (College of Medicine & Veterinary Medicine, University of Edinburgh, Hugh Robson Building, 15 George Square, Edinburgh EH8 9XD, UK)

Background: A recent scoping study revealed that Scotland’s dental schools were making little use of e-learning. This led to a NES-funded national project, Collaborative Learning Environment Online (CLEO), which aims to stimulate collaborative development of
e-learning resources, ensure best practice and enable effective sharing of outputs.

**Summary of work:** Collectively the Schools have significant and varied discipline expertise and they have prioritised areas of the dental curriculum where on-line resources would have most benefit across Scotland. Academic/clinical and learning technologist appointments in each school underpin the development of resources in line with the School’s particular expertise.

**Summary of results:** CLEO has developed an impressive range of online resources (examples presented), ranging from granular assets, to discrete learning activities. The project has faced a number of challenges and these will be discussed: sustainability for a large scale, fixed term project; working across 2 secure but unrelated networks (HE and NHS); developing robust consent and IPR policies and supporting workflow for innovative practice; building and maintaining a low-cost repository.

**Take-home messages:** CLEO is a successful example of how multi-institutional collaborative development and sharing of high-quality digital resources can be achieved. The usefulness of this approach for supporting other healthcare education disciplines should be considered.

### 5C3 An electronic lexicon in obstetrics

**Athol Kent**, Vanessa Perrott (University of Cape Town, Department of Obstetrics & Gynaecology, Groote Schuur Hospital, Observatory 7925, South Africa)

**Background:** Obstetrics has many new words, terms and abbreviations that students have to learn when they start their undergraduate studies. Without mastery of this “new language” they at a disadvantage so we created an electronic lexicon which the students can study in their own time and test their knowledge.

**Summary of work:** A programme called the Core Obstetric Self Test was designed in which students can view the entire content on-line, study it and then test themselves to gauge their mastery of the 600 terms presented. The programme will mark their answers and give them their results.

**Summary of results:** Students find that the Core Obstetric Self Test programme helps them to understand what new terms they need to understand before attending lectures, ward rounds and other learning situations. Actual examples and qualitative feedback will be presented.

**Conclusions:** Students enjoy learning the language of obstetrics electronically, testing themselves on-line and feel it helps them to learn in the clinical situation.

**Take-home messages:** Learning obstetric terms on-line helps undergraduate students when they come to learn clinically.

### 5C4 The literature as a mean of distance learning in a Postgraduate Course of Family Health

**ME Pinto**, L Pinheiro, A Dahmer (Universidade Federal de Ciências da Saúde de Porto Alegre, Collective Health Department, Porto Alegre, Brazil; Universidade Federal de Ciências da Saúde de Porto Alegre, Education and Health Information Department, Porto Alegre, Brazil)

**Background:** The literature, that represent the human realities in a hypothetical way but real in fiction, dialogues with diverse areas of knowledge, including Health. The Specialization Course in Family Health UFCSPA, part of the UNA-SUS Project which aims to meet the needs of training and continuing education for professionals in the Brazilian Health System using distance learning, created a fictional town and used for introducing and developing contents.

**Summary of work:** Working with the theories of cities’ formation and their use in literature, the professors created the city of Santa Fe (history, social factors, geographical, political and structural, as the health system) to illustrate and transport postgraduates students to an invented reality similar to what they experience day-to-day as a doctor working at Primary Care center. The goal, besides being a trend of humanization of Health in Brazil, is to create an environment closer to the reality experienced by students in communities to shield the ethics issues involved, while it provides the interactivity in the virtual environment, since students will be the subject of their learning.

**Conclusions:** The results are visible: the proposed level of interaction actually occurs in the course and enables discussion of how applied, even by means of a fantasy city

**Take-home messages:** It’s possible to innovate in medical education using literature as a means of humanizing work and approximation of reality in distance learning.

### 5C5 Virtual clinical encounters for developing and assessing interpersonal and transcultural competence with traumatized patients

**I Pantziaras**, O Courteille, U Fors, R Mollica, S Ekblad† (Dept. of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden; Dept. of Computer and Systems Science, Stockholm University, Stockholm, Sweden; Harvard Program for Refugee Trauma (HPRT), USA)

**Background:** Patients and healthcare professionals are migrating in a never before seen rate, complexity and fashion. Encountering patients from a variety of cultures, with traumatic backgrounds, eg. war and natural catastrophes, challenges both interpersonal and transcultural competence. Conducting clinical
interviews with traumatized patients suffering from severe biological and behavioural health problems, in a gender related perspective, calls for innovative learning environments to develop and assess such competencies.

**Summary of work:** In collaboration with the Harvard Program for Refugee Trauma, we developed a virtual refugee trauma simulation, where learners freely interact with virtual refugees and receive detailed summative feedback regarding actions taken, their appropriateness and the quality of case management.

**Summary of results:** The trauma simulation was tested in a pilot study with 9 psychiatry residents. Pre- and post-questionnaires, as well as semi-structured interviews, were used to provide reflection and evaluation about the learning tool’s educational value.

**Conclusions:** The simulation was perceived as an engaging and challenging educational activity contributing to increased confidence in identifying and dealing with trauma from a transcultural perspective, and enhanced awareness in the value of good interpersonal communication skills.

**Take-home messages:** The Virtual refugee simulation was highly perceived as a potential learning tool to develop and master interpersonal and transcultural competence.

**SC6 The Revised uOttawa MD Program Curriculum: Implementing the Future of Medical Education in Canada Recommendations**


(University of Ottawa Faculty of Medicine, 2038-451 Smyth Rd, Ottawa, ON, K1H 8M5, Canada)

**Background:** The University of Ottawa Faculty of Medicine undertook a complete review of the MD Program curriculum during 2005-2007. The revised curriculum was implemented over 2008-2010.

**Summary of work:** The process of curriculum review included faculty, student and evaluation retreats, graduate surveys, interviews with curricular leaders, reports from groups focused on problem or under-represented content, external consultations, review of international curricula, courses on curriculum development and an extensive review of the literature.

**Summary of results:** The Educational Objectives for the revised curriculum are based on the eight competencies to be achieved by our graduates: Clinician, communicator, collaborator, scholar, advocate, manager, professional and person. The Core Principles are integration, clinical relevance, social responsiveness, scientist/generalist/specialist balance, inter-professionalism, professionalism and innovation. The structure of the pre-clerkship incorporates the 13 previous blocks into 4 integrated units. New focus areas include pain, obesity and Aboriginal health. Shifts in learning strategies include a move from Problem Based Learning to Case Based Learning, adding Team Based Learning, Self Learning Modules, and reducing lecture time.

**Conclusions:** Although our revised curriculum was created just prior to the development of the Future of Medical Education in Canada we believe we are implementing the draft recommendations. Ongoing response to student and faculty feedback will assure continuing quality improvement.

**5D Short Communications: The Trainee in Difficulty**

**5D1 Targeting the ‘Real’ Problems: Identification, Diagnosis and Interventions for Residents in Need**

*Susan Glover Takahashi*, **Sal Spadafora**, **Dawn Martin**, **Erika Abner**

(Postgraduate Medical Education, University of Toronto, 500 University Avenue, Suite 602, Toronto ON, Canada M5G 1V7)

**Background:** This case report is a retrospective study about remediation system to support programs and their residents in need and describes the implementation of a targeted team approach to identify and remediate the ‘real’ problems.

**Summary of work:** The case report provides a descriptive profile of more than 60 resident cases from 3 academic years describing their specialty programs, training levels and the competency areas of need. The descriptive profile outlines the presenting problems and associated issues, which may be causal, contributory, or co-morbidity.

**Summary of results:** Residents in need have several problems with Knowledge/clinical skills consistently presenting as the primary issues. The number and complexity of problems is increasing (from 2.3 problems/trainee in 06-07 to 3.8 problems/trainee in 08-09). Wellness problems were noted to be a frequent co-morbidity.

**Conclusions:** Remediation plans now include explicitly articulated educational purposes and more objective learner assessments. Often wellness needs to be addressed. The integrated team approach has been well received and there is improved clarity about objectives and outcomes. Tracking the demographic profile of residents in difficulty has informed the needed system wide supports to prevent and manage residents in need.

**Take-home messages:** An integrated team approach to provide targeted remediation for residents in need is useful.

**5D2 Trainees in Difficulty in the Era of “Competencies”**

*D Dupras*1, **R Edson**1, **A Halvorsen**1, **R Hopkins**1, **F McDonald**1 (1Mayo Clinic College of Medicine, Mayo
Background: Yao reported a point prevalence of 6.9% of internal medicine trainees (IMT) with performance problems in a 2000 study. However, with increased emphasis on competency-based education, it is unknown if there have been changes in the frequency, type, and remediation of performance problems.

Summary of work: A web-based survey was distributed in 2008 to all 372 U.S. Internal Medicine residency program directors to assess the type, prevalence, and remediation of trainees with performance difficulties.

Summary of results: Of the 268 (72.0%) responding programs, 73.5% reported having one or more trainees with difficulties (TWD). The point prevalence for TWD was 3.5%. Most commonly they were identified in the in-patient setting (83.3%) and by faculty attendings and peers. Performance problems were most commonly related to patient care, but more than 75% of the TWD had problems in multiple competencies. Successful remediation was most common for knowledge deficiencies (85.8%) and least for problems related to professionalism (48.5% successful). Retrospectively, 34.5% of program directors believe they could have predicted TWD.

Conclusions: A small number of IMT have performance issues and often are deficient in more than one competency. Remediation is most successful for medical knowledge deficits. Current application processes do not prevent TWD.

Take-home messages: 1. Performance issues are uncommon in Internal Medicine trainees.
2. The current application process is not highly predictive of resident performance problems.
3. Remediation is most successful for deficiencies in medical knowledge and least successful for professionalism issues.

5D4 A study of doctors in difficulty referred on the ground of communication: An exploration of referral triggers, remediation and subsequent career progression
J Whetstone (Primary Care Clinical Sciences: Interactive Studies Unit, University of Birmingham, Birmingham, UK)

Background: Since 2003, qualified doctors and dentists have been referred to the ISU in increasing numbers, (n= 75: 2010), to explore and remedy communication difficulties, experienced in a range of contexts.

Summary of work: We studied the 2009 cohort (n=46) to explore the complex triggers for referral, the nature of remediation and the outcomes of intervention related to career progress.

Summary of results: 10 key triggers were identified with 54% having failed year end or exit assessments. Referral documentation cited, at times, four different triggers, of which one was almost always a career progression hurdle or exit qualification. 71% were doctors in Specialty Training, with 18 different post-foundation specialties represented. In terms of outcomes, subsequent evidence has shown that 8.5% have failed to progress in their careers with 91.5% progressing towards their goals. One to one contact with referred doctors has added qualitative evidence
both on perceptions and timing of referrals and the value of the subsequent interventions.

Conclusions: Triggers for referring doctors in difficulty are necessarily complex, wide-ranging and in many cases occur only in training or exit assessments, leading to training period extensions. Take-home messages: A need for earlier referral and intervention appear vital in achieving successful remediation, benefitting doctors in difficulty, referring institutions and ultimately patient care.

5D5 Trainees in Difficulty - The Trainers' Perspective
Rosa McNamara*, Gareth Quin (Midwestern Regional Hospital Limerick, Emergency Department, Limerick, Ireland)

Background: There has been remarkably little study of the challenges that trainers face when supporting trainees in difficulty. The aim of this study is to explore trainers' perspectives.

Summary of work: A quantitative web-based survey was distributed to 360 surgical trainers in Ireland.

Summary of results: Of the 58 respondents, 41 (71%) encountered a trainee in difficulty in the past year. Common difficulties were clinical underperformance (70%), poor professional manner (37.5%), health and personal problems (both 27.5%). Informal staff reports were the commonest alert. 7.7% reported awareness of a written policy for managing trainees in difficulty in their departments. 32.7% had formal systems of remediation. A majority indicated that they would never report unremediable trainees to the Irish Medical Council (IMC), or suspend them. Of the 6 trainers who had reported trainees to the IMC, 5 were unhappy with the outcome. 50% of respondents felt it was not possible to dismiss a poorly-performing trainee. 47% of trainers felt that the current system for managing trainees in difficulty was failing patients, while 37.3% felt it was failing trainees. The majority of trainers indicated that they would never report unremediable trainees to the Irish Medical Council (IMC), or suspend them. Of the 6 trainers who had reported trainees to the IMC, 5 were unhappy with the outcome. 50% of respondents felt it was not possible to dismiss a poorly-performing trainee. 47% of trainers felt that the current system for managing trainees in difficulty was failing patients, while 37.3% felt it was failing trainees. The majority of trainers indicated that the current IMC registration process does not ensure a satisfactory standard of trainee. Take-home messages: Further qualitative work needs to be done in this important area.

5E Short Communications: Assessment General

5E1 Development and validation of guidelines for designing programmes of assessment
J Dijkstra*, C P M Van der Vleuten, L W T Schuwirth (Maastricht University, Faculty of Health, Medicine and Life Sciences, Department of Educational Development and Research, Maastricht, The Netherlands)

Background: An assessment programme is necessary to achieve a complete picture of student competence. A purposeful mix of instruments should optimally match the purpose of assessment. Although integrated, high quality assessment programmes exist, requirements for such programmes are unclear. Summary of work: An earlier developed framework for designing assessment programmes identified areas to be covered by our guidelines. As purpose was identified as pivotal, a utilitarian approach defining quality as fitness-for-purpose was adopted to develop and validate guidelines. First, a brainstorm generated ideas, followed by elaboration through interviewing 9 international experts on assessment. Third, fine-tuning was done based on analysis of the interviews. Finally, validation was based on expert consensus via member checking.

Summary of results: A set of 72 guidelines is proposed. Many focus on practical aspects, especially collecting information. This corresponds with many research efforts, focusing on specific instruments. Some guidelines are less straightforward, resulting in less detailed guidelines.

Conclusions: Some guidelines have similar characteristics emerging in three major themes applicable to the complete design process: Proportionality; Need for underpinning; and Expertise. Take-home messages: Given the fitness-for-purpose principle, the importance of guidelines varies in different contexts. Application of guidelines should be eclectic, providing designers freedom to use own expertise to make decisions based on specific circumstances.

5E2 Who is the standardized student? Personality influences student choice of final assessment format
E Nilsonne, K Sorjonen, Y Tyson* (Karolinska Institutet, Department of Clinical Neuroscience, Division of Psychology, Stockholm, Sweden)

Background: Standardized examinations are generally used in medical education. Students vary, however, both in cognitive style and in how they cope with the demands of different kinds of examination. Any examination format will thus be better matched to some students than to others, which may create a positive or negative bias in the assessment. We attempted to measure how personality influenced students preferred style of assessment.

Summary of work: 124 third year medical students chose examination by daily portfolio, traditional written exam or take-home exam during a 2 week course in Medical Psychology. Student personality was assessed according to Big-5.

Summary of results: Students who chose portfolio (N=67) were more extroverted than those who chose
the take-home exam (N=20) They also tended to be more assertive and have more positive emotions. **Conclusions:** It is possible to use different types of examination on the same course. Personality can influence preferred method of examination. **Take-home messages:** There may be no examination that is ideal for all students so why not diversify?

5E3 A better way to learn? Using certainty-based assessment in the latter years of clinical courses

Charles Mitchell*, Elaine Lum, Ian Coombes (University of Queensland, Brisbane, Australia)

**Background:** Knowledge must be considered as a function of certainty. There are states of knowledge that are a lot less safe than acknowledged ignorance. In the clinical setting, guessing and false knowledge are major contributors to adverse events and have a major impact on quality and safety in healthcare. Therefore, we need to be able to assess when students are sure or unsure of their answers in assessment. Certainty-based assessment (CBA) is one innovative way of achieving this.

**Summary of work:** We propose that CBA is a more appropriate approach to assessment than many traditional methods. It rewards students’ knowledge, motivates students, better informs teachers of the depth of understanding of students and may lead to safer practice. We shall briefly review the formats that might be used to assess students’ confidence in their knowledge, present some results of the use of CBA in a prescribing competency workshop and propose the way in which we may proceed to implement CBA.

**Conclusions:** Why don’t we use CBA? How should we mark CBA? Should we have an aggregation of marks or require certain knowledge to be held with certainty and allow only a minimum number of incorrect concepts to be held to be certain?

5E4 Enhancing Evaluations with RIME in the Middle East

Mai Mahmoud*, Dora J Stadler* (Weill Cornell Medical College-Qatar, Department of Medical Education, PO Box 24144, Doha, Qatar)

**Background:** The RIME (Reporter-Interpreter-Manager-Educator) scheme is a conceptual framework for assessing competence. Weill Cornell Medical College in Qatar (WCMC-Q) is the first North American medical school in a region where traditionally, clinical evaluation is by summative final exam for each discipline of medicine (written, oral and clinical components). In our 12-week US style clerkship, formative and detailed summative evaluations are of utmost importance. We describe our experience in implementing the RIME method for evaluation in the medicine clerkship.

**Summary of work:** Introduction to RIME was given at the beginning of the clerkship to students and faculty. Formal evaluation sessions were conducted midblock and at the end of the clerkship rotations. Starting with residents, the team spent 15-min evaluating each student. The sessions were facilitated and documented by clerkship co-directors (CDs). Standard evaluation forms were also collected.

**Summary of results:** The quality of the feedback improved significantly. We achieved more direct and improved communication with clinical faculty. Residents developed successful feedback skills and students were more satisfied with the depth of their evaluations (verbal feedback).

**Conclusions:** We were able to receive meaningful evaluations that help us better measure our clerkship objectives.

**Take-home messages:** The RIME framework is a successful and acceptable method to assess competence in a non-North American setting.

5E5 Work-place based assessments: an analysis of ePortfolio data

A Haig*, K Beggs (NHS Education for Scotland, 11 Hill Square, Edinburgh EH8 9DR, UK)

**Background:** All trainee doctors in the UK (and Malta) enter the Foundation Programme upon graduation from medical school. This two year programme provides generic training to enable the move to general practice or higher speciality training during which time, progress towards all competencies within the curriculum are assessed and closely monitored.

**Summary of work:** This paper examines the time various health professionals spend assessing trainees via three tools: Mini-CEX (clinical evaluation exercise), DOPS (direct observation of procedural skills) and Case-based Discussion. The regulatory body recommends minimum durations to be spent on both assessments and feedback. Twenty four of the twenty five Foundation Schools use the NES (NHS Education for Scotland) ePortfolio to record assessment.

**Summary of results:** Detailed (anonymised) data from the ePortfolio will be extracted for analysis to evaluate it against the guidance. The role of the assessor will be compared to guidelines on expected and appropriate numbers of assessments. In addition, any regional variation in the use of these summative tools will be described.

**Conclusions:** As work-place based assessments consume large amounts of time and resource, this paper will provide evidence for discussion on how closely their use in practice conforms to intention and what might improve and standardise practice.

**Take-home messages:** An analysis of the most recent training year’s WPBA data, looking specifically at time, role and adherence to guidance.
5E6  Associations between the written clinical knowledge test and the clinical performance test
Anneke J A H van Vught (HAN University of Applied Sciences, Nijmegen, The Netherlands; Radboud University Nijmegen Medical Centre, The Netherlands)

Background: Two kinds of tests are used within the physician assistant (PA) programme at HAN university (Nijmegen, The Netherlands), i.e. written clinical knowledge tests and clinical performance tests (extended OSCE). The aim of this study is to investigate if both tests discriminate similarly between students’ clinical competence.

Summary of work: During the programme participants were tested eight times by means of a written knowledge test. At the end of the programme participants were subjected to the extended OSCE, including history taking, physical examination, professional behaviour, communication skills and clinical reporting skills; forming a problem list, differential diagnosis and diagnostic/therapeutic approach. By using partial correlations, it is calculated to what extent the tests predict each other’s outcome (n=87).

Summary of results: Scores on the knowledge tests were slightly positively associated (0.3<r<0.5, p<0.05) with the scores on the performance test, except professional behaviour and communication skills (r=0.1).

Conclusions: Test scores between different tests were partly correlated. This supports the importance of using different kinds of tests in medical education.

Take-home messages: By using different tests, different aspects of clinical competences might be tested.

5F  Short Communications: Problem Based Learning

5F1  Cultural and demographic diversity in problem based learning cases: an opportunity to reinforce our values
A Vnuk*, H Ward, J Ash (Flinders University, Adelaide, SA, Australia)

Background: Problem Based Learning is the basis of learning in the first two years of our four year postgraduate medical curriculum. The weekly cases have been carefully crafted to promote learning objectives in areas such as anatomy, physiology, biochemistry and pathology.

Summary of work: All of the 56 cases (comprising 59 patients) were analysed for their demographic and cultural details including gender, age, race, ethnicity, marital status, religion, sexual orientation, urban/rural/remote and occupation and were compared with census and health service statistics.

Summary of results: There is an under-representation from the following groups: indigenous, elderly and single parent families. More significantly, for a large number of patients, these demographic and cultural details are incomplete.

Conclusions: PBL cases provide an excellent opportunity to connect the biomedical and social determinants of health. This was identified as an important issue in a recent values consultation in our medical school. Also, the addition of cultural background and demographics to all cases will prevent any of claims of “critical whiteness” by default and promote cultural awareness and safety, one of the outcomes for the medical students of this course.

Take-home messages: Important values and outcomes must be reinforced throughout the curriculum.

5F2  Cross-cultural perspectives on PBL and personality
A Holen*1, K Manandhar2, B Karmacharya2 (1Norwegian University of Science and Technology, Faculty of Medicine, Trondheim, Norway; 2Kathmandu University School of Medical Sciences, Dhulikhel, Nepal)

Background: PBL is taught in different cultures to students with various personality profiles. This study explored if gender, age and cultural background and personality trait would make a difference in the students’ attitudes towards PBL.

Summary of work: Second year medical students in Norway and Nepal completed the same questionnaire which captured their attitudes towards PBL and their personality traits by using 5pf-inventory.

Summary of results: Favourable attitudes towards PBL were found to be more pronounced with higher age and by students with extrovert and conscientious personality traits. Negative attitudes were reported more by males, by the introvert and younger students. The Nepali students were more positive to PBL than the Norwegians.

Conclusions: Personality, age, gender and cultural background were related to the attitudes towards PBL. Not all personality profiles agree well with PBL.

Take-home messages: Not all personality profiles agree well with PBL.

5F3  Teaching Medical Students the Theory and Research Underpinning Problem Based Learning: A Randomised Controlled Trial
RG Wade*, P Musonda, D Hubble, SJ Leinster (Norwich Medical School, University of East Anglia, Norwich, Norfolk NR4 7TJ, UK)

Background: Problem Based Learning (PBL) is a well-established tool in higher education, yet some students doubt its efficacy in medical training. By providing a
better understanding of the theories and research underpinning PBL, students’ learning and perceptions may be enhanced.

**Summary of work:** In our trial, 153 second year medical students were randomised to the Intervention Group to receive a 15min lecture entitled “The Theories and Research Underpinning PBL”, or to the Control Group to receive no additional teaching. At baseline (week 0), intervention (week 4), week 9 and week 11 follow-ups, both groups completed six Visual Analogue Scales (VAS) pertaining to PBL. Means were compared using independent samples t-tests and adjusted ANCOVA modelling.

**Summary of results:** Overall, 106 (71.6%) students completed the trial. Following the lecture, the Intervention Group reported significantly higher VAS scores regarding the theory and research underpinning PBL compared to controls (6.8 vs. 5.7 cm, p=0.015); this persisted to week 9 follow-up (7.3 vs. 5.9 cm, p=0.001). At week 11, compared to Controls, the Intervention Group reported significant improvements to enjoyment of PBL (p=0.007), and perceptions of the relevance (p=0.0.12) and amount of academic knowledge acquired during PBL sessions (p=0.012).

**Conclusions:** Teaching medical students the theories and research underpinning PBL seems to improve the enjoyment, perceived relevance and knowledge acquired during PBL. This may further improve engagement and therefore, learning.

**Take-home messages:** By teaching students why PBL is used in medical training, engagement and thus learning may be enhanced.

**SF5 Problem-based learning in Second Life**

*S Kavia*, L Woodham, T Jivram, E Conradi, T Poulton (St George’s University, e-Learning in Medical Education, London, UK)

**Background:** As part of a curriculum transformation project, paper problem-based learning (PBL) cases had been repurposed into interactive online patient cases. These allowed students to make clinical decisions and exploring the outcomes of those decisions. In a feasibility trial, one case was repurposed for delivery in a virtual world called Second Life (SL).

**Summary of work:** Representative students from each PBL group were trained to use the SL scenario. Facilitators were provided with additional information to give both technical and subject expert assistance. The trial was evaluated using questionnaires and session logs. Most students had no previous experience of using SL.

**Summary of results:** Students generally agreed SL could provide a useful learning resource. The scenario was moderately easy to use. The main difficulty was using the chat function to generate the history information of the patient. Facilitators reported positively on the effectiveness of the scenario, but noted the technology occasionally “got in the way” of the learning.

**Conclusions:** Second life proved a suitable 3D platform for delivering virtual patient cases. Students appreciated the potential of virtual worlds, but marginally preferred their previous interactive delivery.

**Take-home messages:** SL provided an immersive, 'open-ended decision' approach to delivering PBL but care is need to avoid the technology interfering with the learning experience.

**5G Short Communications: Reflection and Critical Thinking**

**SG1 The influence of reflection triggered by video-cases on medical students’ case-solving**

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**Summary of results:** Increased flexibility for teaching and learning was rated highly by tutors and students. Online discussions were considered by the students to be enjoyable and motivating. There were high levels of online collaboration, especially with sharing of multimedia resources. In addition, the students stated that their writing and computer skills had developed.

**Conclusions:** The integration of a facilitated online discussion forum between sessions on a conventional PBL course makes learning more interactive and interesting.

**Take-home messages:** A facilitated online discussion forum between PBL sessions has the exciting potential to enhance learning on a traditional PBL course.
Background: Clinical competence needed to solve cases is characterized by a knowledge base and general consultations skills e.g. history taking and treatment planning. The purpose of this study is to investigate the added value of reflection on consultation experiences in relation to case-solving.

Summary of work: We asked 270 undergraduate medical students to solve 2 interactive video-cases and to reflect on their experiences during each case. A rubric was used to score the reflection process. Regression analysis was used to identify whether reflection process scores besides knowledge (student-scores on the Dutch Progress test) and general consultation skills (consultation course scores) had any relation with the case-scores.

Summary of results: The reflection process variable had a modest but significant contribution in the model predicting the case-solving scores (Anova F=11.00, p<0.001, adjusted R-square 0.10, adjusted R-square change caused by reflection 0.03). This effect increased for students with the 10 % highest and lowest reflection scores (Anova F=9.12, p<0.001, adjusted R-square 0.21, adjusted R-square change caused by reflection 0.14).

Conclusions: Results suggest that reflection is a small but significant indicator of case-solving. The effect increases for students with explicit high and low reflection scores.

Take-home messages: Enhancing the reflection process in undergraduate medical students seems to have a positive influence on their case-solving.

5G2 Do Medical Students Value Clinical Reflection?
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Background: The importance of personal reflection in the development of healthcare professionals is widely recognised, and as such it has been incorporated into many undergraduate curricula. There is limited literature exploring whether undergraduate medical students value the experience.

Summary of work: A cohort of third year medical students were asked to rate their experience using reflection and their judgements of its usefulness and value to them. This was done using a questionnaire collecting both quantitative and qualitative data.

Summary of results: 115 students responded (75.16% of the cohort). 46.95% positively valued the experience and 34% were undecided, and 70.43% of the respondents found reflection useful. Qualitative data revealed that informal discussion is preferred to a formal written reflection.

Conclusions: We conclude that our cohort values reflection in general, but even amongst those who are unsure it is still seen to be useful. It is perceived as most useful when performed informally in groups.

Take-home messages: Students do value clinical reflection as a positive experience. A range of methods should be offered for them to share this experience such as peer led groups and informal discussion groups.

5G3 Triggers for reflection: exploring the act of written reflection and the hidden art of reflective practice
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Background: McNeill et al (2010) reported a variation between the extent to which Specialist Trainees both engaged in and documented reflection. This paper reports the second phase which explored in depth factors that trigger specialist trainees’ reflection and why documented evidence may not always encapsulate the implicit cognitive processes of making sense of events/experiences.

Summary of work: Semi-structured interviews were conducted with fifteen specialist trainees across one Deanery. Qualitative analysis of transcripts established key themes.

Summary of results: Six categories emerged: help/hindering forces; written reflection; triggers for reflection/focus; the role of others excluding Educational Supervisors; amount of reflection; specific role of Educational Supervisors.

Conclusions: Written reflections in e-portfolios differ from cognitive processes due to the context of how and why they are undertaken: time delays and restraints; privacy concerns; doubts on who will read accounts; engagement of Educational Supervisor in reading accounts; whether positive or negative events; and the type of event being reflected upon.

Take-home messages: Specialist doctors are reflecting, in a highly individualised way, on clinical experiences. They are engaging in cognitive processes that often differ and are in far more depth than written accounts suggest.


5G4 The role of biomedical knowledge in osteopathic clinical-decision making
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**Background:** Authors in the field of osteopathy have claimed that biomedical knowledge is central to osteopathic diagnosis. The role of biomedical knowledge requires however, empirical validation.

**Summary of work:** We investigated differences in the mental representation of knowledge in penultimate (n = 30) and final year (n = 30) undergraduate osteopathy students, and experienced osteopaths (n = 30). In particular, we explored the role of encapsulated and biomedical knowledge. Participants were instructed to study two clinical case scenarios presented separately on a computer screen. On completion of a diagnostic task, participants were required to make speedy responses to target items that consisted of presented signs and symptoms, encapsulated, biomedical, osteopathic, and filler items.

**Summary of results:** Osteopaths were more accurate in their diagnosis than students; however, no significant differences in the response times and errors rates for target items were found across the three different levels of expertise. Although the participants were faster at judging encapsulated items than biomedical items, no significant differences in errors rates were found.

**Conclusions:** Results demonstrate that biomedical knowledge remains strongly represented in the long-term memory of experienced osteopaths.

**Take-home messages:** Although biomedical knowledge becomes encapsulated into diagnostic categories at early stages of the students’ clinical training; it plays a crucial role in osteopathic clinical-decision making.

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5G5 A study of developing critical thinking disposition in students of nursing and midwifery through Collaborative and Individual methods of learning in Kermanshah, Iran
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**Background:** With regard to the importance and improvement of critical thinking in education and learning, this study was carried out to provide an answer to the question: “Can collaborative learning develop critical thinking disposition in nursing and midwifery students?”

**Summary of work:** The pretest and posttest equivalent groups of quasi-experimental design was carried out on 115 nursing and midwifery students, who were divided into two groups of learning (collaborative and individual) as experimental and control groups randomly. The California Critical Thinking Disposition Inventory (CCTDI) was used to gather the data. This tool consists of an overall score on one’s Critical Thinking Disposition and seven sub-scales such as CT-Confidence, Truth-seeking, Analytical, Inquisitiveness, Systematicity, Maturity, and open-minded.

**Summary of results:** 83.3 % vs. 84.3% of participants in experimental and control groups were female. 57.2% vs 7.6% of experimental and control groups were second year and the rest of them were third year grade, respectively. There were no significant differences between the two groups in total score and sub-scales (except inquisitiveness) of critical thinking disposition.

**Conclusions:** This study showed that critical thinking disposition does not improve in a short time by using active strategies.

**Take-home messages:** The society culture is so important to develop critical thinking disposition.

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5H Short Communications: Student Characteristics

5H1 Self-affirmation: medical students developing “healthy” confidence by using video self-analysis
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**Background:** Health professional education uses video recordings as self-analysis and reflection tool in clinical skill and communication skill development. Described benefits encompass better skill development, greater skill retention, enhanced ability to self-assess and reduced need for faculty input in the learning process.

**Summary of work:** We offered year 1 and year 2 medical students who showed deficits in their skills development, video-analysis of their skill performances as an additional remediation tool. The students were free to analyse the video on their own, with a peer or with a teacher. We collected qualitative data from consenting students and conducted a thematic analysis on ten semi-structured interviews.

**Summary of results:** The results confirmed findings from previous research, but also revealed self-affirmation as a significant theme. Students identified this confirmation of achievement as a valuable confounder to reduce assessment anxiety and stress.

**Conclusions:** Video self-analysis is a useful tool to affirm students’ skill and to build early confidence, provided clear process guidelines are available to the students.

**Take-home messages:** Students who lack confidence may use video-analysis of skills in exam preparation and for remediation work to control their assessment anxiety and stress.
5H2 To what do high achievers attribute their academic success? A qualitative study of United Arab Emirates (UAEE) students

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**Background:** In any cohort, there are high achieving students and there are those who struggle academically. Considerable effort is spent remediating below average students, while successful students may be neglected.

**Summary of work:** Male and female high achieving UAEU medical students from each year of a six-year programme were interviewed about their academic success. The study was designed to gain insight into factors and strategies these students believed contributed to their success. Self-assessment and reflection were key issues discussed during the interview.

**Summary of results:** Time management emerged as an important factor, allowing students to balance their academic and personal lives. To this end, ensuring regular revision permitted weekend time with family. Being motivated to study medicine (with family support) was also important, as was the long-term goal of being the best possible doctor. This goal led students to set high standards for themselves. Through discussions, it emerged that most high-achievers engaged in self-assessment and reflection. Most frequently, they gauged their understanding by explaining to others or teaching.

**Conclusions:** High-achieving students provided valuable information regarding their success. Their insight (e.g. learning strategies, self-assessment) may be useful for less successful students.

**Take-home messages:** High achieving students are often neglected as educators spend much time remediating struggling students. They can provide insight into strategies that may improve the outcomes of less successful colleagues.

5H3 Motivational profiling in medical education

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**Background:** Quantitative and quality are important dimensions of motivation and a combination of both of them should be considered when attempting to understand processes influencing learning and academic performance. Quantity includes low and high motivation and quality includes autonomous and controlled motivation.

**Summary of work:** 844 medical students from University Medical Center Utrecht participated in this study. These students were assigned to different clusters through K-cluster analysis based on their scores on autonomous and controlled motivation. Cluster membership was used as an independent variable to assess dependent variables like study strategies, self-study hours, well-being and academic performance results.

**Summary of results:** Four clusters namely good quality (high autonomous low controlled, N=220), poor quality (low autonomous high controlled, N=268), high quantity (high autonomous high controlled, N=213) and low quantity (low autonomous low controlled, N=143) motivation were obtained. Good quality students were significantly better at deep approach to study (p=0.00), self-study hours (p=0.03), positive well-being (p=0.00) and academic performance grades (p=0.00) than poor quality and low quantity motivation students.

**Conclusions:** Clustering students according to their motivational profiles helps to understand their effort and approach to study, academic performance and well-being better.

**Take-home messages:** Motivational profiling is a good tool which can be used to understand the learning processes of medical students.

5H4 Physician Assistant Students’ Unconscious Bias and Patient-centered Attitudes: Are They Related?

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**Background:** Students may believe they are patient-centered; however unconscious bias may influence behavior toward patients. We examined implicit and explicit attitudes among Physician Assistant (PA) students and whether implicit biases correlated with patient-centeredness.

**Summary of work:** Three classes of first year PA students completed explicit (EAT) and implicit association tests (IAT) for age, ability and race, and the Patient Provider Orientation Scale (PPOS). IAT and EAT results are characterized as neutral, slight, moderate, or strong; they were compared using three categories: aware of implicit bias (perfect agreement between EAT and IAT); slightly aware (1 category difference) and unaware (≥ 2 category differences). PPOS and IAT scores were also compared.

**Summary of results:** Response rate: 137 of 158 (87%, 83% women). 40%, 51%, 42% were unaware of implicit biases towards age, ability, and race respectively. Mean PPOS score was 4.54; 54% were provider-centered with strong or moderate implicit biases.
towards: ability (45%); white (36%); young (29%). PPOS scores and IAT categories did not correlate.

**Conclusions:** Students’ explicit biases often differed from their implicit biases. Patient-centeredness and implicit biases were unrelated.

**Take-home messages:** Students with strong or moderate implicit biases and provider-centered attitudes may benefit the most from education about the power of unconscious bias.

**5H5** The definition of insight – a challenge that matters

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**Background:** Insight is a fundamental consideration in the maintenance and improvement of performance. What is required is a definition that can be used consistently along with an understanding of the dynamic nature of insight and therefore its potential for improvement.

**Summary of work:** The work presented is a brief review of contemporary literature about insight, self awareness and emotional intelligence and experience from NCAS (National Clinical Assessment Service) in the assessment of 300 doctors with performance problems.

**Summary of results:** This work has led to the construction of a working definition of insight that incorporates reflection, emotional intelligence, self awareness and motivation. The validity and utility of this definition was tested using data from NCAS’s growing experience.

**Conclusions:** The assessment of insight in NCAS performance assessments has involved the use of information from a variety of sources including psychometric profiling, multisource feedback and self assessment. This has been corroborated with findings from the clinical performance assessment and the outcomes of remediation plans.

**Take-home messages:** A definition of insight is offered that is greater than just self-awareness and which involves emotional intelligence and motivation. The use of this broad definition is of fundamental importance in the production of educational/development programmes at all levels.

**5H6** The Impact Of Metacognition Training On Metacognitive Awareness Of Medical Students

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**Background:** Metacognition can be defined as knowing the cognition. This important cognitive process is also beneficial in becoming expert physicians and lifelong learners. Medical students can enhance their performance by assessing and monitoring themselves and can learn from their own and as well as others’ experiences as learners.

**Summary of work:** The present study examined the metacognitive awareness of medical students and the impact of metacognitive training on their metacognitive awareness.

**Pre- and post-test control group experimental reasearch method was used. The research group consisted of 63 first year medical students of Ankara University School of Medicine. Metacognitive Awareness Inventory-MAI was used to determine the students’ metacognitive awareness. During the research, in order to get through information about the students’ metacognitive awareness, six open-ended questions and six teaching answers were developed to train them. The ANOVA, t-test, Scheffe test, mean and standard deviation were used to analyze the data.

**Summary of results:** Experimental group got significantly higher scores, from MAI, than the control group after the training and a year after the training was conducted.

**Conclusions:** The results showed that metacognitive capabilities can be enhanced by training.

**Take-home messages:** Educational methods for improving metacognitive skills can help the students learn how to learn and increase metacognitive capabilities.

**5H7** A survey on study habits of medical students in Shiraz Medical School

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**Background:** Students use three approaches to studying: deep, surface and strategic. The aim of this study is to evaluate the study habits of Shiraz medical students in order to understand issues related to students’ study approaches which may provide insights and opportunity for medical educators to develop methods to improve the quality of students’ learning.

**Summary of work:** In this descriptive cross sectional study Persian version of Approaches to Study Skills Inventory for Students (ASSIST) was distributed randomly among 265 Shiraz medical students in May 2010, studying in different educational levels from first year to seventh year. Total completed questionnaires were 193 (72.83%). Then data were analyzed using SPSS and chi-square statistical test.

**Summary of results:** Most of the students use deep approach towards their studies (89.4%), some used strategic approach (72.7%) but score was relatively low...
for surface approach (69.8%). There was no statistical relationship between gender and deep or surface approach that they adopted but there was a statistically positive relationship between gender and strategic approach that they adopted, with males good at adopting a strategic approach. There is a statistically positive relationship between level of education and both surface and strategic approach.

Conclusions: Our finding suggests that there is an overlap correlation between learning approaches adopted by students in different situations. Moreover the finding showed that with an increase in educational level there is a trend towards surface approach. Therefore, the adoption of factors which foster deep approaches and activities which increase students’ interest should be strongly emphasised.

References:
Methods: The study used a randomized trial design, comparing three student groups. One group (n=72) participated in the traditional training format. The two other groups underwent one of the alternative methods: 64 students completed an interactive website: observations of consultation fragments and answering questions followed by immediate feedback. The third group (n=64) underwent an independent live-training session: exercising without supervision and receiving feedback from simulated patients and one peer. Self-efficacy was tested with a 9 item scale in a pre- post design. The construction of this scale was based on the principles of Bandura. The content of the items refers to the main components of a consultation. Differences between pairs of groups were tested with a t-test.

Results: In all groups we observed an increase in the self-efficacy measured directly after the intervention (p=.044). Average scores of self-efficacy were significantly higher after the independent live-training compared with the traditional format (independent t-test, p=.034). The interactive website had no significant effect on the self-efficacy beliefs compared with the traditional method (independent t-test, p=.587).

Discussion and conclusion: All three training methods had a significant influence on self-efficacy. The positive influence of the independent live-training may be related to characteristics of this training format: students feel free to express themselves, there is more interaction with the standardized patient who gives lots of positive feedback, there is no supervisor who expects them to be perfect and gives negative comments. Future research is needed to test to which extent self-efficacy measures relate to consultation performance.


513 Evaluating the multi factorial aspects of a clinical learning environment
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Introduction: Clinical clerkships in regional, affiliated hospitals are a self evident part of many medical curricula. Consequently, obtaining objective information on the quality of these clinical environments as a learning environment is a necessary aspect of the quality assurance policy of a medical school. To date, several instruments have already been developed for that purpose (e.g. the PHEEM, D-rect). Where these instruments focus on different aspects of teaching, autonomy and social support, we felt the need to also include perceptions of activities (such as working vs learning) and contextual aspects (such as infrastructural conditions). Based on an explicit educational frame an instrument was developed to measure the Activities, Coaching and Context of a clinical learning environment (named the ACC-questionnaire). The study aims at the evaluation of factorial validity and internal consistency of this ACC-questionnaire.

Methods: IF for two cohorts of students (2007-2008 N: 531; 2008-2009 N: 402) a confirmatory factor analysis was run to study whether the seven factors that were built in as a result of the development process, would be confirmed. In order to reduce dependency, the data set contained one randomly selected clinical clerk pro period and pro department. Four departments were included: Surgery, Internal medicine, Pediatrics and Gynecology/Obstetrics. In each cohort 60% was female; more than 90% was 23-24 years old and had Belgian nationality. In addition, the internal consistency was evaluated by calculating corrected item-total correlations.

Results: Analyses supported a hierarchical factor structure, with one second-order factor (named the overall ACC-score) and seven first-order factors, named: Clinical Learning Experiences; Self-Directed Learning; Coaching & Teaching; Welcoming Procedure; Work Organization; Multi Professional Collaboration and Climate. The internal consistency of the seven subscales was adequate.

Discussion and conclusion: The factorial validity and internal consistency of the ACC-questionnaire were supported. As a practical consequence, the supervisors in charge of the educational quality of a clinical clerkship have to bear in mind that the activities offered and the actual characteristics of the context in a department also influence appropriate learning. Two limitations have to be mentioned: (1) further research is needed to examine other validity and reliability indices and possible generalizations of the questionnaire. (2) External validation is required. The ACC-scale is a valuable tool to assess the educational quality of a clinical environment.


514 Social comparison in clinical rotations: Influence on students’ estimation of their clinical performance
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Introduction: In general, students’ perceptions of their capabilities to perform are relevant to their aspirations and academic accomplishments. Perception of one’s capability is influenced by social comparison. Seeing a familiar other succeed or fail in a novel activity affects the expectations of one’s own performance in that activity. The aim of this study is to analyze this influence of social comparison in clerkships. Therefore, we formulated the following research question: how does comparison with a peer known as better, equal or worse influence students’ estimation of their own performance in a novel rotation and are there gender differences?

Methods: Participants were clerks (n=321) who were asked to compare themselves with a fictitious peer-student who had completed a rotation the participant had to do next. The presented performance grade of this fictitious peer was the same in all conditions. The general performance level of this fictitious peer was presented in three conditions: better, equal or worse than the participant’s level. In addition, half of the respondents compared themselves with a peer of the same sex, the other half with a peer of the opposite sex. All conditions were equally distributed among the participants. The participants were asked to estimate their own performance in the novel rotation. Distances to the peer’s performance grade were calculated. Differences were analysed with ANOVA.

Results: All students participated in the study. Students in the ‘better’ peer condition estimated lower performances than students in the ‘equal’ or ‘worse’ peer condition (F(2,318)=44.184, p<.001). Distances to the ‘better’ or ‘worse’ performing peers were the largest in the similar gender conditions. In similar as well as dissimilar gender conditions, performance estimations of male students were higher than those of female students (F(1,315)=14.762, p<.001).

Discussion and conclusion: Social comparison influences students’ estimation of their clinical performance. The effect depends on the peer they compare themselves with. These findings are of consequence to students’ learning and actual performance. Our study demonstrates the importance of the role of peers in work-based learning. Research is needed to further analyse this role and the gender differences.


5IS5 How clinical teachers are made: Pedagogical knowledge development in hospital based teachers

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Introduction: Clinical teachers represent a critical determinant of the quality of clinical learning environments. Most clinical teachers have not been formally educated for their teaching role, yet clinical teachers have been shown to possess significant tacit knowledge of pedagogy. It is known that teachers’ pedagogical knowledge and beliefs exert a significant influence on their teaching behaviours, yet it is not known how clinical teachers’ knowledge of teaching and learning develops. Understanding how clinical teachers develop in the absence of formal development programmes is an important prerequisite for the design of novel and more effective clinical teacher development programmes.

Research questions: 1. What are the critical events, persons or experiences that influence the development of experienced clinical educators’ knowledge and beliefs about teaching and learning? 2. How do events, persons and experiences influence experienced clinical teachers’ pedagogical knowledge and beliefs?

Methods: This study used a mix of grounded theory and narrative approaches. A purposive sample of 14 physicians in one medical school was selected based on gender, teaching experience and academic engagement. Each participant completed a developmental timeline that indicated his/her significant educational influences from childhood onwards. Each participant underwent a semi structured narrative interview examining the influence of critical events, persons and experiences on teachers’ development. Teachers’ accounts were analysed used a grounded approach to derive an initial coding frame. The coding frame was further refined using template analysis (King, 2004). Respondent validation and data triangulation were applied to ensure validity.

Results: Clinical teacher development was clearly influenced by teacher role models, significant learning/teaching events and educational/work contexts. Role models influenced the development of teacher identity, beliefs and practices. Significant events stimulated self awareness and led to changes in practical professional knowledge. Positive role models and events influenced development through assimilation and critical adoption. Negative role models and events influenced development through inversion and identity shaping. Educational and work contexts were either restrictive or expansive in terms of teacher development. The professional context facilitated
transmission of medical educational norms and beliefs from one generation of teachers to the next.

**Discussion and conclusion:** This study suggests that the experiential development of clinical educators is influenced by a complex mix of significant events, persons and contexts all occurring within a medical educational culture that transmits itself through successive generations of teachers. Future faculty development designs should take cognisance of these powerful experiential and contextual influences on clinical teachers' pedagogical knowledge and beliefs.


5J1 Transfer of procedural skills learned in simulation laboratories to real clinical practice

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**Background:** Training procedural skills in simulation laboratories is common practice in medical schools. However little is known about transfer of learned skills to clinical practice. The study aim was: 1) investigate the short and long-term effect of a simulated skills training on bladder catheterization on real patients and 2) examine whether watching a video of the procedure immediately before assessment would enhance performance.

**Summary of work:** This was a controlled, randomised experimental trial of the effect of video instruction as a supplement to a simulated skills training course. Sixty-three medical students were enrolled in the study and randomised to control or intervention groups. Thirty-one were tested one week after the course, while 32 were tested after six weeks. Immediately before assessment the intervention group watched a short video. The control group did not get supplemental preparation.

**Summary of results:** The intervention and control group performed equally well on the test one week after the course. Mean(SD) intervention 75.6 (14.7) vs. control 73.7 (11.3), p=0.70 and ES=0.14. The results regarding long-term performance will be presented at the Conference.

**Conclusions:** This study demonstrates that good transfer of clinical skills learned in the skills lab to real clinical situations. An instructional video does not improve performance measured a week after course.

5J2 Training on a new, low-fidelity, virtual-reality bronchoscopy simulator transfers to complex skills

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**Background:** Virtual-reality (VR) simulation provides a safe and effective learning environment. To date, VR bronchoscopy simulators have been expensive and immobile. The aim of this study was to assess the effect of self-directed training using a new, portable, low-fidelity simulator, and to assess if the obtained motor skills were transferable to complex skills.

**Summary of work:** Twenty novices participated in the study. After an introduction, they were randomised into two groups, receiving either training using the new VR-bronchoscopy simulator or no training. Subsequently, all participants were tested on a high fidelity simulator using a validated bronchoscopy test.

**Summary of results:** The intervention group demonstrated a steep learning curve. Eight out of ten participants in the intervention group passed the test, as opposed to one out of ten in the control group. The intervention group performed the test significantly better than the control group regarding bronchoscopy quality score, ES = 1.47, p = 0.005.

**Take-home messages:** The effect of short, self-directed training of bronchoscopy skills using a new, portable VR-simulator can be transferred to performance of complex bronchoscopy skills.

5J3 The Labmobile®: A major opportunity to support realistic interdisciplinary simulation team training and resolve latent system errors at the point of care

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**Background:** The Labmobile®, mobile simulation-based education unit, has been developed by the GIME. After our pilot feasibility studies, the aim of this work was to examine the effectiveness of realistic interdisciplinary team training implemented at the point of care.

**Summary of work:** Twenty in situ simulation sessions were conducted in emergency services, ICU, delivery and operating rooms. Two scenarios involving a sudden adult cardiac arrest, with routine and uncommon procedures, were developed to mobilize maximum resources and multidisciplinary staff. We used digital video recordings.
incorporation of systems-based practice. Training in real world environments promotes achieving highly reliable team functioning in actual practice. Several system issues were identified by the participants. In the uncommon procedures, 47% of participants were unaware of the location of resuscitation medications.

Conclusions: Involving the entire team with their true-to-life equipment in behavioral skills is essential for achieving highly reliable team functioning in actual practice. Training in real world environments promotes incorporation of systems-based practice.

Take-home messages: Our results suggest that high fidelity in situ simulation sessions, even with their limits should play a role especially in acute care areas allowing the improvement prior system to implementation with live patients.

SJ4 The impact of a one-day intensive simulation-based educational program on bedside procedural skills

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Background: Procedures such as lumbar puncture (LP) and paracentesis are frequently performed by residents who may not be competent. We measured the proficiency of first-year residents in beside procedures and studied the effect of a simulation-based intervention.

Summary of work: This was a pretest-posttest design. Using observational checklists, 58 first-year residents underwent assessments on LP and paracentesis simulators. Then, subjects received a 3-hour intervention featuring deliberate practice on both simulators with feedback. Residents were retested after the intervention. Confidence was measured using a 100 point scale (0 = not confident and 100 = very confident). Paired t tests were used to compare pre and post-intervention checklist scores and self-confidence ratings.

Summary of results: Mean performance scores improved from 46.7% (SD=17.6%) to 94.5% (SD=8.5%) [p<.001] for LP and from 33.0% (SD=15.2%) to 92.7% (SD=5.4%) [p<.001] for paracentesis. Trainee confidence increased from 42.6 (SD=27.4) for LP and 40.09 (SD=24.5) for paracentesis to 78.6 (SD=14.4) for LP and 79.6 (SD=12.2) after the intervention. The training program was rated highly.

Conclusions: Residents are not confident or skilled to perform the bedside procedures of LP and paracentesis. Further study is needed to determine durability of skills and impact in actual patient care.

Take-home messages: Procedural skills were significantly higher after intensive simulation training and deliberate practice.

SJ5 Making the most of Stan: medical students’ views on two styles of simulation teaching

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Background: Simulation is being increasingly used in medical education. However, there is insufficient literature on how to best deliver simulator sessions within a set time period. In this study, we sought to identify the most effective method of running simulation sessions based on students’ feedback.

Summary of work: Final year medical students experienced two styles of simulation: a “real time” scenario followed by brief feedback and a “condensed” simulation followed by a longer period of feedback. Students completed feedback questionnaires on each session and participated in a semi-structured focus group.

Summary of results: Students found that the longer period of feedback in the condensed session encouraged reflective practice. However, the real time simulation provided opportunities to develop communication, teamwork and practical skills.

Conclusions: This study illustrates that real time simulation achieves high validity and encourages development of clinical, teamwork and communication skills. Condensed time simulation allows for more reflection. This means students are completing the Kolb experiential learning cycle which is more likely to change professional practice.

Take-home messages: This study shows that the two styles of simulation teaching complement each other by emphasising different areas of learning. We suggest that clinical teachers should vary their styles of simulation teaching to maximise students’ learning.

SJ6 An alternative approach to motor tasks assessment: can we use surface electromyography to train complex skills?

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Background: The use of surface electromyography (sEMG) has the potential to evaluate muscle activity during complex motor tasks. This study aimed to determine whether sEMG can be used to train motor tasks.

Methods: Twenty-five healthy volunteers were recruited for the study. They were divided into two groups: a control group and an experimental group. The control group performed the motor task without sEMG feedback, while the experimental group received real-time sEMG feedback. The performance of the motor task was evaluated using sEMG and a validated outcome measure.

Results: The experimental group showed a significant improvement in motor task performance compared to the control group. The sEMG data showed decreased muscle activity in the experimental group compared to the control group.

Conclusion: Surface electromyography can be used to train complex motor tasks. This approach has the potential to enhance motor skill acquisition and could be used in clinical settings to improve patient outcomes.

Take-home messages: Surface electromyography can be a useful tool for training complex motor tasks. This approach has the potential to enhance motor skill acquisition and could be used in clinical settings to improve patient outcomes.
Background: Assessment of performance for complex motor tasks is challenging. Evaluation of outcomes is possible but not how the goals were achieved. Activation of neumorosuscular system (NMS) measured by multichannel surface electromyography is used for assessment of complex motor tasks.

Summary of work: Surface EMG recorder (EMG USB, OTBioeletronica Torino, Italy) with especially designed array (16 circumferential electrodes) was used on 5 volunteers. We measured at predefined spots on the neck and upper extremities during performance of predefined laparoscopic drills. sEMG signals were recorded and compared between baseline (rest), new and difficult task (T1) and T1 after training (T2). Number of Motor Unit Action Potentials (MUAPs) and mean frequency (MNF) was analysed.

Summary of results: There has been a significant difference between rest vs T1(p<0,05); rest vs T2(p<0,01), T1 vs T2 (p<0,05) for all subjects in paired analysis. There was no statistical difference for pooled data probably due to small group and large standard deviation. There was a trend towards activation NMS proportional to subjective difficulty of particular task.

Conclusions: With use of sEMG we can estimate how difficult particular task is for trainee independently from results of exercise.

Take-home messages: NMS activation is proportional to perceived difficulty of motor task. This can be assessed by means of surface EMG.

5K Short Communications: Feedback to Students in the Clinical Setting

5K1 Getting feedback based on direct observation of clinical encounters in daily practice: a qualitative study
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Background: Providing feedback to medical trainees, based on observation of daily practice, is the most common approach for the formative assessment of trainees’ clinical performance. We wanted to better understand the real live experiences of trainees in this.

Summary of work: We performed our study in the Dutch GP-training setting. Because the field is not highly explored yet, we conducted a qualitative study and interviewed 22 GP-trainees.

Summary of results: Analysis showed prominent the emotional reactions of trainees on observation. Part of trainees actively wanted to be observed and sought feedback, despite emotions of fear; in the other part emotions prevailed. GP-trainers could be divided into two subgroups as well; a group who actively wanted to observe and give feedback and a group who did not actively gave feedback. Active couples with an effective routine in observation and feedback giving successfully completed a process consisting three steps: 1. organization of observation and feedback, 2. content of feedback and 3. adaptation of feedback in the learning process.

Take-home messages: Avoidance behavior of a trainee could be prevented by an active supervisor. Inactive couples could be activated by requirements about a minimum of observations and completed assessment forms (like the mini-CEX); adversely active couples see requirements as excessive regulation.

5K2 The impact of field notes on confidence and competence in faculty and residents: a survey
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Background: Field notes are generated on a prescription-sized note pad, used in a clinical setting to provide and document specific behaviour-based feedback. A survey was completed after five years of their use in Dalhousie University Department of Family Medicine sites to evaluate the tools effectiveness for both teaching and its impact on residents’ development of competence.

Summary of work: A survey of Dalhousie family medicine residents and core faculty was completed

Summary of results: Forty of 88 residents (45.4%) participated. Fifteen of 50 faculty (30%) participated, which permitted a discussion of trends only. Residents believed field note-directed feedback reinforced their performance (81.1%), helped them learn (67.6%), reflect on practice and learning (66.7%) and focused the feedback they received, making it more useful (62.2%) (p<0.001 for all); 63.3% felt field notes helped with clinical skills development (p<0.01). Faculty felt field notes focused feedback (86.7%), provided more effective feedback (78.6%), improved teaching (75%) and encouraged reflection on their clinical practice (73.3%).

Conclusions: Residents believe field note use improved feedback helping them to develop competence through improved performance, learning, reflection and clinical skills development. The trend from faculty information suggests field notes are an effective teaching, feedback, and reflective tool.

Take-home messages: Competence must be assessed and documented in day-to-day clinical practice.
5K3 The Impact of Personal Feedback when Training on Virtual Reality Simulators

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Background: The impact of personal feedback is unexplored when training on virtual reality simulators. We wanted to explore whether personal feedback compared to computer-generated feedback have an effect on the learning curves on a surgical virtual reality simulator. Furthermore to examine whether personal feedback has an influence on self-perception concerning surgical skills.

Summary of work: In a randomised controlled trial with 96 medical students (on their 4th to 6th year), divided into a control group (no personal feedback) and an intervention group (three times personal feedback), we examined number of repetitions and time spent to complete an operation module (a right side laparoscopic salpingectomy) on the virtual reality simulator. All participants were given a questionnaire concerning own surgical skills before and after the trial.

Summary of results: Preliminary results for the first 80 participants showed that personal feedback has a significant effect on both the number of repetitions (27 vs. 49 median) and time spent (min) (151 vs. 271 median). Furthermore, the participants in the intervention group – as opposed to the control group – expressed higher self-confidence towards own surgical skills after the trial.

Conclusions: Personal feedback has a significant positive impact on time, repetitions and self-confidence when training operation modules on a virtual reality simulator

Take-home messages: It is necessary to incorporate personal feedback when using virtual reality simulation.

5K4 The effectiveness of written narrative feedback and reflection

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Background: Research on feedback suggests that this is a powerful means for changing learners behaviour. It is known that learners do not benefit when they just get a mark; feedback needs to be specified. Also feedback should not be educator-driven, but given in a two-way process. Objectives: to study the relations between reflection, feedback and the number of learning goals.

Summary of work: We compiled a mini-CEX version with extensive room for written narrative feedback, reflection and action plan. We asked GP-residents and their supervisors to use this version during life observation of consultations by the resident. 54 Residents returned 485 forms.

Summary of results: Factor analysis revealed 2 independent factors. The amount and specificity of reflections by GP-resident loaded on one factor, feedback by the supervisor on the other. The number of learning goals loaded on both, but rather weakly on feedback and very strongly on reflection.

Conclusions: Educator-driven feedback, given by GP-trainer without paying attention to trainee’s reflections is less effective than feedback given in mutual interaction while trainee is invited to reflect on own performance.

Take-home messages: Educator-driven feedback, given by GP-trainer without paying attention to trainee’s reflections is less effective than feedback given in mutual interaction while trainee is invited to reflect on own performance.

5K5 Increasing insight in feedback and students’ feedback seeking at the clinical workplace

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Background: At the clinical workplace feedback plays an important role in the learning process of medical students. It provides them with information on their performance and about the way to develop their competencies. In general, medical students function in an information rich clinical environment where they also actively seek feedback. The aim of our research was to increase insight in the sort of feedback received by clinical veterinary students and their feedback seeking behavior.

Summary of work: A questionnaire was developed based on the Dutch-Residency Educational Climate Test (D-RECT) consisting of 57 items divided in 10 domains. Open-ended questions were added for qualitative enrichment of the data.

Summary of results: From April 2010 till March 2011 601 questionnaires were returned. Students indicated that while functioning in the clinical workplace they are not frequently observed and supervisors generally lack insight in students’ development of competencies. Feedback mainly consists of information concerning specific veterinary knowledge and skills. Therefore, students vary in their strategy to collect information about their performance.
Conclusions: While functioning in the clinical workplace students are not observed on a regular basis and feedback seeking behavior is varying.

Take-home messages: Feedback based on direct observations is not common at the clinical workplace.

5K6  Credibility judgment: a key step in the interpretation of information about clinical performance

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Background: How learners interpret their clinical experiences to create meaningful learning has not been well studied. We explored experiences physicians considered to be influential in their learning to better understand this process.

Summary of work: Using a grounded theory approach, we interviewed 22 academic physicians in practice ≤ 5 years. Participants were asked to reflect on experiences they considered influential during their training. Constant comparative analysis for emerging themes was conducted iteratively.

Summary of results: As learners observe and participate in meaningful clinical work, they receive information about their own clinical performance and that of others. This information, including patient responses, clinical outcomes, comparisons with peers, personal comfort, and feedback, is weighed for credibility. Certain information, such as clinical outcomes or patient feedback, is seen as innately credible, while other information, particularly supervisor feedback, is subjected to critical judgment. Credible information demands learner reflection, influences the choice of role models, and effects practice change.

Conclusions: Learners make complex judgments regarding the credibility of information about clinical performance. Credibility judgments influence the learning that arises from the clinical experience. Further understanding of how such judgments are made could guide educators in providing credible information to learners.

Take-home messages: Perceived credibility is the key feature influencing how learners interpret and use information about clinical performance.

5K7  Feedforward technique in OB/GYN residents: a fact or fallacy

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Background: Feedforward technique (FFT) is a multi-purpose interview protocol, based on retrospective & reflective conversation, to overcome the limitations of feedback in clinical learning.

Summary of work: Mixed method approach was employed to collect data through a survey questionnaire, filled-up by all 14 residents in the Obstetrics & Gynaecology Unit-II, Sandeman (Prov.) Hospital Quetta, and analyzed by SPSS 17 version. 7 of these participants were identified for in-depth interviews, based on non-probability purposive sampling after informed consent, and content analysis done.

Summary of results: 71.4% of residents recalled three or more positive experiences in interview, with 84.6% being surgery-related in survey. Hard work was the main personal contributing factor (57.14%) in interview and survey. Significant psychological response was being anxiety and frustration in 71.42% in interview and survey. The main physiological response was of fatigue (57.4%). All residents identified more academic sessions as their personal learning needs and 50% believed they were far from achieving their professional goals in survey and interview.

Conclusions: Identification of positive experiences in training & their significant impact has future implications prior to performance appraisals, fostering collaborative working environment and developing personal insights.

Take-home messages: Feedforward technique identifies the learning and working needs of the resident, most suitable for satisfaction & happiness at work.

5L  Short Communications: Continuing Professional Development / Continuing Medical Education 2

5L1  Addressing a Disconnect Between Continuing Education Theory and Physician Preference

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Background: Advanced technology is expanding into continuing medical education (CME) and allows for multiple opportunities and alternative methods of undertaking CME. Multimedia methods are now prevalent in the educational field. This study addresses...
physicians' attitudes and practice of CME in this new environment.

**Summary of work:** We conducted a survey of CME practice amongst vascular surgeons. Questions explored included: demographics, resource support (monetary and protected time), perceived barriers, preferred methods of undertaking CME activities, attitudes to e-learning and traditional barriers and present CME practice. The results were compared to the Royal College of Physicians and Surgeons of Canada (RCSPC) Maintenance of Certification (MOC) programme database and to the current trends in CME program development.

**Summary of results:** Our preliminary results indicate that the majority of vascular surgeons prefer traditional CME activities and this is how they complete a majority of their required CME hours. When compared to the overall MOC programme; results are similar to reported trends. These results are in contrast to trends being supported by CME providers, researchers and accreditation agencies; these actors are advocating for increased technological involvement in CME activities.

**Conclusions:** This study has identified a disconnect between the types of programmes practitioners prefer and continue to use to achieve their CME requirements and the those being developed by CME providers, researchers and accrediting societies.

**Take-home messages:** This disconnect needs to be addressed in order for effective CME to continue in the future.

**5L2 Embedding interdisciplinary education in the CME culture of medical specialists: a sustainable model**

**Summary of work:** A case-study was done to illustrate the development and implementation of a successful approach to stimulate and facilitate CIDE, based on the philosophy and methods of continuing inter-professional education. An effort was made to identify barriers and strategies for implementation in other settings.

**Summary of results:** In the first 3 years, this model has generated 7 CIDE activities for a total of 14/35 participating associations (40%). In the meantime, this activity has become one of the most attended events by medical specialists in the province and the interest is growing. Participants and CME providers develop of a wider vision of the medical practice and some impact are already seen on care practices.

**Take-home messages:** CIDE requires a strong commitment from an organisation and the development of a dedicated infrastructure and processes. Medical specialists like to talk about their patients: they thrive on pragmatic education!

**5L3 Evolution of a practice reflection tool for practice-based small group learning**

**Summary of work:** The Practice-Based Small Group Learning Program raises awareness of the gap between current and best practice using evidence-based educational material in the context of small group discussions of clinical cases. This paper will describe the development and evolution of a practice reflection tool (PRT) to support and guide this process.

**Summary of results:** Medical education literature provided guidance in the development of the PRT. Evaluation studies (interviews and surveys) determined the users’ perspectives. Current research studies assess the impact of the PRT in the process of implementing new knowledge into practice.

**Take-home messages:** Reflection tools are helpful in guiding physicians to consider and implement new learning into clinical practice.

**5L4 The Use of Mini-Practice Audit Model to Guide Performance Improvement Continuing Education (PI - CME) and Collaboration in Vascular Ultrasound**
Background: Requirements for continuing education (CE) include documentation for performance-improvement strategies. Physicians and vascular ultrasound technologists work in a collaborative environment and often require collaborative CE. This study aims to demonstrate how the mini-practice audit model (M-PAM) can be linked to CE activities, document change and identify collaborative opportunities.

Summary of work: A M-PAM strategy was applied to ultrasound reports. The results of these audits were linked to focused relevant CE activities. The interactions with the team during the conduct of the audit and planning of the CE activities were noted. A re-audit was performed to identify practice change.

Summary of results: The M-PAM identified specific domains and elements below accepted standards in 14% of studies. Analysis of the audits revealed knowledge (K), practice (P), and system issues (S). CE was linked to the domains and elements relevant to K and P. Re-audits of the relevant subsets of these domains documented practice change in 80%. The M-PAM, link to CE and re-audit strategy was noted to be relevant (88%), appropriate (99%), easy to use (99%), and fostered team learning (90%).

Conclusions: These strategy of use of M-PAM was shown to be efficient and effective in identifying care gaps, applying CE activities and documenting performance improvement outcomes. The process also supported team learning and collaboration.

Take-home messages: These strategy of use of M-PAM was shown to be efficient and effective in identifying care gaps, applying CE activities and documenting performance improvement outcomes.

5L6 Recruiting 37 Japanese women doctors who quitted medical practice after pregnancy, child-rearing, and parents-care to clinics by Tokyo Medical and Dental University Remedial Programme

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Background: In Japan, physicians in rural areas, paediatricians and OB-GYN doctors are in short supply. The government is increasing the number of medical students per year. Some women doctors quit working after pregnancy, child-rearing, and parents-care in our country. To overcome the shortage partially, we started a remedial programme helping women doctors who quitted medical practice to return to clinics between 2008 and 2010 by a grant from the Ministry of Education (MEXT).

Summary of work: The remedial programme was a two-week course consisting of one-week small group lectures including state-of-the-art medicine and simulation-based learning followed by ward training. The programme had medicine, paediatrics and OB-GYN courses. Doctors were assessed summatively by the MCQ, OSCE and portfolio.

Summary of results: Thirty-seven doctors joined the programme. There were 48, 23, and 18 participants of medicine, paediatrics, and OB-GYN courses, respectively. Thirty-two of 37 (86.4%) returned to the clinics. One started a brand-new remedial programme...
for women doctors at Tokyo Medical University since 2010. One started ward training of paediatrics at TMDU and one started later ward training for medicine after 4-years break from former training. 

Conclusions: Our remedial programme contributed significantly to the shortage of doctors in our country. The women doctors evaluated the programme very well.

Take-home messages: Remedial programmes should be started in every medical school in Japan.

5M  Short Communication: Implementing a Staff/Faculty Development Programme

5M1  Towards understanding the practices, scope and meaning of faculty development internationally

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Background: Faculty/staff development is rapidly expanding as a field throughout the world. This study was stimulated by the apparent diversity of terms and roles of faculty/staff development at medical schools internationally.

Summary of work: A qualitative study was undertaken to: compare and contrast the definitions of, and terms used to describe, faculty/staff development; describe the scope and range of this form of education in medical schools internationally. Fifteen 45 minute semi-structured interviews were conducted with an international sample faculty/staff development leaders and analyzed on an inductive thematic basis.

Summary of results: A variety of terms are used to describe this form of education internationally (e.g. faculty/staff/educational development, teacher training). In general, participants described mandates to support faculty/staff in their teaching/education roles, predominantly through workshop-based activities, and expressed a need to explore technology-mediated formats and more rigorous evaluation/research. There was less agreement about supporting clinical research skills, and extending support beyond faculty/staff to all those who teach medical students.

Conclusions: Despite the diversity of terms used, overall, our data indicate a consistency in meaning, scope, enablers and challenges in providing and participating in this form of education.

Take-home messages: The terms “faculty and staff development” are not universal. There is considerable consistency of the mandates of faculty/staff development offices internationally.

5M2  A plan for the development and evaluation of a model of faculty development

MC Matte (Dalhousie University, Faculty of Medicine, Division of Medical Education, 5849 University Avenue, Halifax, Nova Scotia, Canada)

Background: Faculty Development is an essential component of medical education at all levels of this educational continuum. The literature supports the notion that faculty development initiatives must align with the evolving roles of all faculty members in order to promote academic excellence, leadership, and innovation (Steinert, 2000; Wilkerson & Irby, 1998).

Summary of work: At Dalhousie University, through a collaborative process, four roles for faculty have been defined. The process allowed for further identification of key competencies relating to the knowledge, skills, and attitudes relevant to each role. While a large body of literature addresses short term assessment and evaluation of Faculty Development programs, there is a paucity of studies addressing the long term affects which are critical indicators of change in knowledge, skills, and attitudes.

Summary of results: This presentation provides a methodology and process, based in the CISS Model of Program Evaluation (Stufflebeam, 2000) to examine longitudinal retention of key competencies identified in the model.

Conclusions: Hypothesis: Meaningful Faculty Development occurs when change in knowledge, skills, and attitudes are retained over time.

Take-home messages: Faculty Development programs have to be developed collaboratively, be defined by faculty, and the success of these programs needs to be ultimately measured by the long term changes in behaviors.

5M3  Master Teacher Program, a generalist teaching innovation

H Baxter (University of Calgary, Master Teacher Program, Faculty of Medicine, Calgary, Canada)

Background: The Master Teacher Program, University of Calgary is an innovation initiated in 2007 to meet a growing demand for undergraduate educators. After completing a diploma teaching skills course, master teachers teach across the breadth of the undergraduate curriculum, in all systems-based and clinical skills courses.

Summary of work: Previously published data suggests that the student satisfaction rating is higher for master teachers than their content expert peers and that learning outcomes were equal or slightly better. We will review other quantitative and qualitative outcomes...
The Master Teacher Program has been a successful innovation with proven student performance outcomes and student satisfaction. The program has lessened teacher shortages, increased the numbers of family physicians/generalists involved in our curriculum and improved the teacher-learner environment.

Conclusions: The Master Teacher Program has been a successful innovation. More family physician/generalist involvement in undergraduate education and educators teaching across all curriculum have been benefits of this program.

5M4 Personal and professional impact of a medical education fellowship program on Indian faculty

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Background: The Foundation for Advancement of International Medical Education and Research (FAIMER) runs regional institutes in India at Mumbai, Ludhiana and Coimbatore. The Fellowship programs target health professions educators and the curriculum comprises educational methods, leadership, management and development of a community of educators.

Summary of work: Focus group discussions were conducted with Year 2 Fellows of the 2009 Class (n=39) at the regional institutes. Qualitative data analysis was carried out on the data obtained. Deans and Medical Education Units (MEU) coordinators of the Fellows’ institutes (n=15) were sent an online questionnaire to probe the changes that Fellows had implemented.

Summary of results: Fellows (21/39) felt that they taught better. They had been able to introduce teaching innovations (21/39) and strengthen functioning of MEUs (19/39). They conducted faculty development workshops (10/39). Fellows said that there was support for innovations primarily in Institutes where senior faculty were trained in Medical education. Most Deans mentioned the educational innovation projects conducted by Fellows. They said Fellows were role-models to other and demonstrated educational scholarship.

Conclusions: Fellows perceived a strong personal and professional impact of the fellowship. Fellows who had the support of seniors were able to bring about greater change.

Take-home messages: Faculty development programs have a greater impact if the educational environment is conducive to the personal and professional growth of faculty and encourages innovations.

5M5 An innovative faculty development program using a multi-pronged systems approach

Prathibha Varkey (Mayo Clinic, Department of Medicine, 200 1st st SW, Rochester, MN 55905, USA)

Background: The Department of Medicine at Mayo Clinic comprises of 640 physicians. Previous satisfaction surveys, focus group discussions with faculty, and Division Chair interviews suggested that there were significant faculty development needs.

Summary of work: As part of a new Faculty Development program, we implemented the following programs between October 2008 and October 2010: 1) Development of a faculty development task force with Division representatives; 2) A mid-career faculty development monthly series; 3) A year long women’s networking series; 4) Junior faculty career development grants; 5) Individual career mentoring; 6) Mentoring of Division chairs; 7) Focused training in finances; 8) New mentoring models; 9) Resiliency training for addressing burn-out.

Summary of results: In Department wide surveys following the introduction of the programs, staff satisfaction surveys improved from 65% to 75%; perception of the Department’s interest in employee well being improved from 57% to 69% and burn out rates decreased from 35% to 31% (p=0.003). Individual programs also revealed significant improvement in respective measures.

Conclusions: The implementation of Department-wide Faculty Development programs was successful and impactful to a large number of faculty.

Take-home messages: A centralized systems approach may prove to be an efficient and cost effective method to facilitate faculty development and career fulfillment across the different specialties.

5N Workshop: Cross-cultural adaptation of virtual patients (VPs): a cross-Atlantic framework

N Berman41, M Fischer42 (1 Dartmouth Medical School, Institute for Innovative Technology In Medical Education, Lebanon, NH, USA; 2 Private Universität Witten/Herdecke, Department of Curriculum and Educational Research in Health Care, Witten, Germany)

Background: Virtual patients (VPs) developed to comprehensively address nationally accepted curricula are in wide use in US medical schools. Virtual patients developed at several European institutions are available locally or regionally and use common
technical standards that promote sharing. Despite their availability, cultural barriers remain a major roadblock to a broader national and international adoption of VP resources in Europe and throughout the world. A cross-fertilization of EU and US experiences have the potential to improve pedagogically sound and economical use of VPs internationally.

**Intended Outcomes:** Attendees will learn how to assess the cultural components of a VP, and to use this approach to adapt VPs for use at their institutions.

**Structure:** Workshop presenters will provide a framework for assessing and adapting the cultural components of virtual patients. Participants in breakout groups will be given sample virtual patients to adapt for their own culture, using this framework. The participants will reconvene and the workshop leaders will solicit feedback and summarize the results of the process.

**Who Should Attend:** Educators interested in utilizing e-Learning resources developed outside their own institution.

**Level of workshop:** Intermediate.

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50 Workshop: Resolving Collegial Conflict: Who Do I Think You Are?

*K Knickle*, N McNaughton* (Standardized Patient Program, University of Toronto, 88 College Street, Toronto, Ontario M5G1L4, Canada)

**Background:** Collegial conflict may not occur everyday, but tension between colleagues is usually about what people think and feel, but seldom say. The implicit assumption that practitioners possess effective communication skills and abilities is visible in vision and mission statements and in best practice standards. Yet there are inherent professional risk factors that deter many from admitting to shortcomings in communication skills or conflict in workplace relationships. Our communication facility forecasts pedestrian, mediocre, or inspiring results in collegial interactions. The literature is comprehensive in its coverage of result oriented outcomes and lofty ideals for the professional, but often lacking in the means for operationalization.

**Intended Outcomes:** Using attribution theory as a theoretical frame, participants will: 1) Reflect on their response to conflict. 2) Examine personal and professional issues that arise in conflict. 3) Understand the role of power and emotion in conflict; 4) Gain an understanding and relevance of attribution theory to our daily judgments and assumptions; 5) Explore and practice effective communication techniques; 6) Participate in group problem solving and debrief through simulation.

**Structure:** Interactive exercises promoting reflection; Problem solving; Simulation; Facilitated discussion; Question and answer opportunities.

**Who Should Attend:** For those interested in conflict resolution and enhancing collegial relationships and team function.

**Level of workshop:** Advanced.

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5P Workshop: Professionalism, Professional Identity, and Socialization: From Theory to Action in Teaching Professionalism

*Richard Cruess*, Sylvia Cruess*, Linda Snell*, Yvonne Steinert* (McGill University, Montreal, Canada)

**Background:** Becoming a professional entails the acquisition of a new identity. Throughout the continuum of medical education each student or resident is transformed from a member of the lay public to a skilled professional. After graduation students have the identity of a generic physician, acquiring a discipline-specific identity during residency. The principal method of influencing identity formation is socialization, “the process by which a person learns to function within a particular society or group by internalizing its values and norms”. The literature on both identity formation and socialization includes descriptions of the processes themselves and an analysis of the factors influencing them.

**Intended Outcomes:** After the workshop, participants will be able to: describe the importance of identity formation to professionalism; discuss the role of socialization in identity formation; identify factors which can positively or negatively affect identity formation; and develop an action plan to promote/facilitate the development of a professional identity in their milieu.

**Structure:** The literature will be briefly reviewed and will serve as the basis of a number of activities, including reflective exercises, small-group discussions, and the development of individual action plans.

**Who Should Attend:** Program directors, clinical teachers, faculty developers, chief residents and residents interested in teaching.

**Level of workshop:** Intermediate.

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5R Workshop: Develop a TOSCE! A hands on guide to developing your own Team Observed Structured Clinical Encounter (TOSCE) for your educational needs

*Richard Cruess*, Sylvia Cruess*, Linda Snell*, Yvonne Steinert* (McGill University, Montreal, Canada)
D Marshall*, P Solomon, P Hall, A Boyle, L Casimira, L Weaver, A Taniguchi (Program for Faculty Development, Faculty of Health Sciences, McMaster University, MDCL 3523 1200 Main St West, Hamilton Ontario Canada L8N 3Z5)

Background: The TOSCE is emerging as one of only a few reliable assessment and evaluation methods to determine how students or clinicians are performing on interprofessional teams. Given the need to demonstrate team and interprofessional competency prior to graduations and while in practice, the TOSCE is an important tool for health science educators and curriculum designers. In this workshop, participants will be given an overview of the TOSCE tool, its development and progress to date. They will then participate in a mock TOSCE station. Finally, participants will be given hands on instructions on how to create their own TOSCE stations on their own areas of clinical interest, and guidance about continued development of such stations to take back to their educational programs.

Intended Outcomes: Participants will learn what TOSCEs are, how they work, how they look and how to create their own.

Structure: There will be an orientation to the TOSCE tool and its development, followed by participants experiencing a TOSCE station in small groups and finally, one to one time to develop a TOSCE station of their own.

Who Should Attend: Health Science curriculum developers, evaluators and assessors.Clinical educators with responsibility for teaching and assessing interprofessional or collaborative practice competencies.

Level of workshop: Intermediate.

5S Workshop: Integrating research skills and competences in the medical curriculum. A workshop on finding the right balance

Chris van Schravendijk*, Josanne Vassallo*, Herbert Plass*, Richard Marz** (1Brussels Free University, Brussels, Belgium; 2University of Malta Medical School, Guardamangia, Malta; 3Medical University of Vienna, Vienna, Austria)

Background: Over the last two decades medical research has increasingly been carried out by science students and graduates. Medical graduate education traditionally focuses on patient centered care. Knowledge of the scientific method and its applications are acquired mainly for the purpose of practicing evidence based medicine. This approach fails to nurture the development of medical graduates into clinical investigators and medical researchers. Since 2007, the Thematic Network on Medical Education in Europe (MEDINE) has studied the integration of the research component in medical education. An international survey of over 90 European Medical Schools identified important curriculum elements, but their priority ranking within the curriculum remains to be determined and is the focus of MEDINE2, which also covers the third cycle of training.

Intended Outcomes: A better understanding of the place of medical research in the core versus the optional medical curriculum.

Structure: Various research-oriented course modules will be presented and discussed in part 1 of the workshop. In part 2, workshop participants will use an audience response system to produce a priority ranking. In part 3, the ranking outcome will be discussed. After the conference, participants will receive a report and recommendations.

Who Should Attend: Curriculum builders, medical teachers.

Level of workshop: Intermediate.

5T Workshop: Rethinking portfolios as a process: strategies for creating a successful portfolio culture

C Koppel*, J Currie*, A Vallance (1Chelsea and Westminster Hospital, Imperial College School of Medicine, London, UK; 2Imperial College School of Medicine, London, UK)

Background: Portfolios are a tool for continuous professional development. However, voluntary portfolio use declines with time. Barriers exist to successful and continued use. Conditions for successful implementation and maintenance have been identified in the literature and from our own experience. Withdrawing the emphasis from portfolio as a paper/electronic form to be designed and completed, we focus on portfolio as a process, a culture and habit to be nurtured.

Intended Outcomes: By conceptualizing the portfolio as a process, participants will be able to: define the many purposes and limitations of portfolios; identify requirements and barriers to their use; design strategies to support and promote portfolio use. Tools will be offered to simplify the process of creating a portfolio culture.

Structure: Using a modified nominal group technique, participants will brainstorm and prioritise the purpose and limitations of portfolios; identify requirements and barriers to their use; design strategies to support and promote portfolio use. Tools will be offered to simplify the process of creating a portfolio culture.
requirements for and barriers against achieving those purposes, followed by designing potential solutions. We will summarise the discussion and present a simple strategy for creating and maintaining the portfolio culture.

Who Should Attend: Anyone involved in implementing, supporting and promoting portfolio use.
Level of workshop: Intermediate.

5U Workshop: Using Team Based Learning (TBL) in Health Science Education

R Levine*¹, L Michaelsen*², S Cook*³ (¹The University of Texas Medical Branch, Galveston, Texas, USA; ²Central Missouri State University, USA; ³Duke-NUS, Graduate Medical School, Singapore)

Background: Health Science education is placing greater emphasis on teaching and learning that requires students to apply knowledge to authentic problems, and engage in the kinds of collaboration that are expected in today’s clinical practice and health care delivery. Team-Based Learning (TBL) is a teacher-directed but learner-centered strategy that fosters these goals through the effective application of course content in autonomous small groups in the lecture hall with only one faculty member present.

Intended Outcomes: This workshop will introduce the TBL instructional method to health science educators interested in forging a learner-centered culture and increasing “active” learning in their courses.

Structure: Participants will learn about every aspect of Team-Based Learning (TBL), including readiness assurance tests, application activities, and peer evaluation, by participating in a TBL "course". They will be introduced to the basic principles and methods of TBL and will explore where and how they can use it in health science education.

Who Should Attend: All health science educators, pre-clinical, clinical.
Level of workshop: Beginner.

5V Workshop: Teaching2Teach (T2T) – Designing and implementing a student-led teaching skills course

L Koizia*, A Nihat* (Imperial College School of Medicine, London, UK)

Background: Guidelines from the General Medical Council stress the importance of experience in teaching for medical students; however, formal training in teaching skills is rarely part of the undergraduate curriculum. Informal peer-to-peer education is a well-established practice, but students are rarely afforded an opportunity to develop these skills under direct guidance and feedback. Following our oral presentation on “Teaching medical students to teach” at AMEE 2010, many delegates (in particular medical students and junior doctors) requested further information on how to implement a pilot teaching skills symposium at their own institution.

Intended Outcomes: This highly interactive session will provide junior educators with the materials needed to implement a formalised teaching course at their medical school and develop opportunities to enable students to practice their new skills.

Structure: Facilitators will briefly outline the necessity of such a course at the undergraduate level. The group will then discuss the types of peer-led teaching they have observed or participated in, and how to develop a curriculum to incorporate these. A “buzz group” session will identify key learning points in each, to formulate lesson plans. Delegates will brainstorm logistical difficulties and plan programmes to allow teaching skills to be practiced after the course.

Who Should Attend: Medical Students, Junior Doctors.
Level of workshop: Beginner.

5W Workshop: Medical School Admissions: Navigating Excellence, Prestige and Access in a “Spiky” World

S Razack*¹, M Hanson*² (¹Centre for Medical Education and Office of Admissions, Equity, and Diversity, Faculty of Medicine, McGill University, 2300 Rue Tupper, C-807, Montreal, Quebec, H3H 1P1, Canada; ²Office of Admissions, University of Toronto, Canada)

Background: There is an inherent tension in the world of selection for entry into medical school, where notions of excellence must be balanced with providing equitable access for underrepresented groups (social accountability). The authors seek in this workshop to promote dialogue on how excellence and social accountability should best be reconciled in the selection process for entry into medical school. Medical student selection can be seen as human capital development for future innovation and excellence in medicine, including its social accountability mission.

Intended Outcomes: At the end of this workshop, with respect to the selection process into medicine, participants will be able to: 1) Define the tensions that exist between institutional excellence, prestige and equitable access. 2) Consider how institutional mandates and social accountability can contribute to the definition of ‘excellence’. 3) Analyze how barriers
might operate in denying entry to able and excellent applicants.  

Structure: 1) Mini-plenary; 2) Interactive Activity 1: Interrogation of key sensitizing concepts (excellence, equity, diversity, and prestige); 3) Interactive Activity 2: Case studies; 4) Consensus-building discussion for a transformed admissions process.  

Who should attend: Medical educators concerned with the selection process into medicine and allied health professions, and those interested in issues of equity and diversity.  

Level of workshop: Intermediate.  

5X Posters: Postgraduate Education 2  

5X1 The Educational Value of the Electronic Discharge Notification - Foundation Trainees' evaluation from QEQM Hospital, East Kent Trust, United Kingdom  

K Clark*, S Mukherjee (East Kent Hospitals University NHS Foundation Trust, Queen Elizabeth the Queen Mother Hospital, St Peters Road, Margate, Kent, CT9 4AN, UK)  

Background: Electronic discharge notification (EDN) informs the primary care physician about the patient’s hospital episode. It allows medication changes to be passed electronically. Questionnaire survey of educational impact of EDN for Foundation trainees was studied.  

Summary of work: Foundation Year 1 trainee filled out a questionnaire on the educational value of EDN. They scored in five domains. Free text to suggest improvements were included.  

Summary of results: 15 trainees replied. Domains were ranked from 1 (none) to 10 (very useful or educational). 1. EDN on a known patient, score 4.3/10, standard deviation (SD) 2.05. 2. EDN for an unknown patient, score 2.7/10 (SD 2.08) 3. EDN encourages reflective practice, score 4.5/10 (SD 2.33). 4. EDN and feedback from general practitioners, score 7.3/10 (SD 2.02). 5. Quality of EDN and workload, score 8.5/10 (SD 1.51). Paired T test compared EDNs for known patients against the educational value for unknown patients. Significant difference between means p=0.043. Means difference is 1.53 (confidence interval 0.06 to 3.01).  

Conclusions: Foundation trainees did not rate EDN as a very effective educational tool. Feedback from GPs, reflective evaluation and work pressures can affect its educational impact.  

Take-home messages: For EDN to be effective learning tool, it needs to incorporate reflective practice and feedback.  

5X2 The Induction Passport - E-Induction for doctors in training in Mersey Deanery  

C Gleave*, I Ryland1, J Steele1, D Hart1, A Thomson1, D R Graham* (Mersey Deanery, Liverpool, UK, 1EPRC, Faculty of Health, Edge Hill University, Ormskirk, Lancashire, UK, 2Department of Medical Education, Aintree Hospitals NHS Foundation Trust, Liverpool, UK)  

Background: The requirement for doctors to undertake Induction is set out in the General Medical Council’s ‘The New Doctor’. Mersey Deanery doctors may rotate between Trusts up to three times per year - each location requiring formal and departmental Induction sessions.  

Summary of work: A pan-Deanery web-based Induction programme (The Induction Passport) reduced the face-to-face generic induction sessions providing more time for ward-work and specialised training, in turn supporting Quality, Innovation, Productivity, & Prevention (QIPP). The Induction Passport allows annual generic induction training undertaken at the first Trust to be carried forward thus fulfilling mandatory requirements in subsequent posts. Specific Trust or departmental induction issues are conducted through normal procedures.  

Summary of results: The 10-module programme is aligned to standards set in the GMC’s The New Doctor and Generic Standards for Specialty, including GP, Training. The database, populated by entries into the programme, provides evidence to support Deanery annual returns and visits. Feedback results show that modules are: user friendly (85%, 309/364) relevant (73%, 265/364) and of a suitable level (77%, 281/364).  

Conclusions: The implementation of the Induction Passport via the Web Induction Training package has been a notable success. This pan-Deanery development is a novel and innovative approach which may prove suitable for adoption across other Deaneries in the UK.  

5X3 The effect of the professional skills of pharmacy graduates of Shiraz University of Medical Science (SUMS) on their daily practice  

Maryam Panjeh Shahi*, Pouya Farhadi, Farnaz Sadat Javanmard, Mohammad Esmaeil Ghorbani Najad, Mitra Amini (Shiraz University of Medical Sciences, Education Development Center, Shiraz, Iran)  

Background: It is well-known that professional abilities of graduates are an essential part of an educational system. While pharmacists have an important role in any health system, it is necessary to know if these graduates gained enough professional abilities during their education.  

Summary of work: This study was conducted as qualitative, semi-structured interview. Twenty
graduates participated in the interview. The main aspects of the interview were knowledge of graduates in different fields of their job, the level of their communication skill and their ability to bridge between theoretical subjects and practical issues.

**Summary of results:** Results showed that internship course in the 6th year of education are one of strong points of the educational course. This period caused increased communication skills of graduates. However, the graduates believe that the deficiency of their clinical knowledge results in weakness of their professional skill. They stated that clinical pharmacists are able to play a vital role to increase their clinical skills.

**Conclusions:** It seems that view points and suggestions of graduates are very important for improving educational process. It is suggested that clinical pharmacists should have greater role in education and also the increase in clinical internship is effective in this regard. Furthermore, inclusion of theoretical and practical courses of cosmetics and OTC drugs at the same time should be considered by educationalists.

**5X4 “The reality is that you panic”: Understanding newly qualified doctors’ acute care behaviour**

*V R Tallentire, S E Smith, J Skinner, H S Cameron*  
(University of Edinburgh, Centre for Medical Education, Edinburgh, UK)

**Background:** A particularly onerous aspect of the transition from medical student to doctor is the necessity to rapidly identify and treat acutely unwell patients. This study aimed to answer the question, ‘What factors affect newly qualified doctors’ behaviour in acute care contexts?’

**Summary of work:** Six focus groups involving 36 doctors were conducted and analysed using a grounded theory approach. The emergent themes guided the development of a framework which was refined and validated by further interviews with participants. Ethical approval was waived by the local ethics service.

**Summary of results:** Six themes emerged from the data: ‘transferring knowledge into practice’, ‘decision-making and uncertainty’, ‘acts and omissions’, ‘identity and expectations’, ‘the medical hierarchy’ and ‘performing under stress’. The framework illustrates the complex inter-relationships between these factors.

**Conclusions:** The fallibility of human perception and memory systems, particularly in stressful situations, compels us to look beyond the individual when striving to improve patient safety. Promoting a more distributed approach to situation awareness will produce junior doctors who are better able to tolerate complexity and uncertainty.

**Take-home messages:** Newly qualified doctors should be aware of the impact of affect and emotion on behaviour. Clinical supervisors should recognise the power of role-modelling and strive to ensure that roles and responsibilities are explicitly discussed.

**5X5 Academic foundation doctors and teaching: engaging in design and implementation**

*D S Furmedge*, E B Naylor, R Tilley (King’s College London, School of Medicine, London, UK)

**Background:** Final year medical students undertake an eight week ‘house-officer’ shadowing block at our teaching hospital. Little formal teaching was available for these students, a contrast from other final year placement sites.

**Summary of work:** Academic foundation year two doctors (aFY2s) were encouraged by senior doctors to research, design and implement a six-session teaching course, covering examinations, history-taking and prescribing. They created a curriculum, lesson plans and resources. All aFY2s teach on the course and it is repeated thrice yearly with responsibility handed down to subsequent aFY2 cohorts.

**Summary of results:** Evaluation from students after the course was overwhelmingly positive. aFY2s found the process useful in developing their teaching skills and their understanding of the global educational process; research and design to implementation, organisation and evaluation. Senior doctors reviewed the process at all stages to ensure quality control.

**Conclusions:** Teaching is a key quality of a General Medical Council ‘good doctor’. Allowing aFY2s to initiate and develop a teaching programme, supported by senior colleagues, encouraged professional development and attainment of aFY2 competencies. It also enhanced the experience of final year students on local placement.

**Take-home messages:** Supporting junior doctors to develop and nurture teaching programmes offers significant benefit to both junior doctors and to those being taught.

**5X6 A survey to explore how Foundation doctors view reflective Practice**

*W Morris*, A Abdulla (Princess Royal University Hospital, South London Healthcare NHS trust, Kent BR6 8ND, UK)

**Background:** Although the importance of reflective practice (RP) has been noted previously, there are no studies exploring foundation doctors’ (FY) views on this educational tool.

**Summary of work:** A questionnaire survey to identify FY doctors’ views on RP, its value & the impact on clinical skills development, mode of reflection & how best to utilize for FY.
Summary of results: The number of respondents was 57. 61% felt RP was useful whereas 21% felt otherwise. Only 11 respondents reflected frequently (daily or weekly) but the majority would reflect after events. The modality of reflection was a combination of mental activity (81%), discussion with peers or ‘seniors’, but less so through documentation (42%). 65% felt it improved clinical skills & played a role in becoming better clinicians. Most respondents felt that even if it was not mandatory for e-portfolio, they would still engage in reflection; however 65% noted they did not look back at their notes.

Take-home messages: Our study shows that FY doctors perceive that RP has a role in the development of clinical skills & becoming better clinicians. However it should be a continuous process and not necessarily included within assessment. Since only 1/3 went back to their notes, the practice should be encouraged by supervisors.

5X7 The South Thames Foundation School (STFS) swap shop process (1) - addressing lack of flexibility in the Foundation Programme

M Parry*, C Bridge, J Welch, M Terry, D Black (South Thames Foundation School, Brighton Office, Audrey Emerton Building, Eastern Road, Brighton, BN2 5BE, UK)

Background: In 2010, Medical Education England(MEE) published its formal evaluation of the Foundation programme, Foundation for Excellence(2). One of the areas of concern was the lack of flexibility in the Foundation Programme. The STFS have developed a ‘swap shop’ process which enables FDs to change the FY2 component of their two year programme. This process was highlighted within the report as a method of maximizing the flexibility of Foundation Programmes.

Summary of work: We present two years of data for FDs entering the swap shop. The process runs via a social website(Facebook), with registered FDs contacting other FDs to organize swaps. Joint applications are then submitted to the STFS for approval. Various criteria must be met before the swap is given approval.

Summary of results: In 2010, 697 FDs registered; 40 applications received; 39 were approved(78FDs swapped placements); 2 applications refused. In 2011, 689 FDs registered; 32 applications received; 32 approved(69FDs swapped placements); no applications refused.

Conclusions: The STFS believes that by maximizing FD programme choice in FY2 we can increase the overall educational experience of the Foundation Programme. This demonstrates that trainee choice can be improved by a process managed by the Foundation School but

organised by the FDs who are using a clearly defined process.

Take-home messages: Trainee programme choice can be enhanced by jointly managed processes involving Foundation Schools and FDs.

5X8 Evaluation of the Foundation Programme: is it flexible, produce good generic doctors, provide career direction and is it the right length?

P Thomas*, N Arulraj, D Suda (Queens Medical Centre, Nottingham Hospital Trust, UK)

Background: The 2 year junior doctor foundation programme was introduced in the UK in 2005 in response to a lack of training structure in the old system. We looked at trainees’ evaluation of the Foundation Programme (FP) in achieving its objectives.

Summary of work: A Fourteen question survey was sent out to a thousand trainees and posted on doctors.org. The results were analysed using the Professional Analysis Statistical software.

Summary of results: There were 504 responses, 56% were female and 91% aged below 30 years old. 51% of the respondents were in foundation year two, 39% were specialty trainees in year one or two and 10% percent were specialty trainee year three.

Conclusions: 1. There is a lack of flexibility in the current FP (73%). 2. FP is good at achieving generic training for non-interventional specialties but not for future interventional specialties. 3. The FP helped in career choice for a third of trainees but had less of an impact on future interventional specialties. 4. It was the right length with 54% agreeing and this is echoed by most specialties.

Take-home messages: The FP needs to be more flexible and take into account future aspirations of junior doctors balanced against providing a good generic training programme.

5X9 Beat the Rota - Getting F1s to Teaching

Z Baha, N Brown, S Price, M Smith* (Mid-Cheshire Hospitals Trust, South Cheshire Postgraduate Medical Centre, Crewe, UK)

Background: In 2010 a review of the Foundation Year 1 (F1) teaching programme delivered by the South Cheshire Postgraduate Medical Centre was undertaken. A high level of dissatisfaction with teaching was found amongst the F1 cohort and attendance at teaching was found to be low.

Summary of work: A working group was formed from centre faculty and representatives from the 2009/10 F1 cohort. Teaching was moved from 1 afternoon a week to 1 day a month. The competencies from the Curriculum1 were mapped into 12 themed days to be chaired by a specialist with input from the multi-
disciplary team. Agreement was sought for the change and a pilot was commenced in August 2010.

**Summary of results:** The best F1 attendee from 2009/10 received 61hr of teaching (64% attendance), the worst 32hr (34%), the average was 47.2hr (50%). To date for 2010/11 F1 year (7 out of 12 teaching sessions delivered) 4 out of 15 have achieved 52.5hr (100%) attendance, the worst 37.5hr (71%), and the average is 50hr (95%).

**Conclusions:** The new teaching programme has increased attendance and the average hours of teaching received by the F1s. It has also benefited service by reducing the time away from the clinical area.

**Take-home messages:** The day-a-month teaching format achieves better attendance.

**5X10 Evolution through Active Improvement: Improvement projects – a unique opportunity for medical interns to improve their medical education**

*J Liljencrantz*, *B Gatenholm*, *H Einald*, *A Josefsson*, *S Lindgren*, *F Nilsson*, *D S Olsson*, *N Sargisian*, *M Strese*, *U Strandman*, *P Andrèll*, *C Finizia* (Sahlgrenska University Hospital, Administration Staff Torggatan 1a, 431 35 Molndal, Sweden)

**Background:** Since 2004 all medical interns at the Sahlgrenska University Hospital are required to participate in a project directed at improving the medical education or the health care organization.

**Summary of work:** The interns are incorporated in the responsibility of designing their own education. Project initiatives are taken based on firsthand experience and directed at areas showing potential for improvement. A wide range of projects are active within the categories: Supervision, Education, Research and Organization. Some examples: Organizing seminars, Refurbishing on-call quarters, Making clinical pocket guides, Organizing a research conference with interns pursuing an MD/PhD, Establishing a supervisor award. Regular meetings with the Program Directors are held to ascertain project progress. So far approximately 200 interns have successfully implemented their projects.

**Summary of results:** Positive results are obviously attained related to each improvement. However, equally important is the gain of knowledge and experience, for each intern, within organization-, process- and development management. Results from a questionnaire based survey (n=40) showed that not only did interns report strong, positive individual benefits from participation, but they also reported that the projects affected their entire educative experience positively.

**Conclusions:** Allowing interns to conduct improvement projects has positive effects for the individual as well as for the organization.

**Take-home messages:** Evolution through active improvement!

**5X11 Evaluation of the impact of implementing computer-assisted teaching system for postgraduate year-1 residency training on clinical efficiency in the emergency department**

*Ching-Hsing Lee*, *Jen-Tse Kuan*, *Yu-Che Chang*, *Chien-Kuang Chen*, *Kuan-Fu Chen*, *Jih-Chang Chen*, *Shih-Tseng Lee* (Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Department of Emergency Medicine, Taoyuan, Taiwan; \^Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Department of Medical Education, Taoyuan, Taiwan)

**Background:** We introduced the computer-assisted teaching system (CATS) in the emergency department (ED) in order to assist postgraduate year 1 (PGY1) resident education and maintain clinical efficiency.

**Summary of work:** Fifty-four PGY1 residents were enrolled and assigned in non-traumatic urgent area. Two attending physicians (A & B) were in charge of this treatment area. While physician A was only responsible for clinical workload, physician B was in charge of the PGY1 resident training and partly of the clinical workload (physician B1). If there was no PGY1 resident to be trained in the treatment area, physician B would be responsible for clinical workload only (physician B2). The impact of CATS for PGY1 training in workload was measured by the number of patients treated by the physician B. PGY1 resident satisfaction was recorded in 5-point Likert scale.

**Summary of results:** During day shift, 27.1±7.5 patients were seen by physician B1, 29.3±7.4 by physician B2 (P=0.114). During evening shift, 32.8±10.8 patients were seen by physician B1, 31.7±8.5 by physician B2 (P=0.528). The average satisfaction scale was 4.6±0.5.

**Conclusions:** CATS minimize the impact of PGY1 residency training on clinical workload in the ED without compromising satisfaction.

**Take-home messages:** Implementing CATS in PGY1 residency training can maintain clinical efficiency in ED.

**5X12 Comparison of clinical confidence between traditional and academic trainees in the first year of postgraduate medical training in a single UK centre**

*FAH Cooles*, *J Powell*, *A R Gennery* (Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK; ^Musculoskeletal Research Group, Framlington Place, Newcastle University, Newcastle upon Tyne, UK NE2 4HH; ^Newcastle University, Newcastle upon Tyne, UK)

**Background:** Northern Deanery is unique in the UK by providing in foundation year 1 (FY1), first year of post-
graduate training, 4 months of research with only “on-call” clinical commitments. Self-reported clinical confidence has been shown to correlate with clinical ability and we aimed to identify any variation in clinical confidence between academic (8 months clinical work) and traditional trainees (12 months clinical work) completing FY1.

Summary of results: There was no statistical difference in self-reported clinical confidence between the groups. Although not significant, academic trainees were reported clinical confidence between academic (8 months clinical work) and traditional trainees (12 months clinical work) completing FY1.

Conclusions: Despite its small numbers this study suggests that for certain trainees, 4 months of research in the first year of post-graduate training has no detrimental effect on clinical confidence and abilities.

Take-home messages: Peer mentoring for junior doctors with dedicated research slots do not compromise their clinical development.

5X13 Peer Mentoring for Junior Doctors

H Grusauskas*, R Ghosh (Austin Health, 145 Studley Rd, Heidelberg, Vic 3084, Australia)

Background: Mentoring has been utilised as a strategic component for training and development programmes in healthcare, education and business (Nettleton et al 2005). Medical pedagogy is built on the success of dialogue between members of the profession, a concept enhanced by Lave and Wenger’s ‘Community of Practice’ theory (2000). Taherian & Shekarchian (2008) indicate that the concept of mentoring is used in medicine especially for those who are new to the organisation, facing difficulties, with uncertain career plans, in new leadership positions and those facing cultural barriers at work.

Summary of work: The program is voluntary, open to all junior doctors. Sessions include mentorship in medicine, work/life balance, expectations and boundaries and confidentiality agreements. Additionally training includes a clear process of helping a colleague in distress.

Summary of results: The quantitative results (2010) indicate that stress management and personal relationship issues were highest among junior doctors seeking mentoring.

Conclusions: The program assists junior doctors to acquire skill-sets to help and provide direction to peers facing stressful and complex situations. The program demonstrates the sense of community at Austin Health.

Take-home messages: Peer-to-peer support promotes reflective learning and practice; one size does not fit all; mentoring at Austin Health is informal and is low cost to the organisation.

5X14 Do resident program director ratings predict performance on the MCCQE Part II?

W Woloschuk*, K McLaughlin, B Wright (Undergraduate Medical Education, Faculty of Medicine, University of Calgary, Calgary, Canada)

Background: The postgraduate performance of graduates (Classes 2004-2007) from the University of Calgary medical school was assessed using program director ratings collected at the end of the first postgraduate year. We examined the relationship between resident program director ratings and scores on the Medical Council of Canada Qualifying Exam (MCCQE) Part II administered 18 months into postgraduate training.

Summary of work: A 10-item assessment tool was mailed to residency program directors near the end of the first postgraduate year. Program directors assessed graduates on clinical acumen, human sensitivity and provided an overall rating. To maintain anonymity we used a special data transfer format and a third party to match performance data on the MCCQE Part II to resident program director ratings. Data were analysed using correlations.

Summary of results: Complete data were available for 312 (78.6%) graduates. Correlations between program director ratings (alpha ≥ .90) and MCCQE Part II scores ranged from 0.06 - 0.27.

Conclusions: Low correlations were observed and may be due to rater bias, restriction of range, dissimilar constructs and insufficient observation of residents performing clinical skills.

Take-home messages: Program director ratings of residents are poor predictors of subsequent performance on the MCCQE Part II.

5X15 Use of a multidisciplinary team to develop a contemporary induction course for new junior doctors

AP Choules*, S Harding, S Overton (Burton Hospitals NHS Trust, Belvedere Road, Burton-upon-Trent, DE13 ORB, UK)

Background: Patient safety agendas are driving NHS Trusts to ensure the clinical skills of their medical workforce.

Summary of work: To train and assess our own new FY1s we convened a multidisciplinary team to discuss areas of concern. The team consisted of clinical governance, patient administration and liaison (PALS),...
pharmacy, blood bank, infection control and our simulation centre. It was chaired by the Postgraduate Clinical Tutor. The team discussed common areas of risk and agreed training to cover these including: communication, consent, the acutely ill patient, hand hygiene and sterility for common procedures including i.v. line care and drug calculations. The training was planned for and delivered by the team to new FY1 trainees arriving in the Trust over a two-week period.

Summary of results: Precourse questionnaires showed that the new FY1s had concerns in the areas identified by the team. Postcourse questionnaires confirmed increase in confidence in the areas covered. Trainers reported that the increased contact with the new FY1 cohort improved working relationships.

Conclusions: We consolidated the skills in our new medical workforce and established good teamwork with non-medical professionals responsible for dealing with areas of risk management in the Trust.

Take-home messages: A multidisciplinary team should be used to highlight areas of risk within the Trust and develop training to prevent them.

5X16 Peer-To-Peer Case Presentations as a Tool for Reflective Practice
M Goldring*, D Hassonally, K Sran (Medway Maritime Hospital, Directorate of Surgery, Windmill Road, Medway, ME7 5NY, Kent, UK)

Background: Reflective practice has become an integral part of medical education. Case based discussions are used for reflection and assessment of junior doctors. These can be highly variable and opportunistic. With reduced working hours, sharing of experience may enhance learning.

Summary of work: Peer-to-peer case presentations were formally introduced to the teaching curriculum at Medway Maritime Hospital. Their usefulness was evaluated using a questionnaire given to all Foundation Year 1 doctors for feedback. We analysed the data returned to assess the value of case based learning and reflection.

Summary of results: Thirty-one (74%) responses out of 42 were received. Scores were obtained from zero to ten for use as a learning tool, reflecting tool and increased confidence in public speaking. Average scores of 6.1, 5.9 and 6.2 were achieved respectively. Twenty-nine (94%) reported learning from their colleagues’ experiences and 87% (27) of doctors found the sessions worthwhile.

Conclusions: The majority of junior doctors found case based discussions beneficial and were encouraged to reflect from the sessions. There was increased exposure to specialties outside their rotations, whilst encouraging reflection on their own and others’ experiences.

Take-home messages: Presenting and discussing cases with peers is a valuable tool for both learning and reflection in the early stages of medical careers.

5X17 Foundation Year 1 Teaching – An Evaluation of Blending Classroom and E-Learning
F Roked*, E Stachow*, M Clapham (University Hospital Birmingham, Medical Education, Birmingham, B15 2TH, UK)

Background: Foundation Year 1 doctors’ weekly protected teaching increased from 1 to 3 hours (August 2010). We blended classroom teaching and e-learning.

Summary of work: We recorded trainees’ attendance. Trainees’ satisfaction was measured four monthly using PHEEM and questions on satisfaction with protected teaching, together with reasons for non-attendance and e-modules completed.

Summary of results: This presents preliminary data for 4 months while collection continues for 12 months and will be presented. 68 trainees each had 33 hours (total 2244) protected teaching time provided (23 classroom, 10 e-learning). They used 1562 hours (70% range 30-96%) of which 505 hours were e-learning (30%). The educational climate was unchanged from previous 4 months (PHEEM) but their satisfaction with ‘protected teaching’ was significantly worse.

E-learning modules completed were mainly deanery compulsory. 68% completed e-learning outside protected time (median 3, range 1 - 6 hours). Reasons for non-attendance included on-call duties, service commitment, annual leave, sickness and forgetfulness.

Conclusions: Attendance at protected teaching was variable between trainees mainly due to service commitments. Satisfaction with overall teaching was unchanged but e-learning was valued less than classroom.

Take-home messages: A mixture of classroom and e-learning aided flexibility in delivery of protected teaching time for all. However, trainees preferred classroom teaching to e-leaning.

5X18 Intervention through 3h meetings generates better evaluation of training at Aalborg Hospital, Aarhus University Hospital
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Background: At Aalborg Hospital, Denmark, the 3-hour meetings is an established process to engage junior doctors in generating educational initiatives supported by management. Moreover, the meetings are utilised for hospital management to obtain focused improvements.
Summary of work: In 2009, the 3h meetings put focus on the 6 other DanMED roles than medical expert required from the Danish Health Authorities, in order to improve training of these roles in the clinical work setting. Especially, the learning opportunities regarding the roles of Scholar and Manager have generally been poorly evaluated in the Danish national evaluation instrument “Evaluer.dk.

Summary of results: In 2010, the focus provided by the 3h-meetings 2009 and the subsequent educational effort by the hospital departments resulted in statistically significant higher evaluations of the education within the roles Scholar and Manager. Moreover, in 2010 Aalborg Hospital received a better score than the rest of the Region as well as the country, which was not the case before.

Conclusions: Education within the roles Scholar and Manager is evaluated higher in the national evaluation instrument “Evaluer.dk” after the intervention through 3h meetings 2009.

Take-home messages: The 3h-meeting process has generated concrete initiatives and created increased awareness of the roles resulting in perceived improvement of training.

5X19 Online education through active learning and conceptual maps during clerkships
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Background: Active learning, conceptual maps and distance learning are recognized strategies for promoting teaching and learning.

Summary of work: Every two weeks meetings are held of groups of 14 students to discuss clinical case that they have experienced in the primary care units. They collectively develop conceptual map and raise questions for learning. During two weeks students participate in forums at Moodle Platform. After 15 days, another in-person meeting occurs for further discussion of the matters addressed in the forums and to develop a final conceptual map approach protocol to be discussed with the family health team.

Summary of results: 98 medical students were involved, with 99.6% and 96.8% participation in the in-person and virtual activities respectively. According to the students’ perception, distance learning and conceptual maps enhance active learning (r=0.533) and continuing education (r=0.569). There were significant statistics differences between the averages before and after when assessed the students perception regarding the acquisition of knowledge in decision making (t test, p<0.0001) and search for information (t test, p<0.0001).

Conclusions: Distance learning during clerkships, in the context of active learning, is a tool able to stimulate learning and strengthening of the teaching-service partnership.

Take-home messages: Distance learning and conceptual maps combined with active learning motivated the students, enhancing teaching-learning.

5X20 ‘White space’ or ‘Grey matter’? Gender issues within the Foundation Programme recruitment process
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Background: Application for Foundation Training requires potential candidates to state their preferred Foundation School and record personal statements of achievements in ‘whitespace’ on the application form. Medical school ranking provides the academic component of the application. Studies have previously reported gender difference associated with academic scores (‘grey matter’) where males achieve higher grades, and in reflective writing (‘white space’) where females tend to gain higher marks.

Summary of work: This study aims to identify any association between gender, academic and ‘white space’ scores over a three-year period. Anonymised data from trainees appointed during a three-year period (Yr1,n-235;Yr2,n-301;Yr3,n-258) were reviewed. A higher, though not significant number of females in each year (59%,61%,59%) was observed.These numbers correspond with the gender distribution of students completing medical training.

Summary of results: There was a trend for increasing levels of mean scores across gender each year. In Yr2 however, gender influenced academic and ‘white space’ scores showing a statistically significant mean difference of 2.486(CI:4.164 -0.807, p<0.004) and 1.59(CI:1.576-0.541, p<0.0001) respectively.

Conclusions: It could be suggested that the application process for recruitment to the Foundation Programme may contain a gender bias. There are however numerous opportunities to develop the writing skills and knowledge base required to support successful applications.
Background: Assessing the degree of sickness in a cadre of in-patients under the care of a trainee is a core skill. Identifying priorities of care and the ability to stratify/recognise degree of ill-health is of major service and safety importance.

Summary of work: To assess this skill on trainees we have developed an assessment tool – the Sickness Stratification Exercise (SSE). This is a real-time post ward round event. Each trainee is invited to document privately what they regard as the top three clinical problems in order of priority with justification. This is then marked by the supervising consultant who compares it with their own assessment. Scoring is 0 = no concordance to 4 where it exceeds consultant expectation (better than consultant!). Highest potential score 12

Summary of results: After a preliminary pilot we found that scores ranged from 1 - 9. The results did not reflect the experience of the medics; SpR score 2 - 5; F2 score 1, GPVTS score 2, F1 score 1 - 9, medical students score 4 - 6. We will present the results from 10 ward rounds.

Conclusions: We believe this tool aids handover and thus team working, trainee feedback and safety.

Take-home messages: Even health care professionals don’t always hear the same message!

5X22 Behind closed doors: Supervision in psychiatric training in Aotearoa/New Zealand

J MacDonald (Dept of Psychological Medicine, University of Otago, PO Box 7343, Wellington 6242, New Zealand)

Background: Supervision, considered central to the training of psychiatrists in the Royal Australian and New Zealand College of Psychiatrists (RANZCP), has never been defined, nor is it clear what occurs during the mandatory hour. This research aimed to explore and clarify what happens during the supervision hour and how supervision contributes to the production of psychiatrists.

Summary of work: Data were collected by means of interviews, focus groups, and audiotaping supervision sessions. A thematic analysis was undertaken, informed by Foucauldian and postmodern concepts.

Summary of results: Supervision in the RANZCP can be conceptualized as an exercise of disciplinary power, which produces psychiatrists who conform with the behaviour and attitudes of their supervisors. Supervision served an affiliative function for the supervisors and provided a space in which to express attitudes that may not be publicly acceptable.

Conclusion: The disciplinary and affiliative functions of supervision need to be recognized. This is important in light of proposed changes to a competency-based training programme with work-based assessments.

Take home messages: Supervision: Is not typically teaching or apprenticeship; Serves an affiliative function for the supervisor; Serves as a means of exercising disciplinary power.

5Y Posters: Teaching and Learning

5Y1 A qualitative analysis of how students learn from “Powerpoint"-type lecture-slide handouts

WM Prodinger*, E Wickenhauser (Innsbruck Medical University, Div. Hygiene and Med. Microbiology, Innsbruck, Austria)

Background: “Powerpoint” lecture-slide handouts (“lechos”) have established themselves as “modern” learning aids, although disapproved and disavowed by teachers.

Summary of work: A qualitative design was chosen to investigate this phenomenon during curriculum transition. Grounded theory was selected as the conceptual framework. Transcripts of focus-group discussions (25 students) and five interviews were analysed.

Summary of results: The availability of lechos online was the causative condition for learning with lechos and constituted a dominant power issue between students and lecturers. Concepts of values held by students were: the primacy of lectures for knowledge transfer; the supreme position of lechos for informally defining/refining the syllabus; the emphasis coming from the teacher's making his point in lectures. For exam preparation, lechos were employed in two main strategies: as orientation guide for studying textbooks or as integral parts of personal “executive summaries”.

“Pure lecho learning” behaviour was not evident from this sample including interviews with non-lecture attending students.

Conclusions: Lechos appear to function as an a priori hybrid of note-taking and old-style handout. The properties and conditions of learning with lechos are likely to differ according to curricular context.

Take-home messages: Old wisdom renewed: if using “Powerpoint” and lechos at all, make those available BEFORE, NOT AFTER your lectures.

5Y2 An application of Constructivism learning theory to large group teaching in Occupational Therapy education

Marie Eason Klatt*, Jerry M. Maniate, Helen M. Batty (Outpatient Rehabilitation Services, St. Joseph’s Health Centre, Toronto, ON, Canada)

Background: Conscious application of constructivism learning theory in large group teaching may be useful in the development of clinical reasoning and higher order thinking required in healthcare professional education.
**Summary of work:** This paper details the application of constructivism learning theory to the design and delivery of 3 large group (n=77) lectures for Masters Level Occupational Therapy students. Interactive teaching methods and educational technologies were incorporated into the lectures to align with constructivism learning theory. Student evaluations were conducted using a standard departmental evaluation form.

**Summary of results:** Approximately 40% of the students responding to the evaluation rated their overall learning experience from the first lecture as excellent. This improved to approximately 46% for the second lecture and approximately 66% for the final lecture.

**Conclusions:** Interactive teaching techniques may promote deeper learning and potentially serve as a foundation for new mental constructs that student clinicians will build upon as they begin professional practice. The educational technologies utilized aligned with the characteristics and needs of these millennial students, facilitated meaningful interaction with the content, promoted critical thinking and mimicked clinical decision making.

**Take-home messages:** Constructivism principles of independence, active learning and collaboration can be readily integrated into large group lectures. Educational technology facilitates student learning and enhances satisfaction.

### 5Y3 Promoting active learning in basic sciences teaching using Audience Response Technology

*I M Karunathilake*, A de Abrew (University of Colombo, Faculty of Medicine, Medical Education Development And Research Centre (MEDARC), Kinsey Road, Colombo 08, Sri Lanka)

**Background:** Basic sciences are an essential component of biomedical curricula. These are taught during the first year of the B.Sc. Physiotherapy course of the Allied Health Sciences Unit of the Faculty of Medicine, Colombo, Sri Lanka. An interactive teaching activity piloted the use of Audience Response Technology (ART).

**Summary of work:** The objective of the study was to assess the students’ perception on ART. The activity was done for 38 first-year students during the a teaching session in physiology. Responses to 15 questions in basic and applied physiology were obtained using ART. Percentages of correct responses were immediately available in graphical form and feedback provided. ART was used to obtain student perceptions on a 5 point likert scale.

**Summary of results:** Almost all students strongly agreed that the teaching activity using ART motivated them during the session (n=34) and that it helped them identify areas of importance (n=36). The majority also either strongly agreed (n=18) or agreed (n=18) that it made the session more interesting. ART was perceived as an useful self assessment tool by 36 students, while 25 students strongly agreed and 7 students agreed that it was useful to test application of knowledge. The questions on content and the discussion that followed, was rated as very useful or useful by all. Qualitative analysis of comments identified the need for stress free learning.

**Conclusions:** ART was seen as useful for self assessment and application of knowledge. Many found the method free of associated anxiety.

**Take-home messages:** ART can be effective for active learning in a stress free environment.

### 5Y4 What improves the effectiveness of small group learning in undergraduate medical education?

*Birgit H Fruhstorfer*, David Davies (Warwick Medical School, University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, UK)

**Background:** Small group learning has been increasingly adopted as an educational method, with the aim to improve the quality of learning. Especially over the past decade, a number of studies have been published providing more evidence of factors that influence learning in these settings.

**Summary of work:** The aim of this review was to investigate the process of small group learning in tutorials primarily aimed at outcomes of the cognitive domain in undergraduate medical education. A literature search across 5 electronic databases was conducted to identify quantitative and qualitative studies.

**Summary of results:** In total, 45 studies met the inclusion criteria. Much research effort has been devoted to the investigation of tutor attributes, although the effectiveness of learning is also determined by various other factors. Students are keen to be actively involved in their learning, but rely on guidance in order to become efficient in this pursuit.

**Conclusions:** Available evidence highlights the complexity of the tutorial process, but more research is required in order to investigate specific aspects, taking into account also settings other than the PBL tutorial.

**Take-home messages:** In order to benefit most from this method, there needs to be consideration of various issues such as the tutorial design and the preparation of tutors and students.

### 5Y5 Construction of educational material as a strategy in teaching-learning process

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Background: The aim was to build didactic material shared by the residents and preceptors, allowing theorizing from practice, making the resident the subject of the teaching-learning process, integrating theory and practice, diversifying learning scenarios and using active methodologies.

Summary of work: The construction of the first manual of the nutritional care for adolescents with chronic disease is a strategy of the teaching-learning process, with methodology based on the principles of interactive pedagogy, and in the critical and reflective pedagogical concepts. The considered elements in producing the manual are: Identification of the major cases of hospitalization; systematic review and critical evaluation of content, aiming at integrating practice and experience.

Summary of results: The manual had active participation of residents in the whole process, enabling the exchange of experiences and the construction / reconstruction, because there is always a possibility of reformulation and expansion of content associated with experience.

Conclusions: In this process of collective construction, the preceptor has an important role in the transformation of practice to theory, providing more integration, motivation and discussion between resident and preceptor.

Take-home messages: It is essential to use active methods of teaching and learning, enabling residents to be active in constructing their own learning, and the preceptor as facilitator and adviser.

5Y6 How to Improve Seminars to make them Interesting and Efficient for Students
N Pivec*, T Todorovic (Faculty of Medicine, University of Maribor, Slovenia)

Background: Bologna curricular reform at our faculty included larger share of seminars (32-59%). Our research questions: Are Year-1 medical students satisfied with execution of seminars in first semester? What can be done to improve them?

Summary of work: We gave questionnaires to 34 (37%) Year-1 students. Students evaluated usefulness of seminars and other learning methods (peer-teaching, lectures, PBL, clinical work, individual studying) and pointed out what can be done for quality improvement.

Summary of results: On scale from -2 to +2, seminars got the lowest average score of all learning methods when evaluating their efficacy (-0.7). On the same scale students evaluated the extent of gain in certain skills by presenting the seminar: knowledge of the topic (0.8), critical evaluation of the literature (0.4) and presentation skills (0.8). When being in the role of listener: knowledge of the topic (-0.8), integration of knowledge with lectures (-0.3) or other subjects (-0.2).

Students wish to have seminars that are clinically oriented (21%), shorter (18%), more interesting/interactive (16%) and in smaller groups (21%).

Conclusions: Year-1 students are not satisfied with current execution of seminars. Clinical cases inclusion, promotion of interactive presentations and active discussion establishment are major suggestions for improvement.

Take-home messages: Execution of seminars should improve by considering students’ suggestions.

5Y7 Low cognitive assessment promotes students not to think and to learn by memory without reasoning and solving problems
M E Ponce de León*, A Ortiz, M Varela, J Reynaga, W Reyes (Universidad Nacional Autónoma de México, Facultad de Medicina, México)

Background: Students generally go deep into the knowledge according to the type of questions they are evaluated with. If they understand or apply they will support significant learning.

Summary of work: Cross-sectional descriptive study. Judges selected 88 questions of the three levels of knowledge from tests of Anatomy, Psychology, Physiology and Surgery.

Summary of results: 310 students of second grade and 247 of fourth grade answered. Significant differences were identified p=0.000 in the global examination and answers of Surgery and Physiology. There were no differences in Anatomy and Physiology p = 0.527 and p = 0.203. The median of right answers was 39 and 43, respectively. The dispersion of items in the global analysis and by subject maintained an inter-quartiles rank between 3 and 4.

Conclusions: It is important to include many items of high cognitive level in assessment to facilitate meaningful learning.

Take-home messages: Teachers who use a low cognitive assessment level questions (memory), promote students to study by memory without reasoning and solving problems.

5Y8 To pay or not to pay: an investigation into apparent preferences of final year medical undergraduates for commercial courses
N Salooja*, J Yadav, M Partridge (Dept Haematology, Catherine Lewis Centre, Hammersmith Hospital, Imperial College, Faculty of Medicine, London, W12 OHN, UK)

Background: During the final year of our 6-year London MBBS course students are timetabled to attend 15 revision lectures in the month before the final exam. Attendance at these lectures is low yet attendance at
commercial final year revision courses is high. We have investigated factors underlying these choices.

**Summary of work:** Qualitative information was gathered from year 6 students using focus groups and questionnaires. Questions explored details of preferred revision methods and concerns in relation to the final exam.

**Summary of results:** A major concern was prior lack of exposure to common clinical cases in a hospital setting. Students identified 3 main reasons: a) changing profiles of in-patients away from common conditions b) junior doctor shift-patterns reducing availability for teaching c) NHS targets impacting on consultant availability for teaching in out-patients. Commercial courses, concentrating heavily on key features of common clinical cases, filled this gap. A second advantage was that commercial courses took place at least 8 weeks before finals and provided a useful kick-start to revision. In contrast the proximity of our revision lectures to finals clashed with student preferences for self-directed reading and ward work.

**Conclusions:** Modification of timing and content of our revision lectures should reduce dependence on commercial courses.

**5Y9 Photography in personal tutoring of medical students**

_M Toivonen*_, T Koffert, L Koulu, P Kääpä (University of Turku, Medical Education Research and Development Centre, Faculty of Medicine, Joukahaisenkatu 2, 20520 Turku, Finland)

**Background:** The aim of the study was to examine the advantages of working with photographs in medical students’ personal tutoring system.

**Summary of work:** In fall 2010 Medical Faculty of the University of Turku, Finland organized a series of workshops on working with photographs for 9 personal tutors of undergraduate medical students. The participants analysed under guidance of 2 experienced phototherapists their own and family photographs and evaluated the usefulness of this analytical methods for use in student tutoring. The data were qualitatively analysed.

**Summary of results:** A majority of the tutors initially expected that use of photographs could be a good tool for promoting students’ reflection of values and attitudes (90%), and for supporting professional growth and reflection (70 %). After the workshops the participants considered that photographs could also support student integration in the faculty and promote development of their studying skills. Still, the value of this method in association of study feedback was not appreciated.

**Conclusions:** Use of photographs in tutoring sessions may be a good tool for promotion of professional and personal growth, studying skills and academic integration of the students. Application of photographs for handling of various difficult professional issues in tutoring needs to be studied.

**Take-home messages:** Working with photographs seems to be a promising tool for supporting personal tutoring of medical students.

**5Y10 Can a board game improve a student’s learning in the subspecialty of neonatology? - A randomized trial**

_N Swiderska, E Thomason, N Shaw* (Neonatal Intensive Care Unit, Liverpool Womens Hospital, Crown Street, Liverpool, L8 7SS, UK)

**Background:** Enhancing neonatology teaching which takes up a small part of the undergraduate medical curriculum would be useful. Our aim was to develop a neonatal board game and to establish whether it could influence medical students learning.

**Summary of work:** The game “Neonatology” was developed based on preferred board game attributes among health professionals in a neonatal unit. Subject content was based on standard textbooks and University syllabi. Students were randomised in weekly clusters to a control group (standard teaching) or test group (standard teaching and playing the game “Neonatology”). Both groups sat a short exam on the final day of their attachment. Permission was sought to use their anonymised scores for test versus control comparison.

**Summary of results:** The game was produced in prototype form and played by students who suggested how it could be improved. It was then produced professionally at a small cost (300 Euros). Feedback was obtained on the professional version and the randomised trial is ongoing (due for completion April 2011).

**Conclusions:** Educational board games can be easily developed with input by stakeholders (students and staff) and produced professionally at relatively low cost. A trial showing educational benefit of board games would support their use to enhance learning in small specialities.

**5Y11 Game Show as a Student Activity in Paediatric Lecture: Acute Respiratory Tract Infections in Children**

_Woranart Ratanakorn_ (Chonburi Medical Education Center, Pediatric Department, Chonburi Hospital, Bansaun, Muang District, Chonburi 20000, Thailand)

**Background:** Games are one of the interactive methods in medical education. The purpose of this study is to compare learning satisfaction and teaching effectiveness between traditional lecture and educational game.

**Summary of results:** A majority of the tutors initially expected that use of photographs could be a good tool for promoting students’ reflection of values and attitudes (90%), and for supporting professional growth and reflection (70 %). After the workshops the participants considered that photographs could also support student integration in the faculty and promote development of their studying skills. Still, the value of this method in association of study feedback was not appreciated.

**Conclusions:** Use of photographs in tutoring sessions may be a good tool for promotion of professional and personal growth, studying skills and academic integration of the students. Application of photographs for handling of various difficult professional issues in tutoring needs to be studied.

**Take-home messages:** Working with photographs seems to be a promising tool for supporting personal tutoring of medical students.
Summary of work: Thirty-two of the fourth-year medical students were assigned to study acute respiratory tract infections in children through either lecture or game. Students assigned for lecture received a traditional 2-hour lecture. Those assigned to the game had to compete for the two-choice quiz. After each class, students completed a 5-point-Likert-scale for satisfaction survey and finished five multiple-choice-questions (MCQ) and one modified-essay-question (MEQ) at the end of pediatric rotation. Non-parametric: Mann-Whitney-U test was used to compare satisfaction survey, MCQ and MEQ score.

Summary of results: According to MCQ and MEQ examination, the total scores were not different between two groups while the scores in basic knowledge were higher in the lecture group (p<.05). Nevertheless, the scores in the application part and rates in the student’s satisfaction especially stimulation of student interaction and application of knowledge were higher in the game group (p<.05).

Conclusions: Gaming in medical education is as effective as traditional lecture in educating students and satisfy students in key concepts of learning.

Take-home messages: An innovative teaching method provides effective learning in medical education.

5Y12 Implementation of large scale mentoring for undergraduate medical students in Vienna
Angelika Hofhansl*1, Guenther F Koermoezi2, Anita undergraduate medical students in Vienna 5Y12 Implementation of large scale mentoring for undergraduate medical students in Vienna 5Y12 Implementation of large scale mentoring for undergraduate medical students in Vienna 5Y12 Implementation of large scale mentoring for undergraduate medical students in Vienna
Angelika Hofhansl*1, Guenther F Koermoezi2, Anita

Conclusions: Because of the promising results this mentoring design was successfully extended to 88 mentors and 330 mentees in the following year.

Take-home messages: Efficient mentoring at a large university is feasible on a voluntary basis and complements the core curriculum.

5Y13 Reflections Regarding the Implementation of the Educational Series Entitled The Medical Dimension of Non-medical Movies
Cristian Stefan (Georgia Health Sciences University, Medical College of Georgia, Department of Cellular Biology and Anatomy - CB 1824, Augusta, GA 30912, USA)

Background: This paper is based on the author’s experience in initiating, designing and conducting the innovative series entitled The Medical Dimension of Non-medical Movies at the University of Massachusetts Medical School from 2004 to 2007.

Summary of work: Two or three feature movies (produced in the USA and other countries) were selected each semester to complement each other(s). These events, sponsored by the Lamar Soutter Library (Director Elaine Martin, MLS, DA), were open to students, residents, postdoctoral fellows, faculty, and staff.

Summary of results: The participants were asked to use their observational and reasoning skills and draw from their personal feelings and experiences in discussing the forms of artistic expression and various issues raised by each movie. Moreover, the movies presented during a semester were compared and contrasted after the last projection.

Conclusions: The discussions, facilitated by the author, included certain or possible medical conditions portrayed in the movies; the basic and clinical science concepts underlying them and making the presentation more or less realistic; issues about health care and health beliefs; the emotional, socio-economical, and ethical background and implications; as well as historical and cultural perspectives related to the plot and characters.

Take-home messages: The paper focuses on creativity and the logistics, challenges, and highlights of the implementation process.

5Y14 Do It Yourself: Assessing Learning Processes in Self-Directed Learning
Sophie Niedermaier*1, Christian Lottspeich2, Stephanie Keil2, Matthias Siebeck2, Ralf Schmidmaier2, Martin Reincke1 1Medical Education Unit, Medizinische Klinik - Innenstadt, Klinikum der Universität München, Ziemssenstrasse 1, 80336 Munich, Germany; 2Chirurgische Klinik und Poliklinik – Innenstadt, Klinikum der Universität München, Nussbaumstrasse 20, 80336, Munich, Germany)
Background: Self-directed Learning (SDL) is considered as crucial ability of today’s health professionals. In order to be able to facilitate the different steps of SDL we designed a tutored SDL course for our students who all pass the obligatory ward weeks in Internal Medicine and Surgery of the 2nd clinical year at our medical school.

Summary of work: Before starting their rotations, students will be asked to rate their clinical competences by completing a standardized self-assessment questionnaire. Based on its results students generate individual learning objectives for the ward weeks and discuss their feasibility and learning resources with a tutor and peer students. During the ward week, students will obtain feedback from residents using the same questionnaire in order to validate students’ self-assessment. Additionally the students have to fill out a questionnaire about their learning strategies. A control group completes the ward week using predefined learning goals. Learning strategies will also be inquired after two months.

Summary of results: Monitoring these courses we aim to find out more about the learning processes in SDL. Conclusions: We suggest that students become more proactive by practicing SDL compared to students working with predefined learning objectives and that SDL has a long-lasting effect on students’ learning strategies.

5Y15 The role of Game in formative assessment from Shiraz medical students’ view point*  
Farnaz Sadat Javanmardi*, Mohammad Esmaeil Ghorbani Nejad, Ali Sharafkhah, Mitra Amini, Maryam Panjeh Shahin (Shiraz University of Medical Science, Education Development Center, Shiraz, Iran)

Background: Formative assessment is a method of assessment that leads to learning improvement. The purpose of this study is to measure the effect of game on understanding medical education issues such as computer assisted learning, lecturing and small group.

Summary of work: This interventional study was done on 80 basic sciences medical students and in 3 stages; in first stage, the objective of teaching sections was determined by medical education experts. In second stage, topics were presented to students and in third step, some questions were designed in each field and game was used for assessment. For asking these questions, the game was done based on competition among groups. A valid and reliable questionnaire was designed which measured students learning and satisfaction of this method.

Summary of results: Based on the students’ view point, using game as an assessment instrument was effective. 95.2% believed that using game can improve motivation and learning skills; also 93.5% mentioned the significant role of game in deep learning. 78.4% preferred new methods of education such as game to be used to educate them.

Conclusions: Based on the results, the students mentioned the significant role of game in life long and deep learning. Furthermore, a friendly and fun environment can improve motivation and dynamic interaction among group members.

5Y16 Teachers’ viewpoint on educational technology: an evaluation study  
F Slond*, A P Rozendal*, E C W Torfs (University Medical Centre Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)

Background: The rapid march of educational technology in education sometimes seem to come with enthusiasm, sometimes with doubts for teachers. In the UMC Utrecht, medical faculty can follow a teacher training called ‘Digital didactics, an overview’. The training aims to offer insight into educational technologies available in the UMCU and the implications for didactic approaches and student learning. It also aims to offer knowledge and opportunities to apply these technologies to innovate courses or troubleshoot didactic problems in education. Evaluation of the training shows positive feedback. However, it remains unclear what motivates teaching staff or holds them back from using educational technology. This will give input for faculty development in educational technology.

Summary of work: A survey was held among all teachers who followed the teacher training the past 2 years to find out opinions about the use and didactic value of educational technology. Where do teachers experience challenges or risks, what are their needs and which obstacles holds them back from using innovative methods.

Summary of results: Results are expected in May 2011.

Take-home messages: Awareness of needs, challenges and opportunities among teaching staff about educational technology offers future directions for faculty development in this field.

5Y17 The VITAL Project - Virtual Interactive Teaching and Learning  
Jennifer Macaulay*, Monica Parry, Shirley Musclow (University of Toronto, Lawence S Bloomberg, Faculty of Nursing, 155 College Street, Toronto, Canada, M5T1P8)

Background: Nurse Practitioner (NP) programs at the Lawrence S. Bloomberg Faculty of Nursing (LSBFON), NP students develop advanced physical assessment skills and the knowledge and skill required for the collection of data and diagnostic information. It is imperative in the NP program that students are
adequately prepared to undergo the objective structured clinical examination (OSCE) and this is best performed through a combination of simulation practice and clinical experience. In the past, this teaching pedagogy has been complicated by the fact many of these NP students reside across North America (including Bermuda) restricting their attendance at the non-mandatory simulation sessions at the LSBFON. The VITAL project proposes a novel approach to allowing participation by all national and international NP students in the simulation sessions.

**Summary of work:** This will be done through the development of a virtual classroom, allowing off-site students to interact in real time with a student partner in the simulation lab during four simulation scenarios. Adobe Acrobat Connect Pro will be used to allow communication (both visual and auditory) between a pair of students—one virtual and on-site, as they perform a physical assessment and history on a standardized patient. It is anticipated that the knowledge gained from this project will have wide reaching implications for the further development of virtual classrooms—specifically in the IPE curriculum, with international institutional collaborations (India and Brazilian projects) and in building capacity in the undergraduate, graduate education programs at the LSBFON.

**5Y18 The Use of Analogies as a Teaching Strategy that Promotes the Conveyance of Knowledge**
JL Jiménez*1, I Ferrandiz2, JL González2 (1Surgery Department, School of Medicine, UNAM, Mexico; 2Department of Pedagogy, School of Education and Human Sciences, UCLM, Cuenca, Spain)

**Background:** The School of Medicine of UNAM recently approved modifications to its curriculum. The modifications promote the use of innovative teaching techniques, including the use of analogies, to improve academic performance; all this, to improve the final efficiency in the curricular years. The aim of the study is to investigate whether or not analogies promote the conveyance of knowledge.

**Summary of work:** This is an experimental, transversal study. Two groups of students were evaluated through a didactic unit. The control group received traditional training and the experimental group was trained using analogies. At the end of the training both groups were evaluated using a clinical case with multiple choice questions.

**Summary of results:** A t test for students with a p < 0.05 was used. It was proved that the group that used analogies performed better.

**Conclusions:** The use of analogies promotes the conveyance of knowledge.

**Take-home messages:** The use of analogies is recommended to implement the conveyance of knowledge in medicine students. The suggestion is to look for innovative strategies that promote the conveyance of knowledge.

**5Y19 Potential for knowledge building in large size Pharmacy classrooms**
Debra Sibbald (Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada)

**Background:** Knowledge Building is the social creation and improvement of ideas. This research examines large size classroom interventions in undergraduate Pharmacy courses which effectively promote two theoretical principles—epistemic agency and collective responsibility for community knowledge. Iterative changes were implemented to a self-care course using case study methodology. A more dynamic classroom environment was created, empowering student control of knowledge advancement at high cognitive levels, assuming greater agency and collective responsibility for progress.

**Summary of work:** Designs included class panels for case discussions, student-generated self-assessment examination questions, and online dialogues. Surveys, student comments, self-assessments, field notes, online discourse and course exam scores measured effects of principle-based design changes.

**Summary of results:** Raters blind to authorship of student- versus instructor-generated exam questions could not distinguish between them. Student commentary was affirmative regarding overall perceptions and specifically targeted design improvements. Advances in exam performance, surveys, and student discourse demonstrated positive effects.

**Conclusions:** Results indicated each new feature contributed to advances in targeted Knowledge Building principles with no negative effects uncovered.

**Take-home messages:** Large classroom design strategies facilitated a shift from individual learning to the creation of a community wherein students assume levels of responsibility and agency normally teacher controlled.

**5Z Posters: eLearning**

**5Z1 A novel internet-based blended learning programme providing core competency in clinical research**
Y Tsugihashi*1, N Kakudate1, Y Yokoyama1, Y Yamamoto2, H Mishina2, N Fukumori3, F Nakamura3, M Takegami3, S Ohno3, T Wakita2, K Watanabe3, T Yamaguchi3, S Fukuhara2 (1Kyoto University Graduate School of Medicine, Department of Epidemiology and Healthcare Research, Yoshida Konoe-cho, Sakyo-ku, Kyoto 606-8501, Japan; 2Kyoto University; 3Kansai...
Background: A new educational system is needed, designed for busy healthcare professionals interested in attaining core competency in clinical research while working full-time.

Summary of work: We developed a novel programme to provide core competency in clinical research. The programme comprised the following four strategies: online face-to-face lectures at seven satellite campuses, short examinations after each lecture, an internet-based learning management system, and an end-of-course examination. A total of 176 healthcare professionals who had never attempted to attain core competency in clinical research were enrolled. We assessed the proportion of attendance at the lectures. Additionally, we evaluated total scores for the end-of-course examination and compared those scores among medical doctors, pharmacists, registered nurses and other occupations.

Summary of results: The mean proportion of attendance over all 23 lectures was 82%. A total of 156 (89%) participants attended more than 60% of all lectures and were eligible for the end-of-course examination. Of the 148 examinees, 138 (93%) passed the end-of-course examination. No statistically significant differences were noted in the exam scores among medical doctors, pharmacists, registered nurses and other occupations.

Conclusions: Most participants could attain core competency and complete the programme successfully, regardless of their occupation.

Take-home messages: The novel internet-based blended learning programme successfully provided healthcare professionals with core competency in clinical research.

5Z2 MEFANET project: multidimensional quality assessment
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Background: The MEFANET project (MEDical FACulties NETwork) has initiated an international cooperation among medical faculties in the Czech Republic and Slovakia. Elementary goal of the project is to advance medical teaching and learning with the use of modern information and communication technologies. As an instrument for that, the MEFANET has been developing an original e-publishing platform, which combines web-based tools for sharing electronic educational resources as well as for their quality evaluation.

Summary of work: 4-D quality assessment is proposed for the e-publishing platform in the MEFANET project. It is a set of tools which ensures an effective way how to provide quality assessment of digital educational materials. The whole assessment process stays on four independent principles, which enable easy classification and sophisticated on-line review mechanism. • review ; • typological classification; • level of the target group; • users’ self-study score.

Summary of results: The multidimensional quality assessment has been already implemented as the new feature of the latest release of the MEFANET portal platform. All members of the educational network can freely use its tools for quality evaluation of their published electronic teaching materials.

Conclusions: The students and academic staff in the MEFANET network can access and view the offer of electronic teaching materials also at other medical faculties, what should gradually improve the quality of the content. The 4-D model promises a wider range of tools for organizing the published contents as well as a possibility to present the contents completed by comments from tutors selected from expert medical societies.

Take-home messages: MEFANET – the network without borders.

5Z3 Skills training and its impact on the status of medical students
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Background: Development of Information Technology in Medical Education increases the flexibility in learners and teachers. Knowledge of English and computer tools are an important innovation. Students’ skills in English texts and computer tools will be effective in their medical education.

Summary of work: Three groups of medical basic science students were enrolled in a descriptive and analytical study. Information about their computer skills were collected by Questionnaire and their English knowledge was assessed by their English scores. Their education status was evaluated by the annual average of their scores in medical courses (AASM). We evaluated the relationship between their English scores and computer skills with their AASM. The results were analyzed by the Pearson correlation coefficient and SPSS software.

Summary of results: We found a high positive correlation between English scores and AASM (R =0.74), a negative correlation between computer skills and the AASM (R =0.03) and low positive correlation
between the computer skills and English scores (R=0.06).

Conclusions: A high positive correlation between English scores and AASM increases the students' ability to learn and to update their academic knowledge. Where low and negative correlation between computer skills and AASM were found, it seems that the students use the computer mainly in non-academic matters, or in non-lesson material, limiting their time for academic study and academic success. Careful planning and culture-building is necessary for beneficial use of the computer.

5Z4 Training teams of family health strategy in elderly care: the experience of the Rio de Janeiro telehealth program

L B Motta*, P M C Junior, A M Monteiro (Open University of Third age, University of the State of Rio de Janeiro, Brazil; FAIMER- Brazil)

Background: The Strategy of Family Health (SHF) has been created as the main assistance model in the Public Health System, meanwhile the population aged. The telehealth Brazilian Program is designed to provide free distance education for these professionals. This study is focused in the experience of the Rio de Janeiro program.

Summary of work: A virtual space was created in 2008. Conferences were held by a multi professional staff: 40 online modules were developed with general topics in gerontology and geriatrics and were available in the virtual environment for later use; seven courses were available. In 2011 monthly seminars and a course began in one municipality of the state of Rio de Janeiro using available virtual materials and training presentations.

Summary of results: Few providers attended online conferences. There were on average 3.3 municipalities and 13.2 professionals in each e-geriatrics modules. 2.2% of the recorded visits were in the geriatric material. Physicians represent 4.1% of the professionals applying to e-geriatrics. The courses offered had about 100 people subscribed but only 10% certified at the end.

Conclusions: The challenge of a telehealth system is to stimulate both teams and managers. It is necessary to work with a problem- and community-based curriculum, team- and work-based learning and continuing education.

Take-home messages: Aging is a challenge to health professionals education.

5Z5 Implementation of a comprehensive, integrated Virtual Learning Environment for the Bachelor of Veterinary Medicine and Surgery (BVMS) Undergraduate Programme

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Background: A pilot project undertaken by the Veterinary Pharmacology course team resulted in the restructuring of the Pharmacology Moodle site to facilitate enquiry-led student learning.

The outcomes of this project highlighted the vastly underused capabilities of Moodle.

Summary of work: This is a 2-year project to restructure Moodle to reflect changes in the Veterinary Medicine curriculum which is taught with a vertically integrated approach.

Summary of results: Results will be available of the Stakeholder consultation (staff and students), requirements analysis preceding implementation of the new structure and staff training to create a sense of ownership of the technology involved.

Conclusions: The successful outcomes of this project will be that we have motivated and supported student learning; promoted student engagement with learning; used new and developing technologies to enhance the student learning experience and enhanced the capabilities of our academic staff to utilise this technology.

Take-home messages: Despite bad press VLEs are not dead. They must be tailored to the subject matter, reflecting diverse learning styles and varied teaching approaches with stakeholder needs as a first priority. This will enable VLEs to facilitate a highly successful learning environment for the student (including self-directed, enquiry-led and peer learning, facilitating feedback, accessibility and student diversity) and an effective teaching environment for staff.

5Z6 Comparing Two Methods of Teaching (Virtual versus Traditional) on Learning of Dental Students of Shiraz University of Medical Sciences

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Background: The importance of using technologies such as e-learning in different disciplines has been considered in literature. The aim of this study was to investigate the effectiveness of virtual learning program in the field of dentistry.

Summary of work: This post test only design study was performed on the 5th year dental students of Shiraz University of Medical Sciences. (N=40). The students were randomly allocated into two groups as experimental (virtual learning) and comparison (traditional learning). Finally 30 students participated in this study. To ensure similarity of both groups GPAs of both groups was compared using Mann-Whitney U test
(P>0.05). Experimental group received virtual learning environment courseware package specifically designed for this study while control group received the same module but structured in a traditional lecture form. The virtual learning environment consisted of online and offline materials. Two post tests using same valid and reliable test consisting of 40 MCQs and 4 essay questions were given immediately (15 min) after the last session and two months later (to assess their knowledge retention). Data were analyzed using SPSS version 13.

Summary of results: Results: Comparison of the mean knowledge score of both groups showed that virtual learning is as effective as traditional learning (P>0.05).

Conclusions: Despite the difficulties we encountered in designing Virtual learning environment, the study was conducted successfully. Based on the findings of this study the virtual learning is as effective as lecture based training. However further studies are needed to generalize the findings of this study.

Take-home messages: virtual learning is as effective as traditional learning.

5Z7 Estimating the recipient’s verbal skill for an adaptive e-learning environment

E Toscano*, S Basili, M Proietti, F Consorti (University “Sapienza”, Faculty of Medicine and Pharmacy, Rome, Italy)

Background: Am-Learning project - funded by a grant from the Ministry of Research - aims to develop an adaptive approach to e-learning. The first step was the implementation of tools to assess the recipient’s ability to understand a message, to modulate then the implementation of tools to assess the recipient’s ability to understand a message, to modulate then the learning message and make it more understandable.

Summary of work: LexMeter is the module of Am-Learning system devoted to the automated production of cloze tests (fill in the gaps), based on statistical routines upon a textual database. LexMeter was tested on 562 medical students from the 1st to the 6th year. A questionnaire with background variables related to the habits of study and reading was also administered.

Summary of results: LexMeter produced cloze tests which were comparable in performance with a control test manually produced. The tests proved reliable at classical item analysis and sensitive enough to discriminate between students of the 1st year or older. The performance of the test increased when the format without a list of suggested words was used.

Conclusions: LexMeter is a powerful and reliable tool for the assessment of verbal skill of medical students.

Take-home messages: Verbal skill, intended as a function of the number of known words, is a key component of learning competence.

5Z8 Can introductory online modules effect change in knowledge, skills and practices of clinical teachers?

L McAllister*, S Dahl, J Atkin (University of Queensland, Office of Teaching and Learning, Mayne Medical School, Australia)

Background: Many clinical teachers are at a distance from the medical school with which they are affiliated and find it difficult to take advantage of face to face faculty development programs designed to increase knowledge and skills for teaching medical students. Six 2 hour web-based modules were developed using the teacher-manager model (Romanini and Higgs, 1991) to cover the broad themes of Introduction to Clinical Teaching, Preparation, Teaching with Patients, Learning Activities, Small Group Teaching, and Evaluation.

Summary of work: Twenty two clinical teachers participated in a pilot of the modules. Survey evaluation of learning outcomes was guided by a modified version of Kirkpatrick’s framework (Freeth, Hammick, Koppel, Reeves & Barr, 2002) which distinguishes between different levels of learning outcomes.

Summary of results: Reaction (level 1) to the modules was uniformly positive and participants reported enthusiasm for implementing changes to their teaching (level 2a), however the modules were felt to be better at developing knowledge rather than skills (level 2b). Some participants reported immediate behavioural change and implementation of new approaches in their workplace (level 3).

Conclusions: While effective in building knowledge, faculty development using online modules should be followed up by skills training and mentoring. Follow up study is required to evaluate the extent of that transfer and changes in practice as educators.

Take-home messages: Online supported learning can provide a useful and accessible first step in the development of knowledge and skills for teaching medical students.

5Z9 Teaching Anatomy from the Inside Out

Marjorie Johnson*, Sid Bhattacharyya, Matt Johnson (Division Clinical Anatomy, Schulich School Medicine Dentistry, University of Western Ontario, London, ON, Canada)

Background: Traditional and modern e-learning approaches to anatomy have been taught by dissection from superficial to deep. Clinicians, who train surgeons, require their trainees to understand the internal body, often through a scope, without disrupting the external surface. Our intent was to create an e-learning object for endoscopic pre-training.

Summary of work: E-learning has been used as an adjunct to our anatomy labs, helping create an
investigative and clinically relevant discovery of the cadaver. However, the gastroenterologists have suggested an endoscopic approach to learning the gut anatomy might be more beneficial to students' clerkship training. A virtual 3D endoscopic trip down the gastrointestinal (GI) tube was created as a lab activity.

Summary of results: The GI endoscopic simulator was created, where students could pause at “bus stops” to read or hear the normal or patho-histological features. Students were able to make the viewing field transparent in order to see surrounding structures. Student learning and feedback from use of the online simulator will be summarized.

Take-home messages: E-learning is a useful anatomy lab supplement for pre-clerkship training. Students appreciate the integration and application of basic anatomy to realistic training expectations. Learning objects need to be created specific to the motivation and expertise level of the target audience.

5Z10 Royal Flush: Digital Flash Cards and Online wiki in blended learning – synergetic effects on acceptance and learning success
Volker Brand*, Sophie Niedermaier*, Stephanie Keil, Christian Lottspeich, Steffen Tiedt, Christoph Kuhm, Mathias Woidy, Martin Reinecke (Medical Education Unit, Medizinische Klinik - Innenaerschaft, Klinikum der Universität München, Ziemssenstrasse 1, 80336 Munich, Germany)

Background: Blended learning is a scientifically based and successfully implemented teaching method. The benefit of new concepts like digital flash cards and online wikis, specifically deployed to enhance individual self-study, are still controversial. Moreover they often suffer from poor acceptance among students and low quality. These observations led to creation of an integrated learning platform named MeCuMMemo. In this study we address the following topics: (1) acceptance and benefit of the platform in general, (2) additional effect of blended learning and (3) performance in exams.

Summary of work: The study will be conducted among 3rd year medical students with a controlled cross-over design. In one intervention group MeCuMMemo will only be offered online, the second group will receive an additional in-class lecture based on MeCuMMemo. The control group won’t receive any support by MeCuMMemo. After completion of the first semester the intervention groups will be compared with each other as well as with the control group regarding learning behaviour and exam grades.

Conclusions: With MeCuMMemo we introduced a new method of E-learning to our students. We expect students offered blended learning to use MeCuMMemo more actively and to score better grades.

5Z11 RECAL: a sustainable strategy for developing multilingual medical learning objects
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Background: Throughout the 1990s the cornerstone of computer-based learning in bio/medical sciences was the multimedia computer-assisted learning (CAL) program - twenty years later few are still technologically viable although the content of many is still relevant and high quality. The RECAL project based at the University of Edinburgh is providing methods and technologies that safeguard the educational content, while allowing for simple authoring/editing, adaptable delivery options, and establishing a future for CAL’s where significant technological advances are frequent.

Summary of work: Although the focus of RECAL has been existing pharmacology and physiology CALs the methodology developed, which decouples the learning objects from their runtime application, is applicable to any discipline. Bespoke disaggregation methodologies allow RECAL to safely and systematically remove the pedagogy, learning resources and sequencing from legacy applications. This methodology is achieved via architecture that consists of three key components: web-based tools, a standards compliant assets repository and extensible delivery/export options.

Summary of results: This presentation provides an overview of the RECAL core architecture and key methodologies; details several case studies to develop Eastern European language translations of various programs where low-tech, high-yield solutions proved most effective and concludes with a series of recommendations for approaching small-scale multilingual projects with a diverse academic user group.

5Z12 Time management of e-learning among medical students
Kalle Romanov (Research and Development Unit for Medical Education, University of Helsinki, Finland)

Background: There is only limited knowledge how students manage self-paced e-learning processes. However, appropriate time management is necessary for students to complete e-learning courses successfully.

Summary of work: E-learning process among 3rd year students (N=63) was investigated on a course of Medical Informatics (21 days, 1.5 units). Course contained 11 interactive lessons allowing to collect 450 lesson points by solving tasks and exercises. Optional
how-to-videos (19) were provided to demonstrate techniques to use clinical databases.

**Summary of results:** Very few students utilized the whole course duration, 32% started the course 1-5 days before the ending. These ‘late-starters’ used less time to study materials (362<=>468 mins, p<0.05), 45% of them utilized less than half of optional videos (early-starters 32%). ‘Late-starters’ scored lower on lesson points (219<=>235, p ns). Students of lowest quintile of learning points used less time (323<=>463 min, p<0.05), fewer sessions (3.85<=>5.98, p<0.05) and neglected more optional materials (8.4<=>5.2, p ns). Compared to males, female students did not use more time (p=ns), but they utilized more optional materials (p<0.05).

**Conclusions:** Results indicate that the late-starter students utilized less learning materials and had increased risk for inferior learning results.

**Take-home messages:** E-learning design of good quality should motivate students to study the subject extensively, and direct them to reckon with sufficient time resources.

**5Z13 Stimulating learning and participation on a professional level in advanced healthcare using interactive computerized 3D visualizations**

*J Persson*, E Dalholm Hornyánszky, M Wallergerd, G Johansson (Lund University, Department of Design Sciences, Lund, Sweden)

**Background:** The project goal is to investigate how interactive computerized 3D visualizations can be used to increase participation and learning among the staff in advanced healthcare.

**Summary of work:** Employees from different hospital departments and researchers from the university work together in a network to identify processes in daily activities that could benefit from being modelled in an interactive 3D environment. One example is the planning of new facilities for a child trauma department in collaboration with the staff using 3D visualization, including simulation of patient and staff movements. Another example focuses on ventilator training including simulation of patient and staff movements.

**Summary of results:** From working in the network group and using the interactive tools, the participants developed their ability to lift the discussion to a level where the focus is on the needs of the organization, not being limited by, for example, a construction plan or the technical functionality of the ventilator. Instead, the purpose of the process and the patient’s role in this becomes the starting point for dialogue.

**Conclusions:** This way of working has so far shown great potential to stimulate active participation and act as a catalyst for discussions, for development of planning and training processes in advanced healthcare.

**5Z14 Faculty Expertise in instructional technology use affects student learning at a medical school in Dominica**

*Jyotsna Pandey*, Nathalie Watty (PO Box 266, Ross University School of Medicine, Roseau, Dominica, West Indies)

**Background:** There is evidence to show that e-learning provides an enhanced learning environment for the students. Assuming that e-learning environment is both usable and accessible, it can be successfully implemented only if the instructor has the requisite skills and will to use it.

**Summary of work:** The aim of this study was to determine if the instructors were comfortable using the available technologies and if this use translated into enhanced student learning.

A preliminary survey was done to determine the instructors’ comfort level, expertise, use of available resources and reservations for the use of technologies. Only 50% were interested to learn more about available technologies and only 18% thought that training would be helpful in learning about new technologies. We planned faculty development activities in use of technologies to address self-identified knowledge and skill gaps for faculty.

**Summary of results:** Post workshop surveys assessed the change in attitude and perceived augmentation of the knowledge and skills. An audit assessed if the workshops translated into practice. Finally the effect on student learning was assessed by the exam performance as a measure of enhanced retention.

**Conclusions:** Our results indicate that despite initial skepticism the faculty readily translated the training into classroom teaching and a moderate effect was seen in student performance.

**5Z15 Development and implementation of a Biomedical Informatics course in undergraduate medical students: The challenges of a large-scale blended-learning program**

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**Background:** Biomedical Informatics (BMI) is a burgeoning discipline whose relevance to the practice of medicine is unquestionable. The time allocated to it in medical schools’ curricula is limited. UNAM Faculty of Medicine in Mexico is the largest medical school in Latin America, and has initiated a new curriculum that includes BMI.
Summary of work: Two one-semester courses (BMI-1 and BMI-2) were designed for the first two years of the curriculum, using Kern’s model for curriculum development. BMI-1 includes core conceptual notions and practical aspects of informatics applied to medicine (taxonomy of knowledge, medical databases, electronic health record, telemedicine, e-learning, among others), and BMI-2 embodies medical decision making and clinical reasoning.

Summary of results: The BMI-1 course was implemented in August 2010. We used a blended-learning model, with 46 teachers and 1,200 students in 31 groups. Moodle platform was used for online work. Formative and summative assessment showed an impact in students’ BMI competencies, and the program had a positive evaluation by students and teachers.

Conclusions: Biomedical informatics needs space in medical schools’ curricula, to provide this core competency to healthcare providers. Creativity, resources, and advance planning are necessary for its implementation.

Take-home messages: The challenge of teaching BMI in medical schools is difficult and exciting. Effective use of information technology is essential for 21st century physicians.

5Z16 The use of Wikipedia as an aid to clinical decision-making
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Background: There is a need to evaluate the accuracy of the growing perception of increased use of online resources in clinical decision-making. This study aims to prompt the development of training in the critical use of online resources and how to evaluate their accuracy. As a source of medical information: a) What use is made of Wikipedia? b) In which contexts is Wikipedia used? c) How much trust is put in Wikipedia?

Summary of work: Doctors in two East Midlands hospitals were invited to take part in a short questionnaire, aiming to capture opinions of 15% of them, or around 100 participants. To date, 108 medical staff have responded.

Summary of results: Use of Wikipedia is widespread [73/108 of respondents; 64 for disease background, 22 for diagnosis, 17 for management and 13 for prognosis] which continues despite scepticism over the accuracy of Wikipedia. Very few medical staff admit to directly using Wikipedia to formulate their diagnosis but most state that they consult Wikipedia and then follow up sources cited therein.

Conclusions: Wikipedia is used across all specialisms and grades.

Take-home messages: Our findings underline the need for medical education to educate both students and practitioners in the wise use of online sources.

5Z17 Effectiveness of blended course on human genetics based on Moodle LMS
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Background: The goal of e-learning is to support and extend the traditional ways of teaching. The aim of this study is to compare the retention of knowledge between students who attended classical and blended course on human genetics.

Summary of work: Both groups took test examinations, which was made up of questions that were discussed during the semester. Test results were compared between these two groups. Also, students who attended the blended form were divided into three categories: low active, moderately active and very active in online course. Categories were compared among themselves and with a score of classical students.

Summary of results: The “blended” students showed significantly better results on test 10.74/20 vs. 8.54/20 (p<0.01). The average points scored among very active students is 13.6/20, which in the statistical analysis represents a very high statistical significance compared to moderately active, low active and the classical students (p<0.01).

Conclusions: The results have shown greater effectiveness of learning human genetics in online environment.

Take-home messages: Communication through the forum is the main tool of active students in comparison to classical and online students who did not use the benefits of e-learning.

5Z18 An e-learning course in medical immunology: Does it improve learning outcome?
Sondre Boye*, Torolf Moen, Torstein Vik (Department of Laboratory Medicine, Children’s and Women’s Health, Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, Norway)

Background: We wanted to study the effect of an e-learning package (e-LP) in immunology on learning outcomes in a written integrated examination, and to examine student satisfaction.

Summary of work: All 125 second year students were offered an animated e-learning package in basic immunology as a supplement to the regular teaching
Conclusions: We found a positive effect of the e-LP among intermediate skilled students. The lack of an association in the most skilled students may be explained by the basic content of the e-learning package. In the low score group, lack of motivation and personal problems may make it difficult to profit from any teaching interventions.

Take-home messages: The e-LP improved learning outcomes among intermediate skilled students.

5Z19 Lack of basic science knowledge - bridging the gap between school and university learning

M Gross*, J Pelz, H Peters (Charité - Universitätsmedizin Berlin, Germany)

Background: In cooperation with the publishing company Cornelsen, the Charité – Universitätsmedizin Berlin developed a computer-assisted interactive learning program with basic science modules in Biology, Chemistry, Mathematics and Physics.

Summary of work: Faculty of the basic science departments were asked to provide prerequisites that medical students should already know at the beginning of their studies. About 80 interactive training modules were developed. Enrolling first term students were asked to participate in a 150 true-false-don’t know questions test about basic science on the day of enrolment. Participants received a free licence to make optional use of the modules for two weeks. Their online-time was tracked and they could take a second test after this period.

Summary of results: All students with more than four hours online time showed improved knowledge in the second test. Test results correlated positively with online-time. Students with the worst results in the first test yielded a relevant change for the better. Students with good results in the first test gained slight improvements.

Conclusions: Computer-assisted learning can bridge the gap between school and university learning, adjusts for heterogeneity in pre-existing basic sciences knowledge and allows for a reduction in university teaching time.

Take-home messages: Computer-assisted learning shows great potential for knowledge acquisition in medical students with deficits in the basic sciences.

5AA Posts: Clinical Teaching 2

5AA1 Socio-cultural factors of acceptability of Peer Physical Examination (PPE) in a group of Italian medical students

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Background: The development of basic skills in physical examination requires repeated training on real or simulated patients, but these methods are hindered by the availability and compliance of patients and costs. PPE raises problems of acceptability from students.

Summary of work: A class of 72 Italian medical students after their first experience of PPE at the 3rd year was investigated, using an Italian version of Examining Fellow Student questionnaire and a further questionnaire to explore socio-cultural factors and the constructs of acceptability and expected educational value. This is the first study in Italy on PPE.

Summary of results: The designed instrument was reliable (Cronbach alpha= 0.86). Overall, students expressed satisfaction with doing or undergoing PPE (respectively 4.1% and 16.9% of negative judgement), with the exception of sensitive body regions. Factors related with a lower acceptability were being female, from southern regional area of origin and with religious belief. Most students (76.3%) would have preferred to perform PPE in self-determined groups.

Conclusions: PPE is a viable option to develop students’ skill in physical examination, but it must be carefully designed and organized, taking into account socio-cultural factors.

Take-home messages: It is important to gain a better understanding of students’ reactions to PPE as a basis for a better implementation of educational activities.

5AA2 Medical Students’ Experience in the Gynaecology Theatre - More than just a Spare Part?

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Background: Many undergraduate students regard the operating theatre as an unfamiliar environment yielding variable experiences. This study investigates students’ perceptions of learning in the gynaecology operating theatre and how these contributed to the development of a structured learning tool aimed at improving student experience.
Summary of work: Based on questionnaire feedback from 118 students on their gynaecological theatre experience, a written learning tool was developed to encourage students to follow patients through their journey to and from theatre. This tool was used by a separate cohort of 118 students who were subsequently surveyed with the same questionnaire, to investigate whether there was an improvement in their theatre experience.

Summary of results: Early feedback from use of the tool suggests that learning improved in areas identified as deficient in the first survey: awareness of patients’ expectations and concerns; understanding of surgical principles; acquisition of clinical skills; appreciation of theatre process and team working.

Conclusions: Developing a structured learning tool based on student feedback improves overall experience of theatre through awareness of the patient’s journey and inclusion in the theatre team.

Take-home messages: This study demonstrates that applying a structured approach to learning in the operating theatre greatly improves student experience.

5AA3 Effect of previous training in different areas during the internship on medical student clinical performance

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(Ribeirao Preto Faculty of Medicine, University of Sao Paulo, Department of Medicine, Ribeirao Preto, State of Sao Paulo, Brazil)

Background: Progressing throughout internship rotations should improve intern general clinical performance, but this has not been well documented. We compared students assessed after five rotations to those completing their first rotation regarding performance on core clinical skills.

Summary of work: Data collected for five years (N=506) were analysed retrospectively. Before finishing the Medicine rotation, interns were assessed by faculty (N=506) were analysed retrospectively. Before finishing the Medicine rotation, interns were assessed by faculty

Summary of results: Global scores for interns examined after five rotations were similar to those for students completing their first rotation (mean±SD: 8.30±1.32 versus 8.18±1.45; p=0.54). The percentages of interns performing outstandingly on individual core clinical skills. Students examined after five rotations (N=100) were compared to those completing their first rotation (N=103).

Summary of results: Global scores for interns examined after five rotations were similar to those for students completing their first rotation (mean±SD: 8.30±1.32 versus 8.18±1.45; p=0.54). The percentages of interns performing outstandingly on history taking, physical examination and clinical reasoning were also similar in both subgroups. After five rotations, there were more often outstanding performances on patient management than after the first rotation (51% vs. 37%; p=0.04).

Conclusions: We were not able to show that progressing throughout the internship rotations is associated with improved clinical performance.

Take-home messages: Previous training in different areas during the internship year may improve intern cognitive foundation rather than performance on core clinical skills.

5AA4 What screening physical examination should medical students perform during the internal medicine clerkship?

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(Radboud University Nijmegen Medical Centre, Department of Internal Medicine, Nijmegen, The Netherlands)

Background: In the internal medicine out-patient clinic medical students are expected to perform a screening physical examination of every new patient. There is no consensus about what this examination should include.

Summary of work: We performed a questionnaire amongst physicians in internal medicine and related departments in one academic centre and the affiliated hospitals who tutor medical students during their first clerkship. They were asked what such an examination done by medical students should include, and which parts of the physical examination they performed themselves during the first physical examination of a new patient.

Summary of results: 84 physicians responded. Regarding the physical examination done by medical students most emphasized was physical examination of general parameters, thorax and abdomen, vascular status, lymph nodes, spinal column and skin. Examination of the joints was not expected from the students. Controversies were examination of the urogenital tract, ear/nose/throat examination and neurologic examination. The physicians themselves performed little examinations of the joints, gynaecologic examinations and neurologic examinations. Therefore these parts of the physical examination are better taught during other clerkships.

Conclusions: Consensus was reached about what a screening physical examination by a medical student should include.

Take-home messages: A consensus on screening physical examination can be reached and integrated in the training program.

5AA5 Using Patient Records to Teach Medical Students

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Background: A recent study showed that as many as 40% of medical students do not feel prepared for their first medical job. Aspects that were identified as having an affect on this perceived lack of preparedness include the level of knowledge of communication skills, paperwork, time management, and the management of acute patients. Crucially, however, exposure to clinical practice was identified as the core theme of preparedness. Many institutions incorporate Case-Based Learning (CBL) into their curricula to address this situation. However, CBL has also been criticized for having several innate characteristics that can encourage adverse student performance, such as the phenomenon of premature closure.

Summary of work: This work describes some of the criticisms of CBL that are discussed in recent literature and suggests a learning system based on real medical data.

Summary of results: This paper’s purpose is two fold: first, a learning environment based on time-oriented medical documentation is introduced as a proof of concept and second, a documentation method where physicians can document their thought processes and reasoning is proposed.

Conclusions: The literature review will highlight current criticisms of CBL, while the proposed teaching system’s description will outline how this situation can be improved by using real medical data.

Take-home messages: By documenting their thought processes, physicians would make it possible for real medical data to be used in CBL environments.

Logbook: Effectiveness of EPITOME framework in the Learning Process

Background: The new logbooks piloted in 2010 have been specially designed adapting the EPITOME framework to help maintain a record of problems seen by the students during the clerkship; identify gaps in learning opportunities and facilitate planning of corrective measures to fulfill the learning needs identified by the students relating to the clinical presentations in the curriculum. At the end of the four week General Surgery rotation, faculty evaluates the logbook entries. This evaluation contributes 10% marks towards the Continuous Assessment.

Summary of work: By the end of 6 rotations a total of 45 logbooks were reviewed and compared with the list of common clinical presentations and their objectives in order to evaluate if, according to the students’ documentation, the learning objectives and the number of clinical presentations to be seen were being met across the EPITOME framework. Quantitative analysis of data was done using SPSS 17, to identify the total number and types of clinical presentations to be seen by every student during the four weeks of the rotation.

Summary of results: Factorization yielded the core clinical presentations to be seen, which helped determine the minimum number of cases to be documented by each student during the rotation.

Conclusions: EPITOME framework facilitated objective continuous assessment of students, promoted self directed learning in students by helping identify gaps based on the number of cases seen against the specified minimum number for each problem to be seen by each student.

Take-home messages: “EPITOME” framework facilitates comprehensive learning during the clerkships.

What is the lived experience of preceptors in longitudinal integrated clerkships?

Background: A longitudinal integrated clerkship (LIC) was implemented at the University of Alberta in September 2007. LIC students spend 9 months in one community with a small number of preceptors. Research about LIC preceptors is scant.

Summary of work: The research question for this qualitative study was: “What is the lived experience of preceptors in the longitudinal integrated clerkship?” Eleven reflective conversations were held with 8 primary preceptors over 2.5 years. Transcripts were reviewed individually and holistically for meaning, and then analyzed together for emerging themes. Analysis began in descriptive and narrative frame and has progressed to a grounded theory frame using socio-cultural concepts from the communities-of-practice literature.

Summary of results: The study illustrates that the LIC learning environment affords opportunities for preceptors to: gain trust and confidence in the student over time; share responsibility for student progress toward clerkship objectives; tailor feedback; and reflect on their clinical practice and teaching.

Conclusions: LICs create an environment in which preceptors commit to an enduring relationship that is mutually supportive and engaging. Observing learners over time allows LIC preceptors to tailor the learning environment and feedback to meet individual learner needs.

Take-home messages: The socio-cultural environment of the LIC creates opportunities for preceptors not easily achieved in rotation-based clerkships.
5AA8 Students’ Perceptions of Their Achievement of Good Medical Practice Program
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(Hacettepe University Faculty of Medicine, Department of Medical Education and Informatics, Ankara, Turkey)

Background: Good Medical Practice is a preclinical program at Hacettepe University Faculty of Medicine. It has six sections: Communication skills, evidence-based medicine, clinical skills, clinical visits, ethical and professional values, and medical humanities. The aim of the study was to evaluate the clinical-year-students’ perceptions of their achievement of the program.

Summary of work: A 25-item questionnaire with 7 Likert scales was delivered. 183 of the forth year students and 164 of the sixth year students participated in the study.

Summary of results: Forth year students perceived more achievement of essential skills (hand washing, wearing sterile gloves); sixth year students of complicated skills (intramuscular injection, suturing, urethral catheterization). Forth year students had statistically difference in communication skills. There was not any difference in other components of the program.

Conclusions: As the time spent in the clinical environment was longer, students’ perceptions of their achievement became more positive.

Take-home messages: Preclinical programs like Good Medical Practice has impact on preparing students for clinical environment.

5AA9 A study to examine the contribution to learning of experience in a paediatric short stay unit integrated into medical student rotations in Children’s Health
N Roberts*, P Archer, J Martin
(1Monash University, Eastern Health Clinical School, Melbourne, Australia; 2Maroondah Hospital, Emergency Department, Melbourne, Australia)

Background: Our medical students undertake 8 week rotations in Children’s Health, half in a medium general hospital, half in a large tertiary hospital. This study examines the impact on learning outcomes of including experience in a paediatric Short Stay Unit (SSU) attached to the Emergency Department at a third hospital. This innovation was driven by the need to increase placement capacity and a desire to enrich the case profile of the student experience.

Summary of work: A tool was developed to evaluate learning outcomes in Children’s Health. The tool was applied, pre and post rotation, to an experimental group completing the SSU experience and a control group who did not.

Summary of results: Preliminary analysis indicates that students were very positive about the SSU experience.

5AA10 Health Promotion for Medical Students at Saraburi Medical Education Center
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Background: The clinical years are the critical period for medical students. Exposure to stress both physical and mental are huge. We started the Health Promotion program in 2007. We want to find out the scope of the medical students’ illness to improve the program.

Summary of work: We reviewed the health problems of 140 medical students from 2004 to 2008 and followed them for 3 years during their study in the clinical years. We adjusted the program year by year and found that we can reduce the number of visits every year.

Summary of results: Main problems are physical with 780 visits, compared to mental causes which were 5 visits. Respiratory tract infection is the most common, causing 342 visits. There is one bipolar case that requires continued medical treatment. The Health promotion program included a check up before going to the clinical ward, the course for universal precaution, vaccination against chickenpox and hepatitis B and starting the Medical Fitness Center. For mental problems we include the psychiatrist in the student care team and monitor the academic outcome as the indicator for early detection. The highest number of visits occurred in the fourth year, with 368 visits. After they were introduced to the program the number of visits decreased year by year to 253 visits in fifth year and 99 visits in the final year.

Conclusions: The number of health problems decreases after the Health promotion program commenced.

Take-home messages: Love and care for students help them to survive the harsh years.

5AA11 Development of fourth-year medical students’ characteristics through chronic home care illness

The study identified characteristics of the SSU experience associated with this favourable response. Detailed analysis of the impact on student self-confidence in their preparedness for practice, and the relationship between student experience and the case profiles at the various sites will be presented.
Background: Home health care study program is developed to increase fourth year medical students’ experience of chronic illness care. We assessed students’ progression using eight characteristics throughout this program.

Summary of work: Twenty-nine students were divided into ten groups. Each group visited one chronic illness patient three times during a two-month rotation. The development of student characteristics: care giving; family care; home visit; medical ethics; role of doctors and social responsibilities; teamwork; and evidence-based medicine were independently assessed through two case reports, after first and third home visits, by two medical teachers using prior developed scoring rubrics. Feedback was provided to each group after assessment. Percentage and median value were analyzed. Wilcoxon matched pairs signed-rank test was used to test the hypothesis at statistical significance level of 0.05.

Summary of results: Students had higher median value in all characteristics. Medical ethics, role of doctors and social responsibilities, teamwork, and total scores showed statistically improved (p<0.05).

Conclusions: Homecare for chronic illness can help the fourth-year medical students to improve their medical ethics, role of doctors and social responsibilities and teamwork.

Take-home messages: To ensure the development of medical student characteristics, integrated studies programs need to be developed.

5AA12 Medical students’ attitude towards mental illness in Finland
T Svirskis*, J Korkelia (1University of Helsinki, Department of Psychiatry, Helsinki, Finland; 2University of Turku, Department of Psychiatry, Turku, Finland)

Background: Stigma attached to mental disorders affects lives of numerous people suffering from mental illness. Anti-stigma campaigns are usually aimed at general population, but there is evidence that attitude of health care workers to mentally ill people does not differ from that of the general public.

Summary of work: Objective: To study medical students’ attitudes towards mental illness in Finland. Methods: Medical students studying their 3rd and 4th year at the University of Turku, Finland were given a questionnaire that included statements about mental illness. A five-point scale (from strongly disagree to strongly agree) was used for rating. The questionnaire was given prior to the course of psychiatry.

Summary of results: The response rate was 190/206 (92.2%). Students exhibited negative and stigmatizing views on mental illness. Sixty-seven percent were of the opinion that people with severe mental illness are untrustworthy and unpredictable, 70.4 % would rather fall ill with a somatic than a psychiatric illness, and 54.5 % would feel/felt ashamed if/when personally suffered from a mental disorder.

Conclusions: Mental illness stigma, prejudice and discrimination should be focused on in the undergraduate training in psychiatry to improve young doctors’ knowledge about stigma and its consequences to patients and their families.

Take-home messages: Stigma attached to mental illness needs to be focused on in medical student education.

5AA13 The effects of clinical practice and lecture on pediatric OSCE performance by interns
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(1Department of Pediatrics; 2Department of Medical Education, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taoyuan, Taiwan)

Background: In our medical center, all medical interns receive pediatric clinical training for 6 weeks. They participate with 3 different sub-specialists of pediatrics in clinical practice. In addition, a series of lectures are also arranged during the period. At the end of the practice, a pediatric OSCE test of 2 clinical cases is given to all interns. Our purpose is to evaluate the performance of interns on the pediatric OSCE to see if it is affected by different clinical practice courses.

Summary of work: The data were collected between June and November of 2010. A total number of 84 medical interns participated in the training courses. Four pediatric OSCEs were held in a 6 week interval. Raters evaluated the performance of interns with 2 different scoring systems, a 5-level scoring system and a global rating score. Interns were divided into 2 groups showing whether they received sub-specialist clinical training or not. A t-test was used to compare scores of the interns.

Summary of results: There was no statistical difference between the 2 groups of interns in their scores evaluated by both scoring systems.

Conclusions: Our pediatric OSCE for medical interns is designed for the purpose of teaching. Therefore, receiving the complete lecture course will help medical interns to pass our pediatric OSCE. Whether or not the intern received pediatric sub-specialist clinical practice does not affect performance on the OSCE.

Take-home messages: Clinical performance could be educated by proper lecture.

5AA14 Students’ feedback of Clinical Skills lab: helping to improve
**Conclusions:** Negative points were short duration of some skills, and lack of realism of some models. Students valued small groups, close interaction with instructors, and opportunity to practice on the skills lab is an active part of the program improvement. They were asked to evaluate the skills and lab regarding objectives, protocols, time, equipment, importance of the skill learned. There was also an open field to write positive and negative points.

**Summary of results:** Overall all aspects received high marks. Students valued small groups, close interaction with instructors, and opportunity to practice on the skills lab is an active part of the program improvement. They were asked to evaluate the skills and lab regarding objectives, protocols, time, equipment, importance of the skill learned. There was also an open field to write positive and negative points.

**Summary of work:** Different skills are taught including basic skills (e.g. physical examination), technical skills (e.g. suture), and non-technical skills (e.g. patient consent and privacy). Students feedback of the Clinical Skills lab is an active part of the program improvement. They were asked to evaluate the skills and lab regarding objectives, protocols, time, equipment, importance of the skill learned. There was also an open field to write positive and negative points.

**Summary of results:** Overall all aspects received high marks. Students valued small groups, close interaction with instructors, and opportunity to practice on the skills lab is an active part of the program improvement. They were asked to evaluate the skills and lab regarding objectives, protocols, time, equipment, importance of the skill learned. There was also an open field to write positive and negative points.

**Take-home messages:** Clinical skills learned in the lab, small groups and proper time to practice are relevant issues for the students.

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**5AA15 Skills Centre Quality Management Plan**

I Treadwell (University of Limpopo, Skills Centre, PO Box 151, Medunsa, 0204, South Africa)

**Background:** Setting up a new Skills Centre (SC) at Medunsa required a plan that would ensure that all the aspects of clinical teaching in this facility be of high quality.

**Summary of work:** Three interrelated life cycles of an SC and its components were identified. A Quality Management Plan was compiled comprising standards for all components. Assessment criteria for the accomplishment of these standards were determined as well as relevant operational checks.

**Summary of results:** A plan was compiled in tabular format comprising the standards, assessment criteria and operational checks for the components of the following three life cycles: • Skills teaching/learning life cycle: core skills, teaching content, standardised procedures, teaching / learning strategies, assessments of students and programmes; •Learning environment and teaching media life cycle: venues, manikins, simulators & equipment standardised patients, teaching media, learning guides and lecturers; • Maintenance and support life cycle: Support personnel, budget, risk reduction, research & training, feedback reports.

**Conclusions:** Setting standards and control measures for all components of the life cycles of a Skills Centre instills an awareness of the quality required.

**Take-home messages:** Implementation of a quality management plan is imperative to assure high quality clinical teaching.

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**5AA16 The Retention Effect of a new “Structured Clinical Skills Training Model” for Medical Students in Taiwan**

Chi-Chuan Yeh*1,2, Chih-Wei Yang1,3, Stanley Shih-Li Tsai1,4, Matthew Huei-Ming1, Shan-Chwen Chang5, Hong-Shiee Lai1,2 (1Department of Medical Education; 2Department of Surgery; 3Department of Medical Education; 4Department of Family Medicine; 5Department of Internal Medicine, National Taiwan University Hospital and National Taiwan University College of Medicine, Taiwan)

**Background:** Clinical skills training was an apprenticeship model traditionally. A structured competence-based training model was needed.

**Summary of work:** We set up a new “Structured Clinical Skills Training Model” implemented in National Taiwan University Hospital for pre-clerk medical students since 2008. This new model included two and a half days training for ten clinical skills, practice sections, and assessment before clerkship. In this study, we introduced this new model and evaluated the retention effects of the training.

**Summary of results:** We compared the assessment results of IVC and Foley insertion between the pre-clerk and pre-intern assessment amount the cohort of 145 medical students in 2008. In IVC insertion checklist, the mean of passed items decreased significantly (pre-clerk vs. pre-intern, 12.43 vs. 11.46, p=0.029). The mean of passed items after correction also decreased significantly (2.88 vs 2.24, p=0.007). The mean of un-passed items (0.14 vs. 0.21) showed no statistically significance. In Foley insertion checklist, the mean of passed items decreased without statistically significance. The mean of passed items after correction increased without statistically significance. The mean of un-passed items decreased with significantly (0.76 vs 0.02, p=0.005).

**Conclusions:** The skill of IVC insertion was hard to maintain without frequent practice in clerkship. Part of students gained practice opportunities of Foley insertion during elective clerkship maybe contribute no difference of Foley insertion assessment.

**Take-home messages:** 1. A new “Structured Clinical Skills Training Model” was implemented in Taiwan. 2. Retention effect needed be improved by providing more clinical practice opportunities.
5AA17 Interactive Materials of Oral Medicine for Undergraduate Students of Dental Medicine
J Vokurka*, A Fassmann, L Izakovicova Holla, P Augustin, H Poskerova, J Vanek (Department of Periodontology, Clinic of Dentistry, St. Anne's Faculty Hospital, Faculty of Medicine, Masaryk University, Brno, Czech Republic)

Background: During practice at the Clinic of Dentistry students are able to see only limited number of patients with oral mucosa lesions. Moreover, the oral mucosa diseases may change rapidly during time which has an impact on the differential diagnosis. For students’ appropriate training it is necessary to see as many patients as possible and to inspect the oral mucosa lesions in all stages.

Summary of work: The aim of the present project was to create interactive audiovisual materials of oral mucosa lesions for undergraduate students of Faculty of Medicine, Masaryk University, Brno, Czech Republic.

Summary of results: The presentation will report our experience with the interactive database of oral mucosa lesions for undergraduate students of dental medicine.

Conclusions: The database can be updated according to the newest knowledge and scientific findings. The materials can be used for testing as a part of the written exam.

Take-home messages: The interactive materials are a useful tool to improve the knowledge of the oral mucosa diseases in undergraduate students of dental medicine.

5BB Posters: Community Based Education/Medical Education Research

5BB1 Australian rural medical education: a decade of innovation and development
J Walker (Monash University, School of Rural Health, Clayton, Victoria, Australia)

Background: The acceptance of a new position by the foundation Director of one of the original Australian Rural Clinical Schools provides a unique opportunity for reflection of a decade of clinical training and health workforce innovation and reform.

Summary of work: Formal submissions and annual reports were critiqued and analysed using a framework of the original vision statement as documented in September 2000.

Summary of results: The RCS program was based on the assumption that longer rural placements allow the development of rural connectedness which in turn leads to a higher likelihood of rural practice. Key characteristics of this RCS that have emerged since its inception indicate that this is correct with an innovative rural medical undergraduate program that is strongly endorsed by students, local clinicians and the community. It is built on a platform of sound engagement with local communities, health service providers and local government.

Conclusions: While this review demonstrates that the foundations are firm and that the stated primary outcomes are being achieved, much more has emerged than originally envisaged with a number of unique unintended outcomes.

Take-home messages: Targeted investment to address serious medical workforce shortages in rural areas is still a complex problem but the next generation of appropriately trained doctors is now emerging.

5BB2 The RRHEAL Education platform; “At distance” delivery for remote, rural and island healthcare teams
F Fraser1, P Nicoll1, K Walker*2 (1RRHEAL, Centre for Health Science, Old Perth Road, Inverness IV2 3JH, UK; 2North Deanery, NHS Education for Scotland, Centre for Health Science, Old Perth Road, Inverness, IV2 3JH, UK)

Background: The Remote and Rural Healthcare Educational Alliance (RRHEAL), was developed in 2008 with rural specific content and support for remote and rural learners being key issues to be addressed by RRHEAL. RRHEAL provides assistance to remote and rural NHS Boards and links healthcare services and
education providers. Access to contextually appropriate education is not only key to ensuring continuing and efficient rural clinical service delivery but also impacts on the recruitment and retention of skilled healthcare teams to provide such care.

**Summary of work:** The RRHEAL education platform was developed and launched in November 2010, hosting open source educational content for mixed disciplines in the specific context of remote, rural and island healthcare delivery. The platform has a multi-professional focus and an emphasis where possible, on competency based education.

**Summary of results:** The platform actively supports the philosophy of at distance or distributed education. Foundation or “core” pieces commissioned by RRHEAL are supporting progression of this inclusive methodology, including a VC education guide and a Quality Assurance Guide for distributed education. These items have stimulated significant interest and are now being embedded into local practice, in addition to being useful cornerstones when lobbying for increased delivery “at distance”.

**Conclusions:** In times of economic austerity, a model of at distance education can also demonstrate an economy of scale, have high utility and is transferable to larger population centres out with the context of remote, rural and island health Boards.

5BB3 Student reflections on their Community-based Education (CBE) block in Family Medicine at the end of their fourth year undergraduate medical training

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**Background:** With the increasing emphasis in South Africa on health care provision outside of hospitals, professional education and training is increasingly being provided in clinics, family practices, rural areas and informal settlements. Before entering their final year, medical students do an obligatory primary health care rural block.

**Summary of work:** The aim was to identify aspects that play a role in determining student’s expectations of CBE before and after they work in the rural areas. A quantitative and qualitative research design was used.

**Summary of results:** Students described their understanding of CBE, primary health care and rural health as well as their feelings, emotions, attitudes and opinions, skills and competencies before and after the challenge. An identifiable change in opinion as well as in personal and professional behaviour was found.

**Conclusions:** Students benefitted by the understanding of the relevance of primary health care in practice; by the maintenance of proper conduct in relationships with others and by understanding the importance of social factors on communities and it’s influence on patterns of disease.

**Take-home messages:** Student reflections on organised learning experiences in rural and primary health care environments, while meeting the needs of and benefitting the community, are valuable.

5BB4 Reflection of medical students to 1-year continuous home visit in Year 4 Family Medicine curriculum of Ramathibodi Hospital

W Ketprayoon*, S Horsakulchai (Department of Family Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, 270 Rama 6 Rd, Ratchathevi, Bangkok 10400, Thailand)

**Background:** Home visit is an important tool of family medicine. We assigned the undergraduate students of Faculty of Medicine, Ramathibodi hospital to do 1-year continuous home visit which aimed to give them experience of how to care for a patient in the family medicine setting. The objective of the research is to analyse the students’ opinion of the continuous home visit curriculum.

**Summary of work:** A questionnaire was distributed to the fifth year medical students who experienced 1-year home visit as an educational tool of family medicine. The questionnaire comprises 9 items which address the students’ impression of home visit, advantage and disadvantage of continuous home visit, achievement of the objectives, and the assessment process of learning.

**Summary of results:** One hundred and seven students (92.24 %) returned the questionnaires for analysis. Forty five percent are men and 55% are women. The impression of home visit programme is very good. The results show the achievement of the learning objectives and the use of home visit report is suitable for assessment.

**Conclusions:** Teaching the medical students and continuing care of the patients are the most impressive and worthy aspects of the home visit program. This program should be continued in the medical doctor curriculum.

**Take-home messages:** Continuous care and understanding the patients are the factors of success for family physicians. Home visit is a worthy procedure to achieve them.

5BB5 A Managerial Framework for the management of Community-Based Education (CBE) directed at social responsiveness and accountability in a School of Medicine

M M Nel*1, P P C Nel1, G J Van Zyl*1 (1Health Sciences Education (G14), Faculty of Health Sciences, University of the Free State, PO Box 339, Bloemfontein 9300, South Africa)

**Take-home messages:** Two main challenges identified in the management of Community-Based Education were: to ensure responsive and accountable learning, and to reduce the mismatch between intended CBE and reality. Low management capacity and a lack of sufficient resources were identified as major constraints and barriers for successful delivery of Community-Based Education. The identification of the challenges and constraints will be important for all stakeholders who need to play a role in the successful management of CBE.
South Africa; School of Medicine, University of the Free State, Bloemfontein, South Africa)

**Background:** Health Sciences Education should produce graduates who are social responsive practitioners and who are able to contribute and respond to the priority health needs of the people they live with and serve.

**Summary of work:** The aim was to develop a framework for the management of CBE in order to ensure social responsiveness and accountability. The research includes a literature study – and as an empirical study – questionnaire surveys and semi-structured interviews.

**Summary of results:** Different aspects, including management criteria, the educational needs of lecturers as well as the perspectives on and experiences of community health workers of CBE were identified and used to compile the framework.

**Conclusions:** The outcome of the research will ensure that students participate in contextualised, well-structured and organised service activities aimed at addressing identified service needs in a community and will also ensure that managers and lecturing staff have a deeper understanding of the link between curriculum content and community dynamics, simultaneously achieving personal growth and a sense of social responsibility.

**Take-home messages:** Medical Schools have to foster social accountability by directing their education, research and service activities towards addressing priority health concerns of the community, region and nation they serve.

**5BB6 Engaging with the community: the role of non-clinical placements in medical education**

L Brooks*, S C McBain (School of Medicine, Keele University, Staffordshire ST5 5BG, UK)

**Background:** Voluntary and statutory organisations make a significant contribution to health and social care provision within the UK. However, there has been little research exploring the specific value of student placements within such non-clinical community settings in medical education. We believe that this area of care provides an important and underutilised resource for medical student learning.

**Summary of work:** We have developed a community-based placement programme for the second year of the Keele MBChB degree. Students spend a total of 8 half-day sessions working within a local community organisation. The aims of the programme are to increase students’ understanding of how voluntary and statutory organisations support people with health and social care needs in the local area and increase their understanding of the specific needs of the local community.

**Summary of results:** We will discuss the potential of this educational model for facilitating student learning, our experiences of the programme and present data from both student and placement provider feedback since its first delivery in 2008.

**Conclusions:** Student engagement with the programme has been good. Placement provider feedback has been positive with a high level of retention of organisations.

**Take-home messages:** Placements within voluntary and statutory community organisations are a valuable and underutilised resource in medical education.

**5BB7 Integrating Hospital-based and Community-based Education in Geriatric Medicine Module among 4th Year Medical Students in Faculty of Medicine, University of Indonesia (FMUI)**

P W Luksmi (University of Indonesia, Faculty of Medicine, Department of Internal Medicine, Division of Geriatric Medicine, Jakarta, Indonesia)

**Background:** Elderly population is increasing worldwide, including in Indonesia. Geriatric patients have certain characteristics, which mandate comprehensive training in geriatric medicine. FMUI developed a three-week geriatric medicine module for fourth-year medical students. This module tries to integrate hospital-based with community-based education.

**Summary of work:** The module runs 11 three-week blocks, with 23-26 students in each term. Orientation phase consists of lectures, topic discussions (present by the students), and explanation of geriatric medical record. Whereas practice phase consists of outpatient and inpatient clinical teaching and field trip to PUSAKA, a subsidized day care center. During visit to PUSAKA, the students are divided into 3 groups, to do the layman presentation, make SWOT analysis, and collect respondent data.

**Summary of results:** From questionnaire and self-reflection made by the students, most of them have very challenging and enjoyable moment during PUSAKA visit. They have the opportunity to see first hand the elderly activities in the community, to do promotive measure, learn and practice how to communicate effectively, increase their empathy and awareness on bio-psycho-social aspects, as well as learn how to do research in the community.

**Conclusions:** It is beneficial to integrate hospital-based with community-based education.

**Take-home messages:** Community-based education can be an added value to hospital-based education.

**5BB8 Evaluation of a Community Dentistry Practice Course for Sixth Year Dental Students, Chiang Mai University, Thailand**
Background: A Community Dentistry Practice Course prepares the sixth year dental students to work in practice. All students were sent to Community Hospitals, Provincial Hospitals and Public Health Offices for four weeks under instructors who worked at those locations.

Summary of work: Data were collected by using questionnaires twice: immediately after and one year after the course. Six important aspects were selected for evaluation through five scales. These aspects were (1) course satisfaction, (2) usefulness of the experience, (3) confidence to work with other people, (4) adaptation to workplace and environment, (5) understanding their roles in practice and (6) benefits of the course. Data were analyzed by using the Paired t-test.

Summary of results: Forty-three questionnaires (72.9%) were return and compared. The results showed that students’ perceptions of the usefulness of the experience and of the benefits of the course were significantly different (p-value < 0.05) at the two measuring instances.

Conclusions: The course attempted to prepare the students and expected to help them to work smoothly in practice. However, the expectation before working differed from that in practice after working for one year.

Take-home messages: Evaluation in terms of qualitative research should be used to describe and expand the understanding of these aspects.

5BB9 Humanizing medicine: Interviews conducted by first year medical students in the community
M Barbosa*, M Patricio, A Pais-de-Lacerda, A Barbosa (Institute of Introduction of Medicine, Faculty of Medicine University of Lisbon, Portugal)

Background: Learning in the community has been used to sensitize medical students to a more humanized medicine, promoting a wider awareness concerning all aspects of medical profession in view of a relational model.

Summary of work: First year students were asked to interview a disabled person or a relative or a professional from one institution they visited in the community. 183 assignment reports were subjected to a content analysis technique.

Summary of results: 1) Students who interviewed the professionals integrated an attitude of inclusion (86,3%); recognized the role of the: family (53,8%), institutions (85%) and professionals (87,5%); and reflected on the value of the: doctor-patients relationship (42,5%) and the singularity of being a Person (52,5%). 2) Students who interviewed a disabled person or a relative were sensitized to the: social exclusion (65%) and need for inclusion (72,9%); recognized the role of the: institution (67%) and family (59%); reflected on the value of the: doctor-patients relationship (61,2%) and singularity of to be a Person (56,3%).

Conclusions: This educational strategy promoted a better articulation between theory and practice in teaching the humanization of medicine.

Take-home messages: Results brought out the educational value of students’ interview for learning in terms of Humanization of Medicine.

5BB10 The current status of medical education literature in Chinese-language journals
H Xie*, YI Chen, J Chen, Xl Wan, Y Lin, HX Zheng (West China School of Medicine and West China Hospital of Sichuan University; West China Hospital of Sichuan University)

Background: Many research articles have been published in Chinese-language journals, many within the past few years. However, there have been no objective studies to look at the quality of these, and their contributon to present day thinking.

Summary of work: We searched three major Chinese databases, including Chinese Biological Medicine in electronic form, Chinese Journals Full-text Database, and Chinese Technological Periodicals Database, to trace the research themes and methodologies of the medical education-related research papers published from Jan. 2000 to Dec. 2008, all in a Chinese-language form.

Summary of results: The annual number of articles on undergraduate medical education research has increased over time in China, with 70% of the articles in our nine-year study published in the past four years; the most popular theme was regarding the curriculum and teaching; non-comparative studies accounted for the majority of the literature on medical education (84.3%); and comparative studies were rare.

Conclusions: Although an increase in the number of articles on medical education research in China is encouraging, there is a need for medical education research to use more methodologically rigorous designs to improve research quality. Generic and focused training on medical education research methodology is essential to convert quantity into quality.

5BB11 Creating a centre for medical education research:lessons learned from an environmental scan of international centres
Background: Tasked with the development of a centre for research in the education of the health professions at one of Canada’s medical schools the author explored existing practices thru on-line and face to face interactions.

Summary of work: This brief communication presents those factors held in common by successful centres, the reasons they appear to be successful and the reasons why some are in decline. Among the factors addressed are: types of programs offered; organizational placement; funding sources; numbers and types of staff and faculty; partnerships; development strategies and the importance of “naming” in the local political environment.

Summary of results: In personal interviews with centre directors, staff and faculty the author gained insight from their wisdom and experience. A number of suggestions were made by these individuals based upon their original assumptions, subsequent successes and in some cases, failures of centre operations in their contexts. These are presented below in the form of Heuristics or rules of thumb.

Conclusions: Heuristics for Success: Teach research by researching together; Manage the service/research balance; Naming and placement are critical; Demonstrate relevance; Develop a core group; Focus the research agenda(s).

Take-home messages: Contextual relevance in light of changing times will help insure success, but not guarantee it.

5BB12 Do different evaluation modes produce different results?

V Fischer (Medizinische Hochschule Hannover, Presidents Office, OE 9103, Carl-Neuberg-Str. 1, 30625 Hannover, Germany)

Background: The modules were evaluated with two electronic systems to test the following assumptions: 1) Are the results of online evaluations biased due to the reduced response rate? 2) Are courses with easy exams better evaluated than those with high failure rates?

Summary of work: The first study compares the results of the online-evaluation of more than 40 courses with their evaluation immediately after the final exam of the course. The second study compares the evaluation of courses with failing rates higher than 10 % with those without failing candidates.

Summary of results: No significant differences were found for nearly all courses concerning the mean, while for nearly all courses the kurtosis varied significantly according to the evaluation method. The evaluations of the majority of the courses are stable over time and vary significantly between courses. Only in a few cases there are relevant changes between periods regarded which are all due to concrete and explainable reasons.

Conclusions: The online-evaluations are unbiased when compared to evaluations conducted directly after the exam. The lower response rate had only an impact on the kurtosis of the distribution. There is no evidence that courses with difficult exams are related inferior to courses with easy exams.

Take-home messages: There is no evidence that an online-evaluation with a response rate of 40 percent is less representative than a evaluation with a response rate of 85 percent.

5BB13 Randomised controlled trials in medical education: a pilot and feasibility study to develop methodological understanding

S Buckley*, J Coleman1, I Davison2, D Morley1, C Torgerson2 (1College of Medical and Dental Sciences, University of Birmingham, Vincent Drive, Edgbaston, Birmingham B15 2TT, UK; 2Centre for Research in Medical & Dental Education, University of Birmingham, UK)

Background: Randomised controlled trials (RCTs) are relatively rare in medical education and the subject of much debate. More widespread use will depend in large part on developing our understanding of how such methodologies can be applied successfully in complex educational settings.

Summary of work: We have undertaken a pilot feasibility and acceptability RCT to explore the challenges of undertaking such studies with undergraduate medical students. Our intervention was a series of on-line simulations designed to raise awareness of collaborative working, the patient perspective and the clinical condition; our trial population consisted of 250 year 3 medical students. We used questions embedded in the end of year examination as our outcome measure.

Summary of results: We will present our findings in terms of design and conduct of the trial, including design features such as finding an appropriate control group and suitability of the outcome measure; and practical issues such as staff engagement, ethical approval, and student recruitment and retention. We will also consider the challenges associated with logistics, IT systems and team working.

Conclusions: We will discuss the strengths and limitations of our trial and make recommendations for best practice in conducting RCTs in medical education.

5BB14 Focus groups: a valuable tool for the construction of quantitative research instruments

C Peres*, A Sasso, P Marques (University of Sao Paulo, Medical School of Ribeirao Preto, Ribeirao Preto, Brazil)
Background: Nowadays, integrating quantitative and qualitative data collection in Medical Education Research has been playing an important role. Our study sought to use the qualitative focus group strategy as a way of assisting the construction of a quantitative research tool.

Summary of work: Two focus groups (9 teachers and 7 students of medicine) discussed issues related to the use of an eLearning system in an off campus educational activity. The evaluation of this debate was done in a four steps approach (affective, conceptual, evaluative and projective), called Thematic Approach.

Summary of results: The Thematic Approach has contributed to the identification of positive and negative aspects of the elearning activity experienced. This analysis resulted in a questionnaire consisting of 20 multiple choice questions on 5-point Likert scales that was applied to 100 students and 12 teachers who had participated in the same off campus activity.

Conclusions: Performing the focus group methodology with previously structured proposals allows the development of high quality discussion. However the researcher should be flexible and be aware that a successful analysis of the debated issues will only be obtained with group interaction.

Take-home messages: A well conducted qualitative approach can bring important issues to assist the construction of a quantitative research tool.

5DD1 Successful use of e-learning to teach health informatics
S O’Hanlon* (University of Limerick, Graduate Entry Medical School, Limerick, Ireland)

Short description of innovation: Health informatics was introduced to a new graduate-entry medical curriculum as a face-to-face session. Alterations to the programme meant that students were split up over several sites scattered over a large area. An e-learning course was implemented to enable continued full participation.

What will be demonstrated: The online collaborative learning environment will be shown, with tips on how to construct e-learning courses to keep distance learners engaged.

What is particularly interesting about the innovation/How it could be implemented: This intervention was built from the ground up, on a low-cost basis with no expert input. Online discussion facilitated by task-based learning has ensured high levels of student participation. Students who were quieter in large groups contributed well in this forum. Several thousand miles of student travel were avoided.

Why participants should come to the demonstration: Our course ratings increased after the e-learning intervention was introduced, from 3.8 to 4.5 out of 5. Applying this methodology to other modules is feasible - we have launched a successful module on Care of Older People in the Community. This is an economical and successful way to engage learners.

5DD2 Improving feedback to students using an eAssignment system
T Bryant*1, P Gibbs2, M Chivers2 G Jones2, P Silvester2 (1University of Southampton, Faculty of Medicine, Southamp, UK; 2University of Southampton, iSolutions, Southampton, UK)

Short description of innovation: Students often complain that their tutors do not provide sufficient feedback on their work. Online submission and marking provides the opportunity to improve the quality of feedback. We have developed a system for submission, marking and feedback of comments on open-ended assignments in which improvement in feedback is one of the main objectives.

What will be demonstrated: The online submission process from the student perspective, the marking process and feedback.

What is particularly interesting about the innovation/How it could be implemented: The eAssignment system goes beyond the concept of a digital drop box. It facilitates, the use of feedforward where students can ask for feedback on specific aspects of their work. Marking can be single or double blinded using graded criteria to improve consistency between markers. Access for external examiners is provided. The software is open source.

Why participants should come to the demonstration: The system can reduce the administrative load and speed up turn round of feedback to students as work is available to markers as soon as the submission deadline has passed.

5DD3 Simulated Team Scenario - a COPD case-based virtual learning tool for interprofessional collaborative learning
H A Ward*1, D Chipperfield1, M S Sheppard2, S E Card2 (1University of Saskatchewan, Department of Internal Medicine, Royal University Hospital, 103 Hospital Drive, Saskatoon, SK S7N 0W8, Canada; 2Saskatoon Health Region, Canada)

Short description of innovation: A computer simulation of a patient with COPD preparing for hospital stay and discharge was developed with the objective of demonstrating interprofessional collaborative practice and competencies. Participants identify patient care needs and consult relevant care providers. Multiple entry portals exist for each
healthcare professional providing opportunity to learn roles of self and others. A scoring system is incorporated to assess key collaborative competencies of communication, strength in one’s and knowledge of other’s professional role and team function. Points are awarded for collaborative care decisions.

**What will be demonstrated:** Participants can enter the computer simulation as different health care professionals. Potential exists for paired collaborative learning. Feedback is provided by both an observing preceptor or through the collaboration score.

**What is particularly interesting about the innovation/How it could be implemented:** The simulation gives an opportunity for trainees to develop collaborative practice skills in a non-threatening environment. Implementation in orientation could facilitate transitions to the clinical environment, particularly if trainees from different professions participated together to allow full discussion post simulation.

**Why participants should come to the demonstration:** The simulation is a novel, practical way to teach and provide formative feedback on collaborative practice knowledge and skills.

5DD4  **Case-Scenario Tutorials: Enhancing student interaction in a didactic world**  
Faraz Ahmed Bokhari*, Sibgha Zulfiqar, Noora Hasan (Shaikh Khalifah Bin Zayed Al-Nahyan Medical & Dental College, Shaikh Zayed Medical Complex, Department of Physiology, Lahore, Pakistan)

**Short description of innovation:** Clinically oriented case-scenario tutorials (CSTs) are designed to stimulate student learning by applying physiological concepts as clinical case scenarios

**What will be demonstrated:** 1. Significant rise in student interest and attendance; 2. Sense of positive competition amongst students; 3. Clinical orientation.

**What is particularly interesting about the innovation/How it could be implemented:** Monotonous content along with falling student attendance and lack of interest, pressed us to restructure these sessions more interactively. Furthermore, there was the need to incorporate clinically oriented material alongside conventional concepts.

**Objective:** How to make tutorials more clinically oriented while keeping students interested? Clinically-oriented case scenarios was the answer. So, diagnosing ‘shock’ replaced discussing ‘factors affecting arterial BP’. Furthermore, additional, relevant questions were added to encourage students to study normal physiology and clinical medicine. To improve student-teacher ratio and enhance student participation, the tutorial batch (comprising of 33 students) was divided into 3 subgroups. Every week, three scenarios are announced; student subgroups are required to prepare all three. On tutorial day, a subgroup is randomly asked to present any one. The subgroup is then assessed by the tutor according to a 90-points assessment form. A separate tutorial performance record is maintained in the department, available to external examiners.

**Why participants should come to the demonstration:** Make undergraduate tutorials clinically enriched, and fun!

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**SESSION 6: SIMULTANEOUS SESSIONS**

**6A  Symposium: Viewed through a Prism: Professionalism from the Vantage Point of Patients, Families, Students and Health Professionals in Practice**

Chair: Janice L Hanson (Uniformed Services of the Health Sciences, Bethesda, Maryland, USA); Panel: Frederick Hafferty (Mayo Clinic, Rochester, Minnesota, USA); Jill Thistlethwaite (University of Queensland, Australia); Representatives from the ‘Meet the Expert’ Group from AMEE 2010

While the concept of professionalism has its roots in time-honored ideals that have crossed centuries, the practice of professionalism occurs in the context of 21st century issues and challenges, such as work-hour restrictions, questions of work/life balance, regulation, social policy and the needs and perspectives of people who seek healthcare. This symposium will address these issues from the perspectives of individuals at varying stages of their medical careers, consider the views of other stakeholders and open the floor for discussion of this question: Is it time to reconsider the definition of professionalism? Panelists will address the following questions: How can we bring patients and families into the conversation about professionalism, and how might the conversation change when they join? How do views of professionalism integrate with concerns about work/life balance? How do roles and productivity play out in the context of regulation regarding professionalism? Can medical students, residents or practicing physicians separate professionalism in their public lives from behavior in their private lives? The moderator will facilitate the flow between brief commentary on one of these questions by a speaker, focused questions about these commentaries from the audience, exchange of ideas between participants and panelists, and a short closing commentary.
6B Symposium: Developments in Medical Education in the European Union

Chair: Madalena Patricio (University of Lisbon, Portugal); Panel: Ronald Harden (AMEE); Representatives from MEDINE 2 Workpackage 5 (Curriculum Trends) and Workpackage 6 (Bologna Process)

This symposium examines two key AMEE led initiatives that are part of the EU funded MEDINE 2 project. The first has as its theme ‘Curriculum Trends in Medical Education’. The results of a survey that examines current trends and what is perceived by respondents as the desired position in three to five years time will be reported. The second initiative provides an up-to-date perspective as to the extent to which the ten dimensions of the Bologna Process have been implemented in medical schools across Europe. The Bologna Process as applied to medical education has not been without controversy and this important development in education has been the subject of joint statements and reports published by AMEE, IFMSA and EMSA.

6C Short Communications: The Development of an eLearning Programme

6C1 Creation and Use of an Online Multispecialty Case Repository and its Multiple Uses for Specialist Training

P S Goh*, G Sundar, C Tan, M E Nga, T P Thamboo, S Amrith (Departments of Diagnostic Imaging, Ophthalmology and Pathology, National University Hospital, National University Healthcare System, Singapore)

Background: Clinical radiology pathology rounds are a common feature of post-graduate/resident teaching in academic hospitals worldwide. Participants often rate these of great teaching value. However, the potential use of these rounds is often not fully realized as only the actual participants benefit from these rounds. Simply archiving and putting these rounds online also does not fully maximize their teaching potential. Summary of work: Our academic health system has been running orbital multidisciplinary case rounds regularly for the last 7 years and making them available online. Our initial efforts have been expanded by the creation of specialty specific quiz material designed to promote deliberate practice, with immediate feedback, as well as routing of answers to the specialty residency director. Further development over the last year has been the creation and use of an online webportal further disaggregating the clinical, radiology and pathology material into specialty specific reusable quiz items. This has been used successfully not only for online practice, but as a resource for residency assessment. Summary of results: We have successfully reused and repurposed teaching material initially created for multispecialty grand rounds. This maximizes the teaching potential of the case material presented at our regular clinical radiology pathology rounds. Conclusions: Case material assembled for grand rounds can be reused and repurposed for individual learning and assessment by different specialties, via on online repository. Take-home messages: Case material assembled for grand rounds can be reused and repurposed for individual learning and assessment by different specialties, via on online repository.

6C2 Implementing a Digital Professionalism Framework

J Tworek*, R Ellaway* (University of Calgary, Undergraduate Medical Education, G701 HSC, 3330 Hospital Dr NW, Calgary, T2N 4N1, Canada; Northern Ontario School of Medicine, Educational Informatics, Sudbury, Canada)

Background: Student and faculty use and misuse of digital media challenges educational programs, clinical practice and IT security. The dynamics of this are somewhat obscured by the misguided expectation that youth equates with digital competence. Summary of work: A digital professionalism framework (Ellaway, 2010) provides a non-punitive mechanism through which students’ and faculty members’ uses of media may be guided to positive educational, clinical and professional outcomes. Following principles of design-based research, the authors have iteratively developed the framework using feedback from faculty, medical associations, students, and program administrators across North America. The presentation will consider a case study of implementing digital professionalism at the University of Calgary. Summary of results: We identify the need for student education, faculty development, and institutional support through incorporation of the framework into curricula. Moreover, digital media pitfalls and benefits need to better understood in order to support successful implementation. The authors will critically appraise the evidence for a ‘digital generation’, present the digital professionalism framework, and discuss its adoption path. We will also share this open source framework for faculty, student and staff development around this new digital professionalism.
**Take-home messages:** Digital professionalism is a critical discussion for educators, administrators and students that may be facilitated through the suggested framework.

**6C3 The Creation of a Unique Anatomically Accurate 3D Model of Head and Neck Anatomy from Cadaveric Material to Aid Training in the Healthcare Professions**

P Rea*1, J Bagg†1, A Bell†1, W McKerrow†2, D Abbott†3, P Chapman†3, P Anderson*†1 (College of Medical Veterinary and Life Sciences, University of Glasgow, Glasgow, G12 8QQ, UK; †NHS Highland, Old Perth Road, Inverness, IV2 3UJ, UK; ‡Digital Design Studio, Glasgow School of Art, The Hub, Pacific Quay, Glasgow, G51 1EA, UK)

**Background:** With changes in medical and dental curricula, time for cadaveric dissection has been severely reduced. NHS Education for Scotland is funding a unique project to develop a comprehensive digital training product of head and neck anatomy based on cadaveric dissected material to support training in the healthcare professions.

**Summary of work:** A detailed series of dissections of a dentate male cadaver was carried out. Ultra high resolution 3D laser scanning was performed using an Infinite Cim Core Arm, seven axis portable arm. Following laser scanning of each layer, high resolution images were captured by digital photography. In addition, every individual bone of the skull has been laser scanned and digitally photographed.

**Summary of results:** These datasets have been attached to high fidelity 3D volumetric data allowing all anatomical material to be manipulated in real time. Specifically, we have created a fully interactive model of the human skull which can be deconstructed to identify all individual bones, tooth morphology, detailed surface texture, foramina and sutures in a 3D environment.

**Conclusions:** This data provides a unique opportunity to appreciate detailed anatomy and 3D spatial relations of the skull in a way not previously attempted.

**Take-home messages:** This project is generating world-class anatomical training products for the healthcare professions.

**6C4 Eye-tracking and retrospective think-aloud (RTA) for studying quality of learning material and learning process of 1st year medical students**

J Tuulari*, E Anto, M-M Mikkilä-Erdman, P Kääpä (Medical Faculty of the University of Turku, Medical Education Research and Development Centre, Finland)

**Background:** Eye-movement recording, combined with verbalization protocols, has been successfully used for reading process studies and web page usability testing.

**Summary of work:** In this pilot project we recorded eye-movements of 1st year medical students (n = 9) while they studied learning material concerning carbohydrate metabolism. Thereafter the eye-movement recordings were replayed to the readers and they were asked to verbalise their learning process (RTA). Thematic analysis of the verbalisations, enabling assessment of learning material quality and the reading and learning processes, was performed and paired with the eye-movement data.

**Summary of results:** Data indicates that orientating exercises that were designed to guide learning process to important concepts of the material showed marked intended effects on the learners’ reading in eye-tracking data and RTA. Misplaced images/textbox elements could be found reliably with RTA and replaced accordingly to more suitable locations. Many verbalisations depicted metacognitive processes such as assessing the value/meaning of the acquired information.

**Conclusions:** Thematic analysis of the reading/learning processes shows that learning material quality could be assessed reliably with RTA. Interesting implications for future research are apparent due to plentiful metacognitive verbalisations.

**Take-home messages:** Eye-tracking combined with RTA allows simultaneous assessment of reading, learning and learning material possible thus bringing holistic view into learning material development.

**6C5 WikiSkripta - the most visited undergraduate medical web in the Czech and Slovak Republics**

M Vejražka*, S Štuka, S Štipek, A Šípek (Charles University in Prague, 1st Faculty of Medicine, Prague, Czech Republic)

**Background:** Tools of “opened web” are an ever more popular approach. Wikis are frequently used to stimulate collaboration and to simplify dissemination of educational materials.

**Summary of work:** WikiSkripta (www.wikiskripta.eu) is a collaborative tool for creating, editing and publishing medical educational texts. The site is in Czech and Slovak languages. It is open to all medical faculties of the Czech and Slovak Republics. It is very easy to contribute to WikiSkripta. Supporting team of medical students ensures immediate assistance.

**Summary of results:** WikiSkripta contains 4000 “chapters”. Both teachers and students contribute to them. During the last year, more than 5 milion visits were encountered. It became the most visited undergraduate medical web in the Czech and Slovak Republics. It is used by students from all medical faculties of the Czech and Slovak Republics. Teachers from 8 faculties actively contribute to WikiSkripta. The site is attractive to students and gets them more involved in the learning process. At the same time, it
allows teachers to publish educational materials in a very easy way.

**Conclusions:** WikiSkripta is a powerful, yet simple, easy to use and safe instrument for learning. Know-how, workflow procedures and training of technical support could be easily transferred also to an English site. This is a challenge: how to support European medical schools to take advantage of it?

**Take-home messages:** Czech version of WikiSkripta showed great potential. Designed system is also available for English and other language mutations.

**6D Short Communications: Training for General Practice**

**6D1** Does a full day GP trainee Day Release Course at ST1 & 2 add value? A mixed methods enquiry in the Wessex Deanery

A Boyd*, C Wedderburn, S Scallon, Z Sheppard (Centre for General Practice - Bournemouth University, Royal London House (RS07), Christchurch Road, Bournemouth BH1 3LT, UK)

**Background:** Various models of release course education are offered across the UK, with no clear consensus on curriculum content or scope. The Dorset GP team has lengthened the programme from a half day to a full day for the ST1 & 2 trainees, adding small group work to the programme. This project aims to critically assess the benefits and drawbacks of these changes.

**Summary of work:** Trainees and hospital clinical supervisors were asked to provide feedback on the programme using an anonymous questionnaire. Directors of Medical Education, Programme Tutors and trainees were then interviewed to further explore the themes identified.

**Summary of results:** The modified programme has been generally well received by the trainees and hospital supervisors. The full day release course is considered more efficient, with the opportunity for small group working being particularly valued by the trainees.

**Conclusions:** The full day release course adds value and depth to the experience of training of ST1 & 2 trainees without a significant impact on service provision.

**Take-home messages:** Small group work in these years helps prepare the trainees for the final, registrar year. Involving the hospital teams at an early stage was found to permit a smoother transition when making changes to a training programme.

**6D2 Comprehensive assessment of competencies in General Practice training**

F Tromp*, M Vernooij-Dassen, B Bottema, R Grol (Radboud University Nijmegen Medical Centre, PO Box 9101, 6500 HB Nijmegen, the Netherlands)

**Background:** With the Competency Assessment List (Compass) the CanMEDS competencies of GP-trainees are assessed every three months in an integrated, coherent and prospective manner. Aim of this study was to examine its psychometric properties.

**Summary of work:** We tested content validity by a qualitative study using the RAND modified Delphi Method, criterion validity by studying its correlation with The Knowledge Test for General Practice. Sensitivity to change was evaluated through the increase of the average Compass scores for each three month of training. Cronbach’s α was used to determine the internal consistency of items within each of the seven competencies. The feasibility was evaluated by examining how many items were scored for each competency.

**Summary of results:** The results support the content validity. Mean Compass scores for each three month of training show progress in GP learning. All scales showed excellent internal consistency ranging from .89 to .94. Criterion validity, however, could not be shown. The feasibility of the Compass was demonstrated by low numbers of missing ratings.

**Conclusions:** The Compass enables GP trainers to assess all the competencies of GP trainees in a reliable, valid and feasible way.

**Take-home messages:** The Compass is helpful to show trainees’ progress towards the standard of performance required upon completion of the training.

**6D3 Changing GP-trainees’ approach to the elderly: Intervention in practice**

Y Van Leeuwen*, L Lammerts, K Ponse, A Ramackers (Maastricht University, Department of General Practice, Postbox 616, 6200 MD Maastricht, The Netherlands)

**Background:** Care for the elderly is one of the core competencies of the family physician. However, routine surgery habits induce the doctor to focus on the patient’s reason for encounter, and not on the integral health status. In the case of frail elderly a proactive integral approach would be highly preferable. Change would come more from a change in attitude than in augmentation of knowledge.

**Summary of work:** We set up an educational intervention to enhance the competencies of GP-trainees in approaching the elderly. The pilot was implemented in 5 training practices. The intervention consisted of: 1. training the trainers, 2. encourage the trainees to ‘adopt’ 5-10 elderly patients and screen them with checklists on health status. 3. stimulate the trainees to monitor the adopted patients during one year.
The intervention was flanked by a qualitative research design, exploring the kind of issues and learning experiences raised by the trainees and trainers during the intervention year.

**Summary of results:** The trainees stated that their attitude towards care for the elderly had changed in a subtle way; they became more aware and alert concerning comorbidity, the patient’s (declining) autonomy and general wellbeing. The trainers were triggered by the introductory lectures and gladly participated. Lack of time is the major hurdle.

**Conclusions:** Changing attitudes and practice habits demands interventions that seem like seductions: encouraging, and offering opportunities. Adopting patients seems to be a valuable tool.

**Take-home messages:** Do enhance learning, think of other methods than teaching. Adopting patients is feasible and valuable.

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**6D4 Building academic capacity in general practice through faculty development**

C Tulinius1,2, A B S Nielsen*1, L J Hansen1, C Hermann1, L Vlasova1, R Dalsted2 (1The Research Unit for General Practice and Section of General Practice, Department of Public Health, University of Copenhagen, Denmark; 2St. Edmund’s College, University of Cambridge, UK)

**Background:** Internationally there has been concern about declining academic levels in medical education and clinical work. Critical appraisal is essential for the delivery of evidence-based practice; building academic capacity transferrable beyond the specific clinical situation for the individual GP is however a difficult project.

**Summary of work:** The work was set up according to Stenhouse’s description of the curriculum as a process, seeing teachers as necessary for the continuous development of the training. The design was participatory action research; inspired by theories of how to support reflective practice, self-directed and problem-based learning.

**Summary of results:** Over three years we built a faculty of 25 teachers among clinical and academic GPs. Delivering and developing the programme led to development of academic capacity in the community of general practice beyond the teachers and learners directly involved in the study. The programme created awareness, understanding and links between academic general practice and training/clinical general practice.

**Conclusions:** The work was successful in developing the faculty for teaching critical appraisal, and through the process to empower the GP community towards academic capacity.

**Take-home messages:** Using participatory design to educate clinicians and academics makes it possible to build academic capacity in a wider medical community when developing a faculty for teaching critical appraisal.

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**6D5 Are older trainees wiser? Relating MRCGP candidates’ OSCE performance to the time since their first medical qualification**

M L Denney*, R Wakeford (CRAMET, Collaboration for Research in Medical Education and Training, Department of Social and Developmental Psychology, University of Cambridge, Free School Lane, Cambridge CB2 3RQ, UK)

**Background:** Trainees recruited into UK general practice are heterogeneous. Many are long-qualified; 33% are non-UK graduates. Traditionally, age restrictions have applied throughout medical selection; equality legislation now outlaws this. We investigated candidate age as a determinant of success.

**Summary of work:** For 7,680 attempts at the MRCGP OSCE (CSA) between 2007 and 2010, candidates’ gender, country of primary medical training and date of first qualification were confirmed in the GMC Register. 99% self-classified their ethnicity when registering. Success (number of cases from 12 passed) was correlated with the variables (gender; time since qualification as a surrogate for age; ethnicity; UK or International Medical Graduate) – first independently, then by multivariate analysis.

**Summary of results:** Each of the individual predictors was highly significantly associated with success. But stepwise multiple regression showed that variance in success was explained as follows: country of primary medical qualification 30%; ethnicity 3%; gender 2%; and time since qualification 1%.

**Conclusions:** Despite an apparently powerful negative relationship between candidates’ age (indicated by years since first qualification) and examination performance, its extent is trivial when other confounding variables are accommodated.

**Take-home messages:** As discriminating against older entrants is now illegal, the small independent association between trainees’ age and success is reassuring for workforce planners and organisers of specialty entry selection.

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**6E Short Communications: Standard Setting**

**6E1 Defensibility, credibility and feasibility of three standard setting procedures for OSCE:**

E Tor, J Macnish, C Steketee*, A Wright (School of Medicine, The University of Notre Dame Australia, 47 Henry St (PO Box 1225), Fremantle, Western Australia 6959)
**Background:** Standard setting is integral in clinical skill assessments in outcome and competency-based MBBS curriculum. To determine the most credible and feasible standard setting method for clinical examinations (OSCEs), the outcomes from three different methods were compared.

**Summary of work:** Modified Angoff (MAM), Borderline Group (BGM), and Borderline Regression (BRM) standard setting methods were applied to nine OSCE stations for 103 first year and 106 second year students. The same set of five examiners standard set each OSCE station using each of the three methods.

**Summary of results:** Pass marks and standard errors for MAM were higher than the other two methods in most stations. Pass / fail decisions agreement between MAM and BGM/BRM was statistically significant, but marginally convincing (Kappa = 0.488, p<0.0001). Twenty-eight students (13.4%) would have failed if pass mark based on MAM was applied instead of BGM/BRM. In contrast, only one student would have failed if pass mark based on BGM/BRM instead of MAM was applied. BGM and BRM have demonstrated a perfect agreement (Kappa =1.00, p<0.0001) in pass / fail decisions.

**Conclusions:** Empirical evidence seems to indicate that BGM/BRM is more credible and defensible than MAM for standard setting pass mark in OSCE.

**Take-home messages:** Evidence-informed optimization of defensibility, credibility and feasibility of standard setting procedures for OSCE should be an on-going goal.

**6E2 Sensitivity and Specificity of the Cohen’s Standard Setting Method in predicting Step 1 National Licensing Examination Results**

Danai Wangsaturaka (Chulalongkorn University, Faculty of Medicine, Department of Pharmacology and Medical Education Unit, Bangkok, Thailand)

**Background:** Standard settings used in an outcome-based curriculum should be criterion-referenced. However, they are time-consuming. This research aimed to pilot Cohen’s method and to study if it could predict the results of the National Licensing Examination (NLE).

**Summary of work:** The scores of the medical students in 30 courses in Phase 1 & 2 of Chulalongkorn’s undergraduate curriculum in 2009 academic year were used for piloting. The results were compared with the Step 1 NLE results.

**Summary of results:** Cohen’s method yielded the average failure rate of 4.3% with the maximum of 17.8% in one course. 32.6% of the students failed in at least one course. The correlation between the NLE scores and the number of failed courses was -.657 (p = .000). When using the minimal number of failed courses of one (MNoFC = 1) as a cut point, the sensitivity and the specificity of the Cohen’s method in predicting who would fail the NLE were 92.3% and 73.7%, respectively. The specificity could be increased to 100% when the MNoFC was 8; however, it would decrease the sensitivity to 53.9%.

**Conclusions:** Cohen’s method was effective in predicting the NLE result. It could be used to screen the at-risk students at the early stage of medical education.

**6E3 An Objective Approach to Setting a Cut Score on Educational Tests**

A Sabouri Kashani*, M Shirazi, M Gharib, G Kordali, N Kohan (Tehran University of Medical Sciences, Educational Development Center, Tehran, Iran)

**Background:** The most famous procedures, Nedelsky, Angoff, Ebel, and Hofstee, which are designed for large-scale, or high-stake examinations are hardly practical when applied to criterion-referenced evaluation for the tests we administer at the end of each specific course in our undergraduate medical schools. These common methods of defining a cut score are subjective and require expert judgment, selection of judges familiar with the characteristics of examinees, who understand how borderline examinees will perform on test items. This makes the process uneconomical for end-of-the-term exams. Moreover, though impossible to prove a cut-score correct, it is very important to follow a process that is appropriate and defensible.

**Summary of work:** The purpose of this correlational-analytic study which was done on 33 different achievement tests and matched the results with the students’ performance on a national test was to evaluate an objective absolute standard setting method formulated by the study author specifically for classroom instructor’s use and compare its characteristics to the extended Nedelsky method in order to validate it.

**Summary of results:** Sabouri’s objective method proved as reliable and valid as that of Nedelsky’s extended approach which is well-established in the literature.

**Conclusions:** Furthermore, it is quite practical and user-friendly.

**Take-home messages:** Naturally, it should be refined to suit the local needs of the teacher.

**6E4 The Bookmark Standard Setting Method can be used on a Performance Based Examination**

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**Background:** The purpose of this project was to evaluate the Bookmark standard-setting method for
use on a post-graduate performance based medical education exam.

**Summary of work:** We compared the characteristics of the Bookmark method used mostly in primary education in the United States to the modified Angoff and Hofstee. We hypothesized that the Bookmark method could be easily adapted to the Dreyfus model of expertise development. We then compared cut scores, passing rates, and trustworthiness of each method followed by a query of post-graduate educators on their knowledge of and comfort with these methods.

**Summary of results:** The modified Angoff method produced the least amount of agreement among standard-setters The Bookmark produced higher cut points for the categorization of competent compared to the Hofstee. If one were to use the mean (rather than the median) scores for the Bookmark method and apply quality metrics for the Bookmark procedure the following results would be obtained: advance beginner SD= 10.7 and a SIS-1=1.2; competent category SD= 9.2 and a SIS-1 =1.4; and proficient SD= 3.9 and a SIS-1=3.4. **Conclusions:** The Bookmark method has reasonable quality metrics.

**Take-home messages:** It might be a useful tool to use for establishing competency using the Dreyfus criteria in post-graduate medical education

**6E5** Determining the number of stations that should be competently managed in OSCE: Applying conjunctive standards

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**Background:** Borderline method of standard setting is applied to the year four 16-station OSCE. Compensatory standards are applied whereby the passing score is determined by averaging individual station cut-off scores. This paper describes an approach to applying conjunctive standards in order to overcome compensatory effects by good performances in some stations. The aim was to ascertain the number of stations that must be successfully managed in order to pass the examination.

**Summary of work:** Scores of OSCE from six cohorts were analyzed (Total of 432 test scores). The Cronbach alpha values for 16 stations were determined in all six examinations. Cronbach alpha values were determined for a serial reduction in the number of stations to a minimum of 8 stations. This value was then plotted against the number of OSCE stations. A linear regression line was then plotted across the stations.

**Summary of results:** When all the 16 stations were included, the alpha value ranged from 0.676 to 0.785 which was considered acceptable. When total number of station was 12, the average alpha value of six cohorts was 0.687; it increased above 0.7 when the total number of station was 13. Increase in alpha value was minimal when the number of stations was increased from 13 to 16.

**Conclusions:** It can be concluded that at an acceptable minimum required reliability of 0.7, competently managing 12 of the 16 stations will predict a reliable performance in the entire OSCE.

**6F Short Communications: Problem Based Learning/Team Based Learning**

**6F1** PBL expectations and defining the Good PBL Facilitator: Views from two Malaysian Schools

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**Background:** Problem-based learning (PBL) is used widely, with mixed results. The style of facilitation and expectations of PBL by students and faculty could be important determinants as facilitators can make or break sessions.

**Summary of work:** A validated questionnaire was distributed to students and Faculty of IMU and MAHSA. The questionnaire consists of 14 questions on perception graded on a 6-point Likert scale, with 16 Yes/No questions on the "good facilitator", and an invitation for remarks.

**Summary of results:** Students and Faculty in both institutions recognise the power of PBL to stimulate interest, critical thinking and clinical reasoning. However, the softer skills promoted by PBL are largely unrecognised and the final objective of PBL sessions were perceived as arriving at learning issues. There is general agreement on the qualities of a good facilitator, but students preferred content experts.

**Conclusions:** The power of PBL in promoting lateral thinking is not fully recognised, especially by junior students and newer faculty in both schools. Students want standardised learning objectives, strict adherence to which would detract the value of "open enquiry". They want facilitators to teach; and content experts. This is comparable to previous studies and would put learners in a passive role.

**Take-home messages:** PBL expectations still vary. Students prefer guided enquiry rather than open enquiry.

**6F2** Students’ perceptions towards anatomy: How to increase knowledge retention

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**Background:** Problem-based learning (PBL) is thought to increase retention, application, and awareness of the relevance of basic science knowledge in students. However, research has shown that PBL students perceive their anatomical knowledge as insufficient and find it difficult to apply theoretical knowledge in clinical practice.

**Summary of work:** To get a range of perceptions towards influences on the (ability to apply) anatomical knowledge, we conducted focus groups with 2nd, 3rd, 4th and 6th year students.

**Summary of results:** While discussing feelings of (in)security about their anatomical knowledge and experiences with (a lack of) anatomical knowledge in practice, the students suggested several ways to increase their (ability to apply) anatomical knowledge. The suggestions discussed focus on changing assessment strategy, providing opportunities for repetition and increasing motivation.

**Conclusions:** Students feel that to increase retention, application and awareness of the relevance of anatomy, certain efforts need to be undertaken within anatomical education itself, as applying PBL does not influence these outcomes sufficiently enough. Research should be dedicated to verify the students’ statements and to find possible applications for their suggestions.

**Take-home messages:** Applying a certain educational model, like PBL, is not enough to increase students’ (ability to apply) anatomical knowledge and awareness of relevance of anatomy.

**6F3 Effectiveness of Team-Based Learning (TBL) in a Human Biology**

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**Background:** In order to prepare the students for their future studies in a problem based learning (PBL) environment, a Human Biology course was delivered using a TBL approach. The challenge encountered was how best to teach this course in a pre-medical year while most of the courses are subject based, teacher centered.

**Summary of work:** The aim of this study is to describe experience in using TBL and measuring its effectiveness on student’s performance.

Students also gave written reflection at the beginning, middle, and end of the course. Every student completed a peer evaluation form for his/her teammate. Student scores were compared for midterm and final exams, with previous year before introducing TBL.

**Summary of results:** Comparing the previous traditional lecture methods, students responded best to TBL, in terms of width and depth of knowledge, knowledge retention, engagement, and transferable skills. In addition, students obtained higher scores in exams when compared with previous years before introducing TBL.

**Summary of work:** Cross-sectional study, surveying students in 2011. The questionnaire includes 19 items, with Likert-type scale. It is based in the Minnesota Satisfaction. Questionnaire. Items are grouped in five dimensions: Overall satisfaction, Quality of learning, Satisfaction with peer evaluation, Clinical reasoning ability, and Professional development. Questionnaires were answered anonymously. Reliability is measured with Cronbach’s alpha, and responses were compared using a non-parametric test.

**Summary of results:** 152 students took the courses. Response rate was 80%. Cronbach’s alpha is 0.91. Overall satisfaction (mean 3.8), clinical reasoning (mean 3.8) and professional development (mean 3.8) were the highest scored. Positive attitudes were found in “respected by team” (mean 4.3), and “skills in working with others” (mean 4.1). “Liked peer evaluation” received the lowest scores (mean 3.2).

**Conclusions:** Students’ attitude teams are positive. Working with others is perceived as satisfactory, and it improves the academic performance. Students feel uncomfortable performing peer evaluation.

**Take-home messages:** TBL promote active learning in large groups, increasing the ability to work with others.

**6F5 Team based learning in small groups. Initial experience**
Background: Team Based Learning (TBL), in undergraduate medical education emphasizes active learning and promotes acquisition of transversal competences of students. We developed TBL sessions to introduce this model and communicated the experience from faculty and student points of view.

Summary of work: A TBL session, focused in tobacco, was developed based on real life clinical problems. A group of faculty was trained in this methodology with the purpose of guiding the sessions. Students were divided into groups of 5-7 students; half of those groups attend TBL sessions. In order to evaluate the effectiveness of TBL, focus groups, interviews, and surveys were carried out among students and faculty. Afterwards the responses were thematically arranged. Regular evaluations and data analysis were performed after each session.

Summary of results: 5 faculty members were capacitated and guided 9 TBL sessions. A total of 60 attended these sessions. TBL in small groups was well accepted by students and faculty.

Conclusions: This method can be applied in small group sessions within a teaching course. The method requires developing new teaching abilities. Both faculty and students engaged in the TBL sessions with the expected collaboration.

Take-home messages: TBL is a useful model to promote teamwork, communication, problem solving and critical thinking skills.

6G1 Medical Electives - Time to Assess?
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Background: Electives – extended student-selected work based experiences in the country of study but typically overseas – are a traditional feature of medical education. The question is posed as to whether this constitutes outmoded historical privilege, or a valuable and contemporary multi-directional learning and maturation opportunity. Alongside we question of the degree to which Electives can, or should, be assessed (given the diversity of experience).

Summary of work: 800 students were contacted about the relevance and personal and professional learning outcomes achieved on Elective. Here passing the Elective is a mandatory degree component, with links to Fitness to Practice. We were keen to elicit participant views about the degree to which they wanted to be assessed.

Summary of results: Results highlighted important outcomes, in terms of clinical knowledge/practice, and personal awareness and growth. Critical-feedback was deemed desirable, with mixed views on summative v formative measures. Barriers and parity concerns were reported. Changes have been made to reflect this, and encourage stronger links with research and publication.

Conclusions: Results support continuation, and modernisation. A model for positioning and assessing Electives will be presented at AMEE.

Take-home messages: Electives have an important place in modern international curricula, and their value can be maximised by encouraging academic robustness, and formulating stronger links with research/publication outcomes.

6G2 Reflection under inspection: Analysis of learning during elective terms - a mixed methods approach
Karen Garlan (Office of Medical Education, A 27, Sydney Medical School, University of Sydney, Australia)

Background: Elective terms appear in the curriculum of almost every medical school in the world. Learning in elective terms is predominantly experiential and assessed through submission of a reflective report. However, a review of the literature indicates that without clear learning goals, the benefit of an elective term is questionable. This raises clear educational, as well as moral and ethical concerns, especially for students going to developing countries where highly vulnerable patients are often left in their care. Although limited, literature on the educational benefits of electives advocates for reliable and well validated methods of assessing student learning while on these terms.

Summary of work: Reflective reports submitted by 166 final year students (73% of 262 cohort) were analysed for evidence of learning whilst on electives, using qualitative software. In addition, 134 (80% of 166) participated in an online survey adapted from a validated scale to evaluate reflective skills.

Summary of results: Qualitative and quantitative analysis showed that only 50% of students demonstrated the ability to critically reflect on their learning experience.

Conclusions: Medical students are poor at describing and reflecting on their learning during electives. What constitutes reflection and good educational outcomes will be discussed.

Take-home messages: The purpose and assessment of elective terms should be critically reviewed.
6G3  Student perceptions of SSC educational content: Comparison of staff-designed and student-designed modules  
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Background: Student-selected components are provided separately from the ‘core’ curriculum. They can be designed by staff or students. Student perceptions of the educational content of student-designed and staff-designed modules have not been compared.

Summary of work: Following completion of SSCs, students were required as part of feedback to indicate which of twelve ‘Dundee learning outcomes’ they felt were addressed by each SSC. The chi-squared statistic was used to compare perceptions of staff-designed and student-designed modules.

Summary of results: For staff-designed modules, percentages of students perceiving outcomes as addressed ranged from 41.8% for outcome 2 (competent to perform practical procedures) up to 94.6% for outcome 12 (aptitude for personal clinical contact). The corresponding range for student-designed modules was from 79.0% for outcome 2 up to 99.5% for outcome 12. Percentages were significantly higher for student-designed modules for every learning outcome.

Conclusions: Staff-designed and student-designed SSCs have distinct learning outcome profiles, as perceived by students. The largest differences were observed for outcomes describing what a student will be able to do, confirming the avidity of medical students for early clinical contact.

Take-home messages: Student-designed modules are perceived as rich in educational content.

6G4  Development of a modular integrated, medical curriculum: an eight step approach at Charité - Universitätsmedizin Berlin  
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Background: Changing medical curricula from traditional to integrated competence-orientated concepts is a dynamic interactive process. To keep the curriculum development transparent for a faculty, it is essential to standardize the planning process.

Summary of work: A curricular framework had been designed for a total of 40 modules by a group of educational experts and students. This framework defines the overall learning objectives and competencies to be achieved for each individual 4-week module. The planning process of each module includes 8 meetings with defined agendas, combined with formal faculty development elements. Specific topics were: (a) curricular principles, (b) students’ outcome orientation and defining main topics for each week, (c) designing and (d) discussing learning objectives, (e) peer review of learning objectives, (f) creating problem-based-learning cases, (g) assessment planning, (h) finalising and (i) evaluating the process.

The primary goal of this process is to develop a manual containing the complete learning objectives.

Summary of results: Twelve modules have been developed successfully by using this 8 step approach. A continuously updated and improved portfolio has been provided to the all participants of the module design groups. This portfolio has become a key instrument for curricular design and faculty development.

Conclusions: A defined, continuously improved 8 step approach is appropriate and effective to develop, implement and evaluate a competency-based integrated curriculum.

6G5  A novel clinical skills course to enhance the understanding of basic sciences in a clinical context  
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Background: Many universities have a curriculum predominantly based on basic science in the early years of their course. The Oxford Clinical Skills Course for Pre-clinical Students (OCS) provided one day of clinical training at the John Radcliffe Hospital to 40 pre-clinical medical students from Oxford and Cambridge Universities in November 2010.

Summary of work: The course had two objectives. Firstly it needed to support learning of the basic sciences by showing the clinical relevance of this knowledge. Secondly, it had to be enjoyable to attend and teach. There were four one-hour stations: Clinical Skills (venesection and cannulation), Cranial Nerve Examination, Surgical Skills (knot tying and ABPI) and Cardiology. Clinical concepts were intergrated with basic science teaching.

Summary of results: On a scale of 1-4 (1 = very poor, 4 = very good), the course received an average rating of 3.52. 95% (n=35) said they would recommend the course to a friend. Pre-course information showed over 10% of students (n=35) did not understand the clinical relevance of their current studies. After the course, this was not true of any student.

Conclusions: The course was effective in achieving its aims.
**Take-home messages:** A student-run course of this nature should be considered at all universities with basic science curricula in early years.

6H Short Communications: Career Choice

6H1 The Cambridge University Clinical Research Society (CUCRS): Fostering interest in Academic Medicine

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**Background:** The Walport report gave recommendations to address the ‘perilous state of academic medicine in the UK’, including that medical students should understand the attractions of academic medical careers through exposure to leading clinical academics. The CUCRS is a student led organisation established to promote interest in academic medicine at undergraduate level.

**Summary of work:** Four lectures were given by internationally recognised medical researchers with a reputation for inspiring speeches. A national conference was held with 65 delegates from 11 Universities presenting their research. Attendees rated their interest in medical research before and after each event on a linear scale of 0 to 10.

**Summary of results:** Questionnaires from 122 attendees were gathered. The median interest measured prior to an event was 6 (interquartile range (IQR) 3-8, range 0-10). In comparison, the post event median was 8 (IQR 6-9, range 2-10). The mean improvement in interest was measured as 1.61 +/- 0.96 (p= 0.0001).

**Conclusions:** CUCRS events have significantly increased medical student interest in research.

**Take-home messages:** Student led events such as inspiring research talks and student conferences are an effective method to increase student interest in research. Such initiatives could play a key role in encouraging students to include academic medicine as part of a future career.

6H2 Career intentions of medical students trained in Africa

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**Background:** Sub-Saharan Africa (SSA) is the world region worst affected by physician migration. Few studies have investigated medical students’ career intentions and reasons for remaining or leaving the African continent.

**Summary of work:** Final year medical students attending nine medical schools in SSA were surveyed – four from South Africa and one each from the Democratic Republic of Congo, Kenya, Nigeria, Tanzania, and Uganda.

**Summary of results:** Of 984 questionnaires analysed, most students (97.4%) were African by birth; the majority (91.2%) intended to undertake postgraduate training and the top three choices were surgery (20%), internal medicine (16.7%), and paediatrics (9%). Few students were interested in family medicine (4.5%) or public health (2.6%) and few (4.8%) intended to practice in rural areas in Africa. Many students (40%) planned to train abroad, and one fifth (21%) intended to relocate abroad. Factors favouring retention included: career and training opportunities, desire to improve medicine in Africa and social conditions. Factors favouring relocation included: remuneration, regulated work environment, access to equipment and advanced technology, career and training opportunities, social conditions and politics of health care in Africa.

**Conclusions:** The career intentions of African medical students are not aligned with the continent’s health workforce needs. Interventions which warrant further attention were identified in this study.

6H3 Solving the GP Shortage: Student characteristics that may lead to a career in general practice

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**Background:** Australia is currently experiencing a shortage of general practitioners especially in rural areas. Thus the aim of the present study was to examine which student characteristics, at commencement of the course, are related to medical students’ preferences in pursuing a career in general practice.

**Summary of work:** Information regarding students’ characteristics and career preferences were obtained from the Medical Students Outcomes Database & Longitudinal Tracking Project database for students who commenced medicine in 2005-2008.

**Summary of results:** Medical students that were older, female, in a relationship, had dependent children, had dependents other than children, were born in Australia, did not speak a language other than English at home, considered themselves to come from a rural background, attended a rural secondary school, and had a prior degree were more likely to express a preference for general practice than a career other
than general practice at the commencement of their degree.

**Conclusions:** Identification of student characteristics associated with pursuing a career in general practice and targeting these students may assist in alleviating the shortage of general practitioners within Australia. 

**Take-home messages:** Specific student characteristics are associated with an interest in pursuing a career in general practice and this may be of value in terms of alleviating Australia’s general practitioner shortage.

6H4   **Context Counts: Educating Doctors in and for Rural and Remote Areas**
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**Background:** Canada’s first new medical school for the 21st century, the Northern Ontario School of Medicine (NOSM) has a social accountability mandate to contribute to improving the health of the people and communities of Northern Ontario.

**Summary of work:** NOSM actively recruits students 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:** 65% of NOSM graduates are training in predominantly rural family medicine. The aggregate score of the charter class in the Medical Council of Canada (MCC) part 1 examination placed NOSM number six of 17 medical schools in Canada. For the section on Clinical Decision Making, NOSM students achieved the highest score of all Canadian medical schools.

**Conclusions:** Already, there are signs that NOSM is effective in enhancing the supply of generalist physicians who are responsive to diverse community needs and are collaborative members of health teams. 

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

61    **Research Papers: Simulation**

611  **From simulation to bedside: Effectivity of undergraduate skills lab training compared to classical bedside-teaching**
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**Introduction:** The effectiveness of skills laboratory training is widely recognized\(^1\). Yet, the transferability of procedural skills acquired in skills laboratories to actual clinical practice has rarely been investigated. We conducted a prospective, randomised trial to answer the question, if students having received a training of intravenous (IV) cannulation in a skills laboratory are rated as more professional regarding technical and communication skills compared to students that underwent traditional bedside-teaching when assessed 1) subjectively by patients and 2) objectively by independent video-assessors.

**Methods:** The power analysis revealed that \(n=42\) students were required for each study group to detect the expected effect size (\(\alpha=0,05\); power=0.8). 84 volunteer first year medical students were randomly assigned to one of two groups. The intervention group (IG; \(n=42\)) trained intravenous cannulation in a skills laboratory receiving instruction according to Peyton’s Four Step Approach. The control group (CG; \(n=42\)) received a standard bedside-teaching on intravenous cannulation. Students with previous experience in performing assessed procedures were excluded from the study. Following the intervention, performance of both groups in a clinical setting with volunteer patients was video-recorded. Patients assessed students’ performance by means of the Communication Assement Tool (CAT) and the Integrated Procedural Protocol Instrument (IPPI). Two independent and blinded video-assessors scored students’ performance using a binary checklist and IPPI ratings. Student’s T-Test and Mann-Whitney U-Test where used for statistical analysis.

**Results:** 42 students of the IG (19.86±1.80 years, 16m/26f) and 42 students of the CG (20.38±2.53 years, 16m/26f) agreed to participate. Sociodemographic variables did not significantly differ between groups. Students’ procedural performance and patient-physician communication did not significantly differ between groups (\(p=0.544\) for CAT; \(p=0.683\) for IPPI ratings) when rated by patients. However, practising IV cannulation in a skills laboratory resulted in a significantly shorter time (IG: 595.4±188.1s; CG: 692.7±247.8s; \(p=0.049\)) needed for the performance on a patient. Interestingly, students of the IG also completed significantly more single-steps of the procedure correctly (IG: 0.64±0.14 percent of binary checklist; CG: 0.53±0.18, \(p=0.004\)). In addition IG scored significantly higher on IPPI ratings (IG: 3.09±0.65; CG: 3.44±0.92; \(p=0.015\)). Interrater reliability was 0.910 (\(p=0.0001\)) for binary checklists and 0.734 (\(p=0.0001\)) for IPPI ratings.

**Discussion and conclusion:** Training of IV cannulation in a skills laboratory is successfully transferable to the clinical setting. It enables students to perform IV cannulation faster, more correctly and more professionally on patients in terms of technique and
Introduction: Research shows that hybrid simulation, combining standardized patients (SPs) and technical skill training kits (e.g. suture pads attached to the arm) can lead to immediate improvements in surgical residents’ communication skills while preserving technical proficiency. The goal of this project was to explore 1) whether the benefits of hybrid simulations are retained on a delayed post-test, 2) the role of feedback vs exposure in leading to improvements, and 3) the level of acceptance for hybrid simulations in the highly technical domain of surgery.

Methods: The study design was a prospective randomized control pre/post study, with a delayed post-test to assess retention. Twenty-four residents were randomly divided into the Feedback or Exposure groups. All residents were exposed to four 15-minute hybrid simulations over 5 weeks during their regularly scheduled procedural skill laboratory (one/week), combining standardized patients (SPs) and technical skill training kits (e.g. suture pads attached to the arm). Residents in the Feedback group remained for a further 15-minute video-prompted feedback session with the SP, focusing on their communication and interpersonal skills. Similar feedback was given to each participant in the Exposure group, but was delayed to occur after the post-test. All residents were assessed on a pre-test using two hybrid scenarios and on a delayed post-test using two (new) hybrid scenarios. The post-test occurred two weeks after the last teaching simulation. The residents also completed an exit survey about their experience of the hybrid simulations.

Results: Performance was assessed by two independent raters using a communication global rating scale (GRS), a technical skills GRS, and a combined assessment of technical and communication skills. Raters were blinded to the study hypotheses and group allocation. There were no differences between the two groups at baseline. At post test, residents in the Feedback group outperformed the Exposure group on the communication GRS (p<.05) and the combined assessment (p<.05). There was a trend toward higher scores on the technical skills GRS, but this difference did not reach significance (p=.16). Analysis of the exit survey revealed that while a subset of the residents reported feeling ill-prepared (37.5%), confused (8%) and frustrated (12.5%) by the simulations, a large subset reported the exposure as enjoyable (70.8%) and valuable (87.5%). Ninety-six percent of the residents had previously experienced similar communication challenges in their residency training.

Discussion and conclusion: Improvements in communication skills following hybrid simulations are maintained at delayed post-test and appear to depend on feedback received from SPs.


612 Development of an integrated surgical skills course supporting the development of complex communication and technical skills

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Introduction: Chronic stressors in healthcare can lead to mental health concerns. However, relatively little is known about the effects of acute stress on clinical performance. The goal of this study was to compare paramedics’ stress responses and performance during low stress and high stress simulated scenarios.

Methods: Twenty-two advanced care paramedics participated in both a low stress (LS) and a high stress (HS) mannequin-based simulated scenario, in a counterbalanced order. Both scenarios involved a cardiac patient with similar management requirements and complications. The HS scenario included additional noise and socio-evaluative stressors. The paramedics provided salivary cortisol samples and completed an anxiety questionnaire (State-Trait Anxiety Inventory) at baseline and following each scenario. Performance was videotaped and scored on a checklist of specific actions (14 items, 5-point Likert scales) and a global rating scale (GRS: 3 items, 7-point Likert scales). Following each scenario, paramedics completed an Ambulance Call Report (ACR) with details of patient history, physical examination and procedures/skills performed. Two raters independently scored the performances and ACR accuracy (inter-rater reliability: checklist = .76; GRS = .89; ACR= .72). Stress responses
teams to common emergencies, and to evaluate the simulation-based intervention on the ability of CCU professionals to receive teamwork training. We aimed to evaluate the effectiveness of a particular importance. However, few health mistakes than individuals, and that good teamwork improves patient safety. In the high-acuity environment of the Critical Care Unit (CCU), teamwork is of multimodal multidisciplinary approach to education in Critical Care. Evidence suggests teams make fewer mistakes than individuals, and that good teamwork improves patient safety. In the high-acuity environment of the Critical Care Unit (CCU), teamwork is of particular importance. However, few health professionals receive teamwork training. We aimed to evaluate the effectiveness of a simulation-based intervention on the ability of CCU teams to common emergencies, and to evaluate the relative effectiveness of simulation-based versus case-based learning as one component of intervention. **Methods:** The study was set in a simulated CCU, incorporating a high fidelity patient simulator. We recruited 40 established CCU teams, comprising one doctor and three nurses. All attended a 10-hour study day. A self-controlled cross-over study design allowed for equivalent time on the simulator and comparable educational experiences for all teams. Each team completed two (one airway, one cardiac arrhythmia) pre-intervention and post-intervention assessment simulations. Simulations were recorded and independently rated by three blinded expert assessors utilizing a structured behaviourally anchored rating tool. Post-course surveys were sent to all doctors and nurses approximately three months after they had participated. In addition, we interviewed a random selection of 25 participants. Interviews and written comments from surveys were transcribed into nVivo8 for content analysis. **Results:** We demonstrated a significant performance improvement from pre to post-intervention simulations for both groups in both the airway and the cardiac arrhythmia simulations. This improvement was seen in scores of overall performance, technical performance, behavioral performance (p<0.003), and two of the three behavioural factors; ‘Leadership and Team Coordination’ (p<0.002) and ‘Verbalizing Situational Information’ (p<0.02). No improvement in the third factor “Mutual Performance Monitoring” suggests this was not due to repeated testing. We demonstrated a non-significant trend to greater benefit of simulation-based education over case-based learning. Interview and survey data supported the effectiveness of the course, with retention of learning from the course, transfer to clinical practice. Of note, participants frequently said they had subsequently been involved in similar events and most reported better management of the event, which they ascribed to the training. **Discussion and conclusion:** We have provided evidence of improved performance following the simulation-based intervention, and self-reported transfer of new learning to clinical practice over a period of time. Including a component of case-based learning within the simulation-based intervention showed no significant impact on learning. Our findings support the value of simulation, and the use of a multimodal multidisciplinary approach to education in Critical Care. **References:** 1Weller J, Frengley R, Shulruf B, et al. Evaluation of an instrument to measure teamwork in multidisciplinary critical care teams. Quality & Safety in Health Care. 2011. DOI 10.1136/bmjqs.2010.041913.
**6J1** An anatomy course: “Human evolution: The fossil evidence” as a mind-opening course for university students of diverse backgrounds
Netta Notzer*, Ruth Abramovitz*, Yoel Rak (Tel Aviv University, 54 Pinkas St. Tel Aviv, 62261 Israel)

**Background:** TAU medical-school offers all students anatomy-elective focusing on the factual evidence for evolution, without any prior anatomy pre-background. Approximately 150 students attend annually: two thirds are medical students and a third majors in philosophy, archaeology or sociology. This paper evaluates the course’s contribution, according to its features and students’ feedback.

**Summary of work:** The course is given annually by an eminent anatomy-anthropology researcher who has made important fossils-discoveries in Ethiopia and elsewhere.

**Summary of results:** The course has challenging messages: 1) A scientific theory can be contradicted by new evidence. Factual evidence governs science; 2) There are apparent changes in the process of evolution even in recent generations; 3) The students learn by examining fossils with their own hands and comparing them to test evolution; 4) Analogies and open discussions explain concepts and processes; 5) The instructor shares his experiences and belief that scientist should be persistent and endure hard circumstances. Students from a variety of academic backgrounds have given excellent feedback about the course.

**Conclusions:** The strength of this course is not only acquisition of knowledge, but also development of the ability to integrate philosophical principles with the essence of science.

**Take-home messages:** Science can enrich all.

**6J2** GIMMICS: An educational game for final year pharmacy students and general practitioner trainees in family practice
Pascale Petit**, Kristien De Paepe**, Bart Rombaut¹, Ines Van Rossem⁵, Johan Vansintejan⁵, Jan Kartounian⁵, Dirk Devroe⁵, Sophie Sarre* (Vrije Universiteit Brussel (VUB), Laarbeeklaan 103, B-1090 Brussels, Belgium; ¹Pharmaceutical Institute; ²Centre for Study and Guidance – Medical Sciences; ³Department of General Practice)

**Background:** GIMMICS (Groningen Institute Model for Management in Care Services) – introduced at the VUB in 2007 – is a teaching game in which a primary pharmacy setting is created at the university.

**Summary of work:** Organized halfway through the primary practice training, students work in small teams of 6 students to run their own pharmacy during 4 weeks. A combination of real life situation cases is presented to the pharmacies, with special focus on pharmaceutical care and communication skills. Teaching goals are: (i) prepare students for their responsible and challenging tasks as pharmacist, (ii) improve the quality of pharmaceutical care in the primary setting, (iii) meet any heterogeneity between different pharmacy practice trainings, and (iv) help students to reflect and correct for their mistakes.

**Summary of results:** To improve mutual communication and action between pharmacists and physicians, general practitioner students joined the game in 2010 for two weeks with their own general practice.

**Conclusions:** This educational game includes a structured mix of activities which trainees can not always practice in real life traineeship, such as consultations with simulated patients, home calls and visits, prescribing medicines and pharmaceutical preparations, and medico-pharmaceutical meetings. Therefore, apart from their own gaming and assignments, both groups of students are confronted with specific cases requesting interdisciplinary cooperation.

**6J3** Life and Death of the Lymphocytes – A 10 year experience of a Role Playing Game (RPG) as a learning strategy
G Teixeira*, C Barreto* (Universidade Federal Fluminense, Departamento de Imunobiologia, Niterói, Brazil)

**Background:** All individuals are potentially capable of generating antibodies to any antigen. This led to the question: How does the immune system produce more protein specificities than we have genes?

**Summary of work:** Having in mind that immunoglobulin’s are the clonal receptors of B-lymphocytes and that their presence or absence, during maturation, will determine the fate (life or death) of the cell, we developed a RPG “LIFE and DEATH of the Lymphocytes” to explore this programmatic content of our basic Immunology course since this was the topic where the students had most problems in learning.

**Summary of results:** University students are reluctant in starting activities that differ from the expected setting giggle and present other childish reactions. Although the first reaction in playing a game during class is of disbelief, as students go through the steps of the game they begin to ask the questions expected during class. However the professor must have a good grasp of the strategy in order to lead to successful learning.
Conclusions: The use of different learning strategies renders the process a more pleasant one making learning easier and possible.

Take-home messages: The professor must have a good grasp of the game strategy to lead to successful learning, when the strategy is not fully understood its use may lead to frustration.

6J4 Interactive Spaced Education improves cardiovascular clinical skills in undergraduate students


Background: The Interactive Space-Education (ISE) is emerging as an innovative tool of online education. Considering the increasing prevalence of cardiovascular diseases and its impact on mortality, the aim of the study was to improve the teaching of cardiovascular clinical skills by using an innovative methodology of ISE.

Summary of work: A randomized, controlled trial involving 48 third semester medicine students who were divided in two cohorts. Cohort 1 received spaced education twice a week for 13 weeks, each of which contained an evaluative component about cardiovascular anamnesis and physical examination and an educational component. Cohort 2 formed the control group. All students were assessed by written test and Mini CEx. A descriptive statistic was performed and means were also analyzed by 2-tailed t student test.

Summary of results: Cohort 1 grade of the written test was higher than cohort 2, the cohort 1 and 2 mean grade was 7.17±1.06 and 5.88±1.12, respectively (p<0.0001). The mean grade obtained by Mini CEx were also significantly higher in cohort 1 (8.64±0.60 and 7.42±1.31, p<0.0001).

Conclusions: Despite the fact an online education tool might be important to improve cognitive ability, the ISE also allow an expressive improvement in cardiovascular clinical skills.

Take-home messages: ISE should be used to increase cardiovascular learning.

6J5 The impact of personal digital assistant devices on the millenial medical student

M Hoy*, SE Forgie (University of Calgary, Department of Otolaryngology-Head and Neck Surgery, Calgary, Canada; 2University of Alberta, Department of Pediatrics, Edmonton, Canada)

Background: The majority of medical students are born after 1980. These Millenial students are more technologically savvy than previous generations. Personal digital assistants (PDA) which include smart phone technologies have revolutionized access to information. However, there is a paucity of information regarding the changing trends in PDA use in medical students.

Summary of work: his study aims to examine these trends and provide insight as to how medical students perceive the use of PDAs in their education. This is a prospective study. The study population included students at the University of Alberta in the year 2006 and 2010. A web based survey was administered to all medical students in 2006 and again in 2010.

Summary of results: There were 472 responses. Responses were scored on a Likert scale. Prevalence of PDA rose from 66% to 75.4% from 2006 to 2010. The timing of purchase is trending towards before entering medical school, and the reason for purchase is trending towards communication/entertainment vs for medical education software.

Conclusions: Despite the increase in prevalence of PDA usage, lectures remain the primary learning source for medical students and online resources as the most prevalent secondary source.

Take-home messages: How PDAs are utilized, is key in determining its influence on the delivery of medical education through technology.

6J6 Students are not doing it for themselves: the use of m-learning technology by 6th-year medical students in a minimally-supported environment

K Masters*, Z Al-Rawahi (Sultan Qaboos University, Medical Education Unit, Muscat, Oman)

Background: Mobile devices are essential to the medical professional, and are used in medical education as part of mobile learning (m-learning). Studies emphasise the value of strong institutional support for successful m-learning. Our university offers no such support. We investigated the following question: what is the impact of minimal support on medical students’ m-learning activities?

Summary of work: We studied the m-learning activities (and barriers to, and advantages of m-learning) of 129 medical students during their 6th year.

Summary of results: All students used the device as a telephone and used most of the sophisticated applications. There was significantly less usage made of medical applications. Barriers were screen size, cost, limited memory and battery. Advantages were time-saving, ease of access and use. Few students highlighted lack of institutional support as a problem. While patterns of usage and barriers resembled those in other studies, there was less medical application activity. Low perception of lack of institutional support as a barrier appears to be linked to less sophisticated usage.

Conclusions: Lack of support does not stop usage, but leads to predominantly simple usage. Given the importance of hand-held devices in modern medical
Feedback has been shown to be important for tomorrow's doctors. Giving feedback on giving and receiving negative feedback: both were considered important. Participants expressed reluctance to cause offence by negative comments and requested teaching limits for feedback. They proposed a minimum word count to encourage more detailed comments and recommended tight time limits for feedback. They expressed reluctance to cause offence by negative comments and requested teaching on giving and receiving negative feedback: both were important for tomorrow's doctors. Giving feedback made students more conscious of their own performance.

Summary of work: Six focus groups were arranged with 37 final year medical students to ascertain their views on feedback and explore the issues the survey raised.

Summary of results: Students appreciated the role of feedback. Feedback from junior doctors and nurses was helpful, but was not seen as official as it was not written on a University form. Consultant and GP feedback was often perceived as a “tick-box” exercise rather than useful and individualised. Good individual and group feedback during PBL was dependent on the convenor. The perceived uncertainty of working through PBL scenarios to gain science knowledge meant students were uncertain about their progress, meaning that they felt they were not getting feedback on their science learning. Feedback on written and practical exam performance was perceived as essential to identify students' weak areas.

Conclusions: Students want written feedback on exams, more guidance in reaching PBL leaning objectives and a more consistent approach from senior doctors and PBL convenors to feedback.

Take-home messages: Students feel feedback is useful and changes can be made to improve feedback.
Conclusions: Considerable investment of time implementing this system produced a welcome online peer feedback process which generated useful feedback for students and incidentally developed their skills in giving feedback. Suggested improvements will be incorporated.

Take-home messages: Students appreciate receiving peer feedback and develop valuable professional skills from giving it.

6K4 Modification and validation of an instrument to measure reflection of medical students on their learning
Diantha Soemantri*1, Agnes Dodds2, Geoff McColl2 (1Department of Medical Education, Faculty of Medicine, Universitas Indonesia, Jalan Salemba Raya no 6, Jakarta, Indonesia; 2Medical Education Unit, Faculty of Medicine Dentistry and Health Sciences, University of Melbourne, Victoria, Australia)

Background: While there is a theoretical basis for the relationship between reflection and feedback, a study found that feedback does not increase the quality of structured reflection reports. This may be due to inappropriate measurement of reflection. The aim of this study is to validate the most appropriate instrument to measure reflection of medical students.

Summary of work: A thorough literature review has yielded an instrument called Motivated Strategies for Learning Questionnaire (MSLQ). It was developed firstly to assess college students’ motivational orientations and different learning strategies. It is decided to modify this instrument to make it relevant to medical students.

Summary of results: After the instrument was reviewed by a panel of experts, an intact class (N=90) of third year medical students completed the revised instrument and commented on the wording. After further modification, the revised instrument was given to the first year students of the MD program (N=330). These students provided sufficient data to determine its psychometric properties.

Conclusions: The instrument’s psychometric properties have been established following proper validation processes.

Take-home messages: The development of a valid and reliable instrument to measure reflection in medical students’ learning is important since reflection underlies the ability to self assess.

6K5 How is feedback perceived by undergraduate medical students? Maturational changes across their course
D Murdoch-Eaton*1, J Sargeant2 (1Leeds Institute of Medical Education, University of Leeds, UK; 2Faculty of Medicine, Dalhousie University, Halifax, NS, Canada)

Background: While medical students receive detailed and varied feedback at different stages of their undergraduate education, research demonstrates that students and residents frequently report insufficient feedback, especially in clinical settings. Undergraduate students’ responses to and use of feedback are not clearly understood, and valuable learning opportunities may be overlooked.

Summary of work: A mixed methods study was undertaken utilising focus groups and questionnaires to students across all 5 years of an undergraduate programme to investigate how students recognise, respond to and utilise feedback, and to determine any maturational change in perceptions about feedback and its role in their learning.

Summary of results: Three main themes emerged from students’ expressed views around a) the purpose of feedback (“why”), b) misunderstandings about feedback (“what”) and finally c) views on the status of the person giving feedback (“who”). Whilst students acknowledged the primary purpose of feedback was to enhance academic performance, maturational changes were seen with increasing appreciation of appropriate types of feedback for different learning. Senior students’ acknowledged the validity of feedback from sources other than senior members of academic staff.

Conclusions: The development of recognition and value of both peer feedback and also self evaluation in feedback was seen as the students progressed through the course.

Take-home messages:

6L Short Communications: Transition

6L1 Junior Doctor Performance: Linked to academic performance in medical school?
Sandra E Carr*, Tony Celenza, Fiona Lake (Faculty of Medicine, Dentistry and Health Sciences, University of Western Australia, 35 Stirling Hwy, Nedlands, Perth 6009, WA)

Background: While preparing graduates for the role of the junior doctor is the aim of Australian medical schools there has been limited opportunity to link performance as a medical student with that of the junior doctor. Recently, assessment of the junior doctor performance on their clinical, communication, procedural and professional skills has been conducted up to five times in their first postgraduate year (PGY1).

Summary of work: This study describes the performance of junior doctors in PGY1 and explores correlations between junior doctor performance and performance as a medical student.

Summary of results: Of the 303 junior doctors, 237 (78%) participated, resulting in 960 assessments. The highest mean scores for performance was in the
Developing a support intervention to enhance performance for doctors in early training: An evidence-based approach

F Patterson, A Koczvara, S Thomas, M Kerrin, H Stoker (Work Psychology Group, Nottingham, UK; Yorkshire & Humber Deanery, Yorkshire, UK)

Background: It is widely recognised that periods of transition in medical careers are challenging for junior doctors, during which some doctors may find themselves in difficulty. The implications for patient safety means it is essential to have robust support mechanisms in place.

Summary of work: This project describes the design and implementation of a support intervention to enhance performance for trainee doctors during transition periods before difficulties arise. An evidence-based approach was followed which included an in-depth literature review and stakeholder interviews (N=25) to design a series of self awareness workshops around working style, career choice and leadership development tailored to support key transition periods.

Summary of results: Evaluation data (N=112) collected pre and post the intervention, including follow-up back in the workplace, indicates significant increases in behavioural, cognitive and affective outcomes after the workshops in addition to high training satisfaction ratings.

Conclusions: Qualitative and quantitative data supports the effectiveness of an evidence-based intervention aimed at increasing self awareness for career development.

Take-home messages: Using an evidence-based approach to inform the development of a support intervention can add measurable value for both trainees and the wider medical community through enhancing trainee self awareness.

Integration of simulation and conventional teaching methods for effective clinical teaching

AMEE 2011 Abstract Book: 29-31 August 2011, Vienna, Austria
training in the hospital. Both cohorts identified deficiencies in the interpersonal (e.g. counseling a distraught patient) and the collaboration (e.g. sensitive to needs of nursing staff) subscales. Fourth year students generally felt that they were not prepared to select drugs on the basis of costs, risks and benefits, despite two years of problem-based learning paper cases.

Conclusions: The PFP provided insight into aspects of the curriculum that may need attention. Students are in the process of being followed up as clerks and interns to validate perceptions of adequacy or inadequacy with regard to training.

Take-home messages: The PFP inventory is useful for identifying areas of medical training in which medical students believe they are adequately or not adequately prepared.

6L5 Graduate Attributes: Views from the Coal-Face

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Background: Aim: To establish the attributes which recent veterinary graduates consider ease the transition from the undergraduate student environment to working as a member of the profession. These views were compared to those of final year students.

Summary of work: Three veterinary schools in the UK were involved in the study. Respondents rated 42 individual attributes on a 5 point Likert scale. Focus groups and interviews were conducted to explore the quantitative results further.

Summary of results: There was a high level of agreement between the cohorts with communication skills, problem solving and decision making skills, recognition of own limitations and the ability to cope with pressure all unanimously rated as important or very important. Business acumen, knowledge of veterinary practice management and research skills were the 3 attributes ranked at the bottom of the list. Nine attributes were ranked significantly differently (p<0.05) by the two cohorts.

Conclusions: Recent graduates and final year students rate highly the attributes which help foster the client/vet relationship. Graduates identify that a focus on academic attributes is less important once in practice when compared to final year.

Take-home messages: This study confirms the importance to recent graduates and final year students of non-academic attributes in the transition to working in the veterinary profession.

6M PhD Reports 2

6M1 Doctor performance assessments based on multisource feedback: Determinants for its success

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Introduction: Many health care systems aim to assess doctors’ professional performance. Multisource feedback (MSF) is a relatively new tool which has been studied around the world as a way of assessing multiple components of professional performance. However, the current literature provides only limited insight into how MSF can be used to increase its formative potential. The thesis addresses the following main research questions: 1. What are the psychometric properties of existing instruments and the feasibility and impact of methods currently available for the assessment of doctors’ performance? 2. How can performance assessments for specialists based on MSF be improved with respect to the content and delivery of MSF? 3. Which factors influence (reported) change as a result of MSF amongst medical specialists?

Methods: A systematic review, and a process evaluation with a mixed methods approach were used to develop our performance assessment system. Next, semi-structured interviews with 23 medical specialists and 10 mentors were performed to illuminate what factors influence the use of MSF for future practice. The interviews were analysed with a grounded theory approach. Subsequently two quantitative studies included data from 254 specialists who participated voluntarily in the assessments. Multiple regression analyses were used to analyse the influence of different factors.

Results: We found six methods that can be used to assess doctors’ performance in our review. Instruments currently used often lack essential work on construct and criterion validity. MSF was found to be most feasible in terms of time investments and costs.(1) Studies on the educational impact mainly rely on self-reporting by doctors. Interviews revealed that specialists are significantly more satisfied with multisource feedback containing narrative comments and the perceived impact increases when MSF includes co-workers’ perspectives. Specialists indicated that despite negative effects from contextual factors, such as high workload, the organisation of health care and public distrust, multisource feedback can lead to progress when mentors help doctors to handle feedback and concrete improvement goals are
Principles of cognitive apprenticeship (CA) were used to facilitate feedback from the MCTQ to enhance critical reflection? What is the effect of facilitated feedback on the staff’s clinical teaching performance?

Methods: The MCTQ, based on the cognitive apprenticeship model proved to be valuable to inform clinical teaching in the workplace. This thesis offers both a feedback instrument and model that are based on CA and which can help physicians improve their clinical teaching practice. Furthermore, this thesis provides suggestions for creating effective supervision and clerkships.

Discussion & Conclusions: CA principles prove to be valuable to inform clinical teaching in the workplace. This thesis offers both a feedback instrument and model that are based on CA and which can help physicians improve their clinical teaching practice. Furthermore, this thesis provides suggestions for creating effective supervision and clerkships.


6M3 Implementing clinical teacher evaluation: From instrument validation to effects on teaching performance

Introduction: Providing clinical teachers with student feedback is an important part of faculty development. The current literature provides a range of instruments developed to generate student rating feedback. However, these instruments often lack a theoretical framework and evidence concerning their effects on teaching behaviour is scarce. This PhD-thesis focuses on three main research questions: What is the validity evidence for the Maastricht Clinical Teacher Questionnaire (MCTQ) in a veterinary curriculum? How to facilitate feedback from the MCTQ to enhance critical reflection? What is the effect of facilitated feedback on the staff’s clinical teaching performance?

Methods: Three studies (quantitative and qualitative) aimed to design and validate an evaluation instrument and theoretical model based on CA that could inform clinical teaching practices. Several groups of stakeholders (medical students, physicians, educationalists) were involved in this process. Subsequently two studies evaluated the perceived usefulness of the newly designed instrument and model to physicians who teach in the workplace during clerkships.

Results: CA principles is shown to be valid to inform clinical teaching activities according to three groups of stakeholders. The consequently designed instrument (Maastricht Clinical Teaching Questionnaire and MCTQ) consisted of five factors (modelling, providing a safe learning environment, coaching, articulation, exploration) and needs seven ratings to provide a reliable judgement about an individual clinical teacher. Results indicate that the MCT-model is valuable for clinical teaching practice and could inform design principles for clerkships. Furthermore it is demonstrated that feedback based on the MCTQ is perceived as valuable by clinicians when combined with self-assessment.

Discussion & Conclusions: CA principles prove to be valuable to inform clinical teaching in the workplace. This thesis offers both a feedback instrument and model that are based on CA and which can help physicians improve their clinical teaching practice. Furthermore, this thesis provides suggestions for creating effective supervision and clerkships.


6M2 Improving clinical teaching through cognitive apprenticeship

Renee E Stalmeijer (Maastricht University, Faculty of Health, Medicine, and Life Sciences, Department of Educational Development and Research, P.O. BOX 616, 6200 MD Maastricht, the Netherlands)

Introduction: The quality of learning and teaching during clerkships is dependent on a number of factors, one of which is the quality of supervision provided by medical doctors. A number of studies have established a lack of well theorized instruments and models that can inform clinical teaching in the workplace. Therefore the aim of this thesis was twofold: 1. To design and validate an evaluation instrument and theoretical model based on CA that could inform clinical teaching practices. Several groups of stakeholders (medical students, physicians, educationalists) were involved in this process. Subsequently two studies evaluated the perceived usefulness of the newly designed instrument and model to physicians who teach in the workplace during clerkships.

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factor analysis, a generalizability study and multilevel analysis to explore the validity and reliability of the MCTQ in a veterinary curriculum. One qualitative study investigated whether discussing the MCTQ feedback in a peer reflection meeting led to critical reflections and improvement plans. A final study investigated if providing facilitated feedback had a positive effect on teachers' MCTQ scores.

**Results:** The first two studies showed that the MCTQ was valid and that 6-8 responses were needed for reliable outcomes. Multilevel analyses showed that significant amounts of variance in student ratings were due to between-teacher differences and that the effects of teacher and student characteristics were mostly non-significant. The third study demonstrated that a feedback facilitation strategy with a group reflection meeting led to the formulation of critical reflections and plans for improvement. The last study demonstrated that providing facilitated MCTQ feedback has a positive effect on the MCTQ scores of teachers who scored relatively low before the intervention.

**Discussion & Conclusions:** The MCTQ is a valid and reliable instrument for the evaluation of veterinary clinical teachers. Providing facilitated feedback, especially using group reflection meetings, lead to critical reflections and plans for action. These findings are in line with earlier studies demonstrating that peer coaching enhances reflection on teaching. Finally, it can be concluded that feedback has a positive impact on teaching performance, especially for those teachers who scored relatively low, from the student's perspective. Further research is needed to investigate whether these interventions have lasting effects on teaching performance.

**References:**


**6M4 Knowing me, knowing you: A continuum theory of the consequences of authentic early experience through analysis of social interactions**

S Yardley (Keele Medical School, Keele University, Staffordshire, ST5 5BG, UK)

**Introduction:** Authentic Early Experience (AEE) describes new medical students undertaking human contact in social or clinical contexts to enhance their learning. This PhD report provides three original contributions: critical analysis of applications of socio-cultural and educational theories to AEE; empirical data addressing two inter-related research questions; ‘How and why do students construct useful knowledge and meaning-making from AEE?’ and ‘How does AEE ‘work’ for students?’; and, interpretation of social processes and resultant consequences embedded in AEE.

**Methods:** Ethical approval was received. Student interviews (n=23) and discussion groups (n=26) following purposive sampling identified social processes underpinning knowledge and meaning-making. Interviews with workplace supervisors (n=20) and medical school faculty (n=13) identified dynamic interactions between groups. Data were audio-recorded, and transcribed verbatim. A theoretical framework using mixed qualitative methods was developed alongside multiple theoretical perspectives to achieve an interpretative analysis. Scott’s concept of Mētis guided interpretation of not only how people create meaning but also when and how they choose to use it and value it relative to formally recognised knowledge.

**Results:** Five specific findings providing understanding of the complexity of consequences of AEE were identified: Dynamic social interactions are fundamental to meaning-making and knowledge construction which are inextricably intertwined with identity evolution; A holistic social view identifies unpredictable and unintended consequences of AEE; Social processes influencing AEE can be divided into four intersecting workplace spectra (related to cultural competencies) and four educational spectra (related to creation of medically useful knowledge); Students do not align the locus of ‘real learning’ with the locus of ‘real practice’; Students create their own form of Mētis (conceptualising themselves as outsiders) which crucially includes understanding about how to handle knowledge and meaning and how to make experiences work for them.

**Discussion & Conclusions:** Overall the work demonstrates the necessity of conceptualising AEE as a continuum, (from expectations, through dynamic interactions, to variable consequences), influenced by multiple variables. The ‘continuum theory’ is derived from the application of Mētis to empirical data explaining how and why students make authentic early experiences work for them. Individual student meaning-making and knowledge construction is dependent on how they experience this continuum. The implications of Student Mētis will be discussed along with possible ways to potentiate construction of medically useful knowledge.

**References:**

2. Scott, J.C. ‘Seeing like a state: how certain schemes to improve the human condition have failed’ New Haven, USA: Yale UP 1998
6N Short Communications: Communication Skills

6N1 Breaking bad news out of the blue? Exploring ‘natural’ responses of students before any formal training
Benno Bonke*, Anne de la Croix (Erasmus University Medical School, Dept. Medical Psychology & Psychotherapy, PO Box 2040, 3000 CA Rotterdam, The Netherlands)

Background: At Erasmus University Medical Centre in Rotterdam, training in breaking bad news is first given in year 2 of the medical curriculum. We explored student responses to various dialogues in a simulated bad news consultation before their first formal training in this subject.

Summary of work: Approximately 300 students in their second year received a compulsory assignment before their first formal training in breaking bad news. They watched a video of a simulated consultation and were asked at specific points in the consultation: 1) how they would phrase their responses (as alternatives to those of the role playing doctor); 2) how they would respond to the patient’s emotions; 3) what psychological mechanisms they could identify in the role playing patient.

Summary of results: A taxonomy of student responses was made by analyzing the written assignments qualitatively using Atlas.ti. Additionally, a basic word frequency analysis was undertaken. This gave insight into commonly used responses by the students.

Conclusions: Results will provide a basis for further development of communication training in the breaking of bad news, taking into consideration the intuitive way in which our medical students respond in situations of bad news.

Take-home messages: Identifying baseline levels may help improve communication skills education.

6N2 Paediatric communication skills: A parent’s experience
C von Stempel*, C Fertleman1, UCL medical student, London, UK; 2UCL, Institute of Child Health, London, UK

Background: Paediatrics presents additional challenges to teaching communication skills. The parent-child-professional communication triad complicates the usual consultation framework. Not all students will observe challenging consultations between doctors and distressed parents and indeed it may be inappropriate for students to be present at such consultations. Despite this, provision of communication skills training (CMT) in UK Medical schools by paediatric departments has declined by 20% since 1998 (Hargie et al. 2010).

Summary of work: Video Enhanced Role Play (VERP) is a new teaching package at UCLMS. Learners gain insight into the life of a child with complex medical needs. VERP compromises video footage of an interview between a clinical medical student and the mother of a patient, structured discussion of appropriate communication skills used with anxious parents and role play.

Summary of results: Focus group research reveals VERP meets students’ expected objectives of a CMT module and teaches new skills that complement good clinical communication. These skills and objectives map onto the National Curriculum for CMT (von Fragstein et al. 2008).

Conclusions: VERP is a novel and effective teaching resource for paediatric CMT.

Take-home messages: Students gain insight into the experiences of an ill child’s family and learn skills benefiting their approach to challenging communication scenarios.

6N3 Arts-based inquiry, making space for patient and student voice
L Younie (Community-Based Medical Education, Barts and the London School of Medicine and Dentistry, Rm 3.17, Garrod Building, 2 Turner Street, Whitechapel, London E1 2AD, UK)

Background: Arts-based inquiry has been used as an optional part of medical student assessment as part of their year one GP placement for the last five years. Increasingly students have opted to produce a creative-reflective piece in response to a patient home visit (80% of students 2009-10) engaging in poetry, painting, photography, sculpture, music and dance.

Summary of work: Part of my doctoral research has been an in depth exploration of student expression and reflection through creative-reflective texts using a heuristic methodology.

Summary of results: Production of the creative-reflective text encourages greater student engagement with ‘patient voice’ and ‘student voice’ i.e. the personal dimensions of being ill or consulting with patients. Quality of engagement with the patient voice related to concepts such as the space and silence offered by the student, witnessing and journeying with the patient taking a position of narrative humility. Quality of student voice related to their dialogue with creative materials, reflections on their encounter, their presence in the text, reflexivity, awareness of their audience and exploration of their metaphors and imagery.

Take-home messages: This creative-reflective option offers one way for students to embrace the patient’s lived experiences and learn from them as well as engaging with their own felt responses to these encounters.
6N4 The communication skills of junior doctors: Video analysis and emotional intelligence

M G Cherry*1, I Fletcher2, N Shaw1, S Watmough1, H O’Sullivan1 (1School of Medical Education, University of Liverpool, Liverpool, UK; 2Division of Clinical Psychology, University of Liverpool, Liverpool, UK; Liverpool Women’s NHS Foundation Trust, Liverpool, UK)

Background: There is increasing interest in the role emotional intelligence (EI) plays in medical education, particularly in patient-provider communication (PPC). Research identifies interpersonal EI as important in patient encounters, with doctors’ EI being one explanation for variation in PPC. We have previously demonstrated strong links between first-year medical students’ EI and disclosure of simulated patients’ emotional concerns/cues. This study investigates if these relationships exist in junior doctors (Foundation Year 2 (F2) doctors) when communicating with real patients.

Summary of work: F2 doctors completed an EI questionnaire (MSCEIT) and were videoed in 5-10 individual patient consultations whilst on GP placement. Communication was rated with the VR-CoDES, which identifies patient emotional cues/concerns and doctors’ associated responses. Patient satisfaction (CAT-S questionnaire) was collected from videoed patients.

Summary of results: The relationship between coded video communication scores and (a) patient satisfaction scores and (b) F2s’ EI will be analysed (using a MANOVA test). The presentation will report on these findings.

Conclusions: Preliminary analyses suggest similar relationships between communication skills and emotional intelligence in F2 doctors as previously found in first year medical students.

Take-home messages: Assessment of doctors’ emotional intelligence is important when implementing medical school curricula and in the development and assessment of professionalism.

6N5 Communication skills teaching in veterinary education: Integrating ‘one health’ for an expanded understanding of the interrelationship between human and animal health

C Adams*1, M Rock2, C Degeling3, J Wilson4 (1University of Calgary Veterinary Medicine, 3330 Hospital Drive NW, Calgary AB Canada T2N 4N1; 2University of Calgary, Community Health Sciences, Calgary AB, Canada)

Background: Communication skills training is recognized as an essential component of veterinary medical education. The University of Calgary Veterinary Medicine (UCVM) is committed to a concept known as One Health.

Summary of work: The authors developed an integrative, experiential learning experience for third year students (N=31) using a case based example involving a diabetic dog and his caretakers. Students were given 6 hours to practice communication skills for explaining medical details, practice technical skills, and explore human and animal health, socioeconomic status, social support, interrelationship between human and animal disease, the role that values, perspectives and beliefs play in decision making, end of life care and social/emotional implications. Summative assessment included a 4 station exam involving a diabetic cat and her owner.

Conclusions: Communication curricula must integrate clinical skills, and teach students how to negotiate complex issues pertaining to animals and their owners to enhance understanding of the cross-over between human and veterinary medicine.

Take-home messages: Interdisciplinary teams and integrative teaching and learning experiences deepen knowledge and understanding of One Health for an evolving world.

6O Workshop: ‘Writing up’: 3 Principles for Successful Research Papers

L Lingard (University of Western Ontario, Schulich School of Medicine & Dentistry, Centre for Education Research & Innovation, London ON, Canada)

Background: ‘Writing up’ paralyzes many a scholar. Everyone has in a desk drawer an incomplete draft of a research paper or a rejected research manuscript submission. This workshop takes a rhetorical perspective to the ‘writing up’ of research, treating it as a persuasive and strategic art, and providing new metaphors and tips to improve your writing process.

Intended Outcomes: This workshop aims to help education researchers to approach writing strategically. Writers will leave the workshop with a powerful heuristic for structuring their own writing tasks and breaking the production of a manuscript into manageable and clearly prioritized elements. The workshop will teach three principles: 1) Know your audience; 2) Understand purpose & significance; 3) ‘Story’ the discussion.
Structure: Each principle will be discussed in relation to participants’ specific writing goals and experiences. Following a brief didactic introduction of each principle, small group activities will afford the opportunity to try out the principle in collaboration with other participants. Using both a writing task of their own and samples from the published literature, participants will work towards reframing the way they think about ‘writing up’ research results.

Who Should Attend: Experienced researchers, new faculty engaging in research, graduate students.

Level of workshop: Intermediate.

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6P Workshop: Constructing problem-based learning cases: hands-on training

Samy A Azer (Department of Medical Education, College of Medicine, King Saud University, Riyadh, Saudi Arabia)

Background: This workshop will provide participants with key elements of a PBL template, and principles for developing authentic and integrated cases.

Intended Outcomes: Participants will have a greater understanding of key elements of successful cases; and learn how to design 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.

Who Should Attend: Medical and health educators, directors of medical and/or health units, and those involved in writing PBL cases.

Level of workshop: Intermediate.

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6Q Workshop: Come and Test Your Knowledge on the Critical Concepts from the Continuing Medical Education Literature

D Klein (University of Alberta, Faculty of Medicine and Dentistry, Office of Continuous Professional Learning, 2-126 Li Ka Shing Health Research Innovation Facility East, Edmonton, AB, Canada T6G 2E1)

Background: Physicians learn and change throughout the course of their careers. Changes may occur in conjunction with advances in medical science, information and feedback from colleagues and patients, or in response to systems changes and expectations. In some instances changes are made in a timely and efficient manner. In other instances, physicians fail to make appropriate changes, which can compromise patient outcomes. As significant resources are deployed to facilitate physician learning and change, it is essential that the best practices evidence is understood.

Intended Outcomes: The workshop will examine three core questions frequently asked by CME providers, regulators, and funding agencies, describe the research addressing these questions and discuss how the research has informed practice. The questions are: (1) What curricular designs are most likely to result in learning and change? (2) How effective are physicians in assessing their performance? (3) How effective is feedback in guiding learning and change?

Structure: Through an interactive game format the audience will learn about key systematic reviews addressing each of the three questions and policies and practices that emanate from the literature. The format emphasizes discussion among small groups will and the larger audience as a whole while engaging participants in the process.

Who Should Attend: Health professionals involved in continuing professional development.

Level of workshop: Intermediate.

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6R Workshop: Explaining the medically unexplained: demonstrating and teaching the skills

Amy Spatz*, Jeremy Stern and Hannah Cock* (St Georges, University of London, Department of Population Health Sciences and Education, London, UK)

Background: ‘Medically unexplained symptoms’ (MUS) are notoriously difficult for patients to manage and frustrating for clinicians to treat. Conditions commonly placed in this category range from chronic idiopathic back pain and irritable bowel syndrome to functional neurological symptoms. Scholars are beginning to suggest that improvement in patient-clinician communication on the subject can ameliorate some of the difficulties (Salmon 2007). However, medical students are not routinely taught explanations for MUS with a focus on the communication process. Through a facilitated clinical demonstration role-play, it has been possible to provide introductory education on the subject at St George’s, University of London. The session was highly evaluated by students.

Intended Outcomes: Participants will A) explore models of explanation regarding MUS and how these fit
with their own beliefs; B) discuss the utility of the proposed explanation(s); C) consider essential communication and attitudinal stances to draw upon; D) practice the skills.

**Structure:** Following an introductory presentation, participants will engage in a variety of experiential teaching methods including small group practice and facilitated discussions.

**Who Should Attend:** This interactive workshop is designed for educators or practitioners who would like to improve their communication skills for working with patients with MUS, or for teaching others to give information about MUS more effectively.

**Level of workshop:** Intermediate.

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**6S Workshop: Visioning for the future: How do we prepare our medical students for Leadership and Management in Clinical practice?**

*M Marshall*, *P Vivekananda-Schmidt*, *N D S Box*  
(Academic Unit of Medical Education, University of Sheffield, 85 Wilkinson Street, S10 2GJ, UK)

**Background:** Recommendations have been made concerning how relevant teaching and learning in leadership and management might be incorporated into undergraduate studies (NHS Institute for Innovation and Improvement 2011). Traditionally, doctors have been expected to lead and manage services, people and systems. Whilst this continues to be so they are increasingly part of teams being led by other healthcare professionals. To operate in these roles, a specific set of skills and knowledge are required, including financial and human resource management. Currently, undergraduate medical education provides little to support such learning and engagement and it is a challenge to do so meaningfully.

**Aim:** To explore the ways of developing and incorporating leadership and management skills into undergraduate medical education.

**Intended Outcomes:** To explore the following questions through small group work: 1) What are drivers for and benefits of integrating leadership and management opportunities into the undergraduate medical curriculum? 2) What developments are needed so that learning and practising leadership skills relevant to medical practice occur in an appropriate context? 3) How might these competencies be assessed in undergraduates? A summary of the key points derived during the workshop will be emailed to all participants.

**Structure:** Facilitators will share own experiences through keynotes and use these to develop the small group activities.

Who Should Attend: This workshop should be of interest to undergraduate curriculum developers.

Level of workshop: Intermediate.

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**6T Workshop: Survey design basics: from constructs to scales**

*A R Artino*, *K DeZee*, *C Magee, J S LaRochelle*  
(F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland, USA)

**Background:** Surveys are one of the most commonly used study designs in medical education research (Gehlbach, Artino, & Durning, 2010). Unfortunately, few medical education researchers are familiar with the best practices of survey design.

**Intended Outcomes:** (1) Recognize how to use a systematic, 7-step process as the framework for survey design (Gehlbach et al., 2010); (2) Describe how to define the educational construct to be studied; and (3) Demonstrate how to develop an appropriate set of items (a survey “scale”) to characterize the selected construct.

**Structure:** The initial portion of the workshop will feature a brief lecture on the 7-step process. Next, the group as a whole, using an interactive discussion, will develop and define various constructs relevant to medical education. Once constructs are defined, small groups will work together to develop an appropriate survey scale to assess a specific construct. Emphasis will be placed on creating a valid and reliable survey scale and identifying common mistakes that occur during the item-writing process. Finally, lessons learned from the small-group activity will be shared with the entire group.

Who Should Attend: Medical education professionals interested in learning how to create valid and reliable surveys that can be used as research tools in medical education.

**Level of workshop:** Intermediate.

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**6U Workshop: Using Mind-Body Medicine Skills to Reduce Stress and Promote Wellness in Medical School**

*Avid Haramati*  
(Georgetown University School of Medicine, Washington DC, USA)

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

**Intended Outcomes:** 1. To discuss various approaches to teaching Mind-Body Medicine, including a detailed description of the 11 week course at Georgetown University School of Medicine, and appropriate outcome measures and assessment. 2. To participate in an “experiential learning” exercise used to teach a Mind-Body Medicine. Experiential learning modules in mind-body medicine can be used effectively to foster student self-awareness, self-care, improve listening skills and empathy of students, and also advance educational goals in basic science, wellness and professionalism.

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

**Who Should Attend:** Individuals with responsibility for faculty development, student wellness and professionalism.

**Level of workshop:** Beginner.

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6V Workshop: The definition and assessment of insight in educational planning for healthcare practitioners

**Intended Outcomes:** Participants will: 1) Understand the importance of the assessment of insight as a fundamental consideration in the maintenance and improvement of performance of all healthcare practitioners including doctors; 2) Understand how different sources of information contribute to the assessment of insight; 3) Consider how insight may be developed in an individual and how it contributes to educational plans including plans for remediation of practitioners with performance problems.

**Structure:** Brief presentation of literature and definitions followed by discussion; Presentation of NCAS (National Clinical Assessment Service, UK) findings from the assessment of around 300 practitioners corroborating information from psychometrics, psychological assessment and self-assessment; Individual case studies to illustrate findings; Discussion of the implications of these findings; Reflections on the validity, challenges and utility of the definition and assessment of insight in both practitioners with performance problems and more broadly for all practitioners including doctors who need to revalidate and continually improve their practice.

**Who Should Attend:** Those involved with design of education programmes particularly continuing professional development; Those with interest in revalidation and remediation.

**Level of workshop:** Intermediate.

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6W Workshop: Designing an assessment program: moving from individual assessment instruments towards a coherent assessment program fit for purpose

**Intended Outcomes:** The participants will understand the key concepts of assessment programs and develop a plan on how to translate the theoretical concepts to their own specific context and their own specific purpose of assessment.

**Structure:** The evidence for assessment programs will be briefly presented, then, in small groups the participants will analyze the assessment methods and strategies of their own setting and will plan the next
steps towards their own assessment program. Examples of best practices will be shared. The workshop will be highly interactive, requiring participants to use the evidence and translate it to their assessment practices.

Who Should Attend: Educators/teachers designing assessment exercises, program/course directors responsible for teaching, learning and assessment.

Level of workshop: Intermediate.

6X  Posters: Topics in the Curriculum

6X1  "Operating room" educational workshop for first-year residents of surgical residencies
Zh Khorgam*, A Soroush, A Aminian, Sh Nasiri, A Ghafouri (Tehran University of Medical Sciences, Faculty of Medicine, Tehran, Iran)

Background: Operating room (OR) rules and discipline are usually taught using an apprenticeship model. We designed a workshop in order to educate first-year surgical residents systematically regarding OR.

Summary of work: Educational objectives with regard to OR were: history, structure, ethics and communications, staff, rules and standards, disinfection and sterilization, instruments, and basic skills. Skills composed of hand scrubbing, putting on sterile gown and gloves, preparation of patients and surgical site, using surgical instruments, and square knot with two-hand. Theoretical part was designed as lectures and small group discussion. Psychomotor objectives were instructed by film demonstration and exercising in five practical stations in hospital's OR.

Summary of results: From 2007 to 2010, four workshops were held and 102 first-year residents of different surgical residencies participated. Pre-test and post-test self-evaluations showed significant improvement (P < 0.05) in 12 (92.3%) out of 13 educational objectives. The only objective without improvement before and after the workshops was “putting on gloves”.

Conclusions: From residents' point of view, OR workshop at the beginning of the surgical residencies can improve their abilities. It may assure good practice especially in the beginning of the course.

Take-home messages: A systematic education for trainees in surgical residencies could be considered to instruct how to act in operating room.

6X2  Is undergraduate medical education working for ENT surgery? A survey of UK medical school graduates
J Powell**, FAH Coole**, S Carrie¹, V Paleri¹
¹Department of Otolaryngology Head and Neck Surgery, Freeman Hospital Newcastle upon Tyne, NE7 7DN, UK; ²The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Background: Changes to undergraduate medical education and service restructuring have reduced experience of specialties including Ear, Nose and Throat (ENT) surgery. ENT surgery is a large hospital based specialty and constitutes a large proportion of community workload. In the United Kingdom (UK) there is variability in hospital ENT referral rates from community practitioners, potentially due to variable training.

Summary of work: We aimed to assess 1) composition and educational value of undergraduate ENT experiences, 2) graduates’ clinical confidence, 3) identify areas to improve undergraduate ENT education. An online-based questionnaire was circulated anonymously to 3,544 newly qualified UK doctors.

Summary of results: 444 eligible respondents (representing all UK medical schools) showed that ENT experience was minimal or absent in many UK medical curricula. Also 65.8% of graduates desired further undergraduate ENT experience. The education/teaching methods reported to be most valuable were not, overall, the most commonly used in undergraduate curriculum. Graduates felt significantly less confident (p<0.001) in ENT history, examination and management compared with other specialties.

Conclusions: UK graduates feel that undergraduate ENT surgery experience is often deficient. Targeting undergraduate teaching in educationally rewarding modalities could provide an exponential increase in graduates’ ENT surgery knowledge.

Take-home messages: Effective undergraduate education in ENT surgery is required to improve graduate confidence and skills.

6X3  The benefit of Sports for Health Module for first year medical students Faculty of Medicine Universitas Indonesia
S Yolanda*, T Andraini, I R Sianipar, M Siagian, E Ilyas (Department of Physiology, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia)

Background: Changes to undergraduate medical education and service restructuring have reduced experience of specialties including Ear, Nose and Throat (ENT) surgery. ENT surgery is a large hospital based specialty and constitutes a large proportion of community workload. In the United Kingdom (UK) there is variability in hospital ENT referral rates from community practitioners, potentially due to variable training.

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Conclusions: UK graduates feel that undergraduate ENT surgery experience is often deficient. Targeting undergraduate teaching in educationally rewarding modalities could provide an exponential increase in graduates’ ENT surgery knowledge.

Take-home messages: Effective undergraduate education in ENT surgery is required to improve graduate confidence and skills.
regimen, the students were tested for body mass index (BMI), physical fitness by using Rockport field test, muscle flexibility, strength, and endurance. The results were analyzed statistically using paired t-test and Wilcoxon.

**Summary of results:** The post-exercise BMI of students were not significantly lower compared to pre-exercise (p=0.804). The students’ post-exercise physical fitness, flexibility, muscle strength, and muscle endurance were all significantly higher compared to pre-exercise (p=0.000).

**Conclusions:** Sports for Health Module can increase students physical fitness, flexibility, muscle strength, and muscle endurance.

**Take-home messages:** Active lifestyle taught in Sports for Health Module should be applied in the students’ daily life to further improve patient management.

**6X4** “Cease Smoking Today” US-based educational initiative: lessons learned and resources to share

*M B Shershneva*1, J T Balmer*2, M Ales3, S Rodrigues

(1University of Wisconsin Office of Continuing Professional Development in Medicine and Public Health, Madison, Wisconsin, USA; 2University of Virginia School of Medicine, Charlottesville, Virginia, USA; 3Interstate Postgraduate Medical Association)

**Background:** In 2008, nine US-based organizations including three universities launched the Cease Smoking Today (CS2day) initiative to enhance the implementation of a tobacco cessation clinical practice guideline. CS2day was funded through an educational grant from Pfizer and government partnerships.

**Summary of work:** CS2day reached over 43,000 clinicians via certified education consisting of 150 live activities, 4 comprehensive performance improvement projects and 15 enduring activities, and dissemination of 83 educational and practice-oriented resources. Additionally, 11 unique communities ranging from private companies to virtual networks launched educational projects in collaboration with the CS2day partners.

**Summary of results:** All activities were evaluated at the levels of participation, satisfaction, and changes in knowledge and competence demonstrating the overall positive outcomes. A commitment to change approach was utilized in the majority of activities documenting intended and implemented practice changes. Various degree of improvement on the eight performance measures and a quit rate of 10.7% were observed in the performance improvement projects.

**Conclusions:** Continuing education providers who are interested in developing evidence-based programs to improve clinical practice may benefit from a collaborative approach to educational programming.

**Take-home messages:** CS2day experience provided insights into collaboration, interventions bridging the guideline with clinician behavior, and establishing common outcomes measures for multiple interventions.

**6X5** Attitudes of medical students and physicians toward persons with physical disability

*Rachawan Suksatien (Department of Rehabilitation Medicine, Medical Education Center, Maharat Nakhonratchasima Hospital, Nakhonratchasima, Thailand)*

**Background:** To assess the attitudes and examine factors correlated with the attitudes toward persons with physical disability (PWD) of medical students and physicians graduated from medical education center, Maharat Nakhonratchasima hospital.

**Summary of work:** A cross-sectional survey was conducted in 208 medical students (125 preclinical and 83 clinical) and 30 physicians. An Attitude Toward Disabled Persons Scale, Thai version (Thai-ATDP) and questionnaire including demographic data, previous experience, family history and contact with PWD, career interest in PM&R, self-rated knowledge and education experience about PWD and experience in treating PWD were collected.

**Summary of results:** Medical students and physicians had positive attitudes toward PWD. There were significant differences between preclinical, clinical medical students and physicians on the Thai-ATDP (P=0.008). Clinical medical students had the most positive attitudes and physicians had the least. There was no significant difference in other factors. The mean of self-rated knowledge was 1.4 (0=none, 4=a great deal). Seventy-four percent of preclinical, 43% of clinical medical students and 39% of physicians reported receiving “none” and “a little” education experience about PWD. There were significant correlation between self rated knowledge and education experience (P<=0.001) and among three medical groups (P<=0.001).

**Conclusions:** Medical students and physicians had positive attitudes toward PWD. Clinical medical students had the most positive attitudes and physicians had the least. All study groups reported low self-rated knowledge and education experience about PWD. Specific education experiences should be applied in medical education curriculum to enhance attitudes and knowledge toward PWD.

**Take-home messages:** Both attitudes and knowledge are important to improve clinical practice for PWD.

**6X6** Opinions regarding end-of-life care from medical students’ perspective: what could be done to make it better?
J Wongboonsi*, G Wangtrakuldee, V Kuptniratsaikul, PRussameekobkul, A Kajornkijaroen, V Srinonprasert, R Praditsuwan (Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand)

Background: Ability in providing qualitative end-of-life care for older patients is an important skill for medical students in an aging society such as Thailand. Understanding the elderly’s opinion regarding needs at the end-of-life is crucial.

Summary of work: We conducted a survey among all medical students at a university hospital in Thailand to compare their opinion regarding end-of-life care with older patients.

Summary of results: Medical students showed reasonable agreement with older patients. An interesting difference was in relation to the wish not to prolong suffering which was rated as the most important in older patients but not among medical students. Having seen dying patients and having a good knowledge in end-of-life care were in significantly associated agreement with older patients with OR of 1.89 (1.25-2.86) and 1.91 (1.04-3.49), respectively.

Conclusions: Good knowledge in and having seen end-of-life patients are two important factors associated with understanding older patients’ needs regarding a good death.

Take-home messages: Providing adequate knowledge and experience in seeing patients at end-of-life would be essential for medical students in order to carry out qualitative holistic care.

6X7 Student Perceptions of the Clinical Relevance of the Medical Humanities SSC
S Chande (Division of Medical Education, Faculty of Medicine, Building 85, Life Sciences Building, University of Southampton, Highfield Campus, University Rd, Southampton S017 1BJ, UK)

Background: At Southampton University, the Medical Humanities SSC is delivered to all BMS students throughout the second semester of year one. It uses literature, art, film, drama and music as a way to explore human experiences of health and illness and offers opportunities to apply these insights to clinical practice.

Summary of work: This study aimed to investigate student experiences and perceptions of the Medical Humanities SSC through focus groups. In 2011 8 focus groups were run with students who completed the SSC from 2007-2011.

Summary of results: Students’ understanding of clinical relevance changed as they progressed through the curriculum. In the first two years, students typically held a narrow definition of clinical relevance in which the basic sciences featured more prominently than other subjects. This perception of relevance was influenced by notions that the basic sciences were more important in exams. With increased patient contact in years 3 and 4, student views of clinical relevance broadened to include the medical humanities.

Conclusions: Although the clinical relevance of the medical humanities may not be immediately apparent to all students, many are able to recognise the relevance retrospectively after increased patient contact and upon reflection.

Take-home messages: Most students are able to see the clinical relevance of the medical humanities.

6X8 A New Approach to Health Promotion for Medical Students at the University of Szeged
V Sarkozy*, K Barabas (University of Szeged, Faculty of Medicine, Department of Behaviour Sciences, Szeged, Hungary)

Background: It is established that for about 35 to 40 percent of medical students adaptation to the university environment is difficult. Addictive and harmful behaviors occur frequently among them.

Summary of work: Our goal is the establishment of an extracurricular programme built on the regular behavioral subjects offered in the curriculum, to promote medical students’ mental health. As part of the programme, volunteering medical students formed the Mediwell Peer Counseling Group. 29 persons have participated in the related training programme so far. Basic training takes one year, and includes sessions of team building, self-knowledge enhancement, and counseling training. Medical students trained in the group are regularly on duty to receive their peers for consultation in Hungarian and English languages. Junior Balint groups are organized as well. Programmes not closely tied to counseling are also offered, like discussions and so on. Peer counselors are supported by professional supervisors.

Summary of results: The project contributes to medical students’ mental well-being, and - via specific programmes - also to their personality development. Efficacy is signified by student feedback: 43% of the students would turn to a peer counselor with their problems.

Take-home messages: Participation in the peer counseling programme has a beneficial effect on volunteers themselves, as it helps the development of interpersonal skills of key importance in the medical field. Therefore, this programme might also be considered as a chance to promote the consciousness about one’s professional self-image.

6X9 Treating ‘haematophobia’ in medical students
J E Graham, S Alimam (Salford Royal Hospital, Clinical Haematology, Manchester, UK)
Background: Haematology forms part of the undergraduate curriculum but is often perceived by medical students as difficult and therefore disregarded. To rectify workforce planning in haematology we need to address this ‘haematophobia’ and encourage understanding and specialisation in the field.

Summary of work: In this study we aimed to identify the perception of haematology in Manchester-trained medical students and the impact of a four hour haematology workshop on their level of confidence dealing with haematology-specific scenarios.

Summary of results: Final year medical students from Manchester have a perceived deficit in knowledge, teaching and clinical experience of haematology as compared to cardio-respiratory medicine (n=45). Providing focused specialty teaching significantly improved students’ confidence levels in dealing with haematology-specific scenarios (n=58) and was well received by all.

Conclusions: Students are keen to receive haematology teaching but with limited time available, more focus should be placed on how best to deliver the haematology curriculum to undergraduates.

Take-home messages: More emphasis should be placed on how to effectively deliver the haematology curriculum if undergraduates are to improve their understanding of haematology and be encouraged to specialise in this field of medicine.

6X10 A study to review how we learn postgraduate pathology
E Marsdin*1 S Biswas2 (1Oxford Deanery, Oxford UK; 2Brisith Red Cross, Health Delegate)

Background: Undergraduate pathology teaching within the modern medical curriculum is much altered with a decline in factual content within the syllabus and moves away from didactic teaching. Junior doctors preparing for membership examinations report gaps in their knowledge of pathology, perhaps a legacy of reduced undergraduate teaching.

Summary of work: Questionnaires were completed by 69 trainees in Surgery, Medicine, Anaesthetics, Paediatrics, Obstetrics and Gynaecology preparing for membership in one UK deanery. We asked what they used to revise and whether they used their undergraduate notes.

Summary of results: 59 doctors (86%) reported that pathology formed a significant component of their membership exams. Only 15 (22%) found their undergraduate courses had prepared them for postgraduate training in their chosen specialities. Although 60 (87%) kept their undergraduate pathology notes, only 6 (9%) found them useful in postgraduate learning. All doctors used question and answer revision material to learn pathology for membership. Only 9 (13%) had heard of the NHS/Royal College website for Pathology e-learning for healthcare.

Conclusions: There is an increasing dependence on question and answer revision material to learn postgraduate Pathology.

Take-home messages: Pathology is essential to clinical practice; learning it is inexorable. Perhaps revision material should incorporate university or Royal College teaching material to achieve the best of both worlds.

6X11 Immunology teaching for undergraduates: A novel approach
S Cockram*, I Tapply*, R Sargur (Dept Immunology, Northern General Hospital, Herries Road, Sheffield, UK)

Background: The medical curriculum in the UK changed dramatically following the publication of Tomorrows Doctors by the General Medical Council, the focus shifting from classical teaching to a greater emphasis on clinical problem-based learning. This has led to a lack of understanding of the patho-physiologic mechanisms of health and disease. As a result we feel pathology teaching delivered through the current PBL curriculum does not adequately prepare medical students for their roles as junior doctors.

Summary of work: We attended a novel integrated learning activity (ILA) masterclass that provided the opportunity to develop our basic understanding of immunology and discuss clinical case scenarios. The ILA Masterclass was structured to provide small group teaching and self-regulated learning. There was the opportunity to teach peers, present and discuss a case and monitor understanding using formative assessments. Students were able to engage with the subject and develop their own understanding and interests. We valued the continuity of teaching over a period of weeks, which is somewhat lacking in the medical curriculum.

Take-home messages: Teaching of immunology and other basic science specialities in the undergraduate curriculum requires further development. The ILA masterclass was a successful method of teaching basic science.

6X12 The role of radiology in medical undergraduate education – beyond a new horizon
N Schembri (University of Dundee, Academic Clinical Practice, Ninewells Hospital & Medical School, Dundee, UK)

Background: Major advances have taken place within radiology over the past two decades. Despite the fact that tomorrow’s doctors are being trained in a new clinical era where imaging has become an integral part of modern patient management, radiology still remains under-represented in many undergraduate (UG) medical curricula throughout the United Kingdom.
Summary of work: The relative lack of formal radiology teaching content in the University of Dundee UG medical curriculum, prompted a review of what is currently existing, identify any recommendations made by the Royal College of Radiologists (UK) that are not being met, and devise a framework by which these can be integrated into the existing medical UG curriculum.

Summary of results: The objectives of this framework are to enhance the awareness of the importance of clinical radiology teaching to medical students, ensuring that it is appropriately represented and integrated into the UG medical curriculum.

Conclusions: The framework recommendations for curriculum content, design, delivery and implementation are tailored to the needs of the local university, in light of the challenges confronted in undertaking such an enterprise.

Take-home messages: To enhance the awareness of the importance of clinical radiology teaching to tomorrow’s doctors in a new clinical era where imaging has become an integral part of modern patient management.

6X13 Medical statistics in the undergraduate medical curriculum – do the numbers add up?

**Background:** Medical statistics teaching is often limited or completely neglected in undergraduate medical education. As a result, many medical students progress through their career unable to appraise the use of statistics in medical literature – preventing application of evidence based medicine into clinical practice. We aim to improve knowledge and nurture a positive view towards medical statistics by implementing a novel Statistics Testing And Teaching Students (STATS) Programme.

**Summary of work:** The STATS Programme consisted of a pre-questionnaire, pre-assessment, presentation, post-assessment and a post-questionnaire. Questionnaires were used to gather information regarding experience in medical statistics and assessments tested knowledge of basic statistical concepts. Distribution of course notes were given at the end of STATS. Thirty five medical students were recruited and twenty students completed the programme.

**Summary of results:** Individual scores from both assessments were analyzed. Students performed better in the post-assessment [Average Scores: Pre-assessment - 11.10; Post-assessment - 12.95]. The majority agreed that medical statistics should be implemented in the medical curriculum and would be useful in their future careers. Students also admitted having a better understanding of medical statistics after completing the STATS programme.

**Take-home messages:** Limited exposure of medical statistics can bring modest improvements in knowledge and encourages a positive learning attitude amongst medical students.

6X14 Forms of Extracurricular Training of Medical University Students for Development of Health-Saving Mindset and Behavior in Children, Juveniles and Youth

**Background:** The formation of a health-saving mindset in children and teenagers is a crucial aim of prophylactic medicine. The proper explanatory work on correct understanding of healthy way of life rules and laws and forming of health-saving behavior is still topical, especially with children and teenagers.

**Summary of work:** We have developed the original teaching technique for medical university students, providing forms and methods of healthy mode of life propaganda among different age groups. From the 1st year of studying our students study scientific analysis of primary audience, develop materials and information blocks in the forms of video-presentations, multimedia presentations, booklets, brochures on health-saving behavior. We have developed the original forms of seminar-lections and seminar-actions, which are performed by medical students. The professor plays a consultative and directing role. Seminar-lections, seminar-actions are held in one institution systematically with the following information and practical skills stratification. This technique has been implemented for 10 years in colleges, gymnasiums, schools and universities in Grodno (Belarus). This kind of students’ self-work develops responsibility, creativity in educational problem solving.

**Conclusions:** Indicator of effectiveness of health-saving behavior technique introduced by students is growth of healthy way of life followers in Grodno and bad habits decrease (p<0,05) in children and teenagers.

6X15 What drugs do medical students choose to learn about in general practice and is there a problem?

**Background:** The initial stimulus for the research was from student’s assignments. There was no apparent rational to their choice of medications and it was unclear what the influences were and how appropriate they were.

**Summary of work:** Quantitative data was collected from assignments. All drugs chosen were listed, the
frequency drugs were chosen was standardised, charted, ranked and analysed using excel. Comparisons were made of individual and classes of drugs between student groups for correlations and differences.  

**Summary of results:** 1688 drug choices from 300 assignments were analysed. Commonly prescribed drugs dominated choices with statins and cardiovascular drugs at the top. Amoxycillin was the most frequently chosen antibiotic. These correlate with prescribers known habits. Gastro-intestinal, respiratory and psychiatric drugs were less well represented in student choices. 

**Conclusions:** There are educational advantages to work place teaching, such as the integration of classroom knowledge with clinical therapeutic skills, and enhancement of self-directed adult type learning. However medication choices suggest influences other than evidence based university teaching supporting quality use of medicines. Their drug choices have implications for their future behaviour, suggesting guidance is neded to ensure rational prescribing. 

**Take-home messages:** A better understanding of what medications students choose will improve our ability to guide their future prescribing. 

6X16  **Teaching Psychiatry to Undergraduates: an innovative programme to extend the generic skill set of clinical educators**  
K Seddon*², E Anderson², G van der Linden² (¹Avon Wiltshire Mental Health Partnership NHS Trust (AWP), Medical Education, Bristol, UK; ²University of Bristol, School of Social and Community Medicine, Bristol, UK) 

**Background:** Bristol Medical School decentralised its clinical teaching in 2006 by forming Clinical Academies. The local mental health trust (AWP) became responsible for the delivery of the undergraduate psychiatry curriculum. AWP clinicians now have more responsibility, and the Trust more accountability, for teaching and supervision. Recent changes to the curriculum and the complex, changing theoretical landscape of medical education have also reinforced the need for educational programmes to teach clinicians how to teach. In Bristol there are various short generic teaching skills programmes but none specifically aimed at psychiatrists. 

**Summary of work:** We identified significant unmet training needs, via informal discussion and focus groups that could not be met by the available courses. As a consequence four psychiatry specific modules were devised. Evidence of achievement of generic learning outcomes is a prerequisite, as each module is designed to enable participants to develop an extra level of application specific to their role as a teacher in psychiatry. Participants will be awarded RCPsych CPD points for each completed module and we have approached the local Deanery for formal accreditation for completion of the whole programme. 

**Conclusions:** Generic skills are invaluable but there is also a need to develop more specialist educational programmes. 

6X17  **Pre-clerkship students’ attitudes to pharmaceutical company inducements; A Japanese perspective**  
T Saiki*¹, J Sato¹, K Wakaï², N Ban² (¹Nagoya University Hospital, Department of General Medicine, Nagoya, Japan; ²Nagoya University Graduate School of Medicine, Department of Preventive Medicine, Nagoya, Japan) 

**Background:** There is literature that describes clinical students’ perceptions of pharmaceutical company interactions. However it is not known what pre clerkship students’ beliefs and behaviours are like before exposure to the drug company promotion. 

**Summary of work:** We used a previously validated questionnaire to survey 94 year 4 Japanese students’ views about pharmaceutical company inducements and gifts. We also looked in particular at the students’ response to attendance at pharmaceutical company sponsored grand rounds in various conditions. 

**Summary of results:** Whilst half of the students indicated that they knew little about how pharmaceutical companies promote their products, a majority of students indicated that they would accept pharmaceutical company gifts and would attend pharmaceutical company sponsored educational activities. Interestingly Japanese pre-clerkship students’ perceptions of their interactions with the pharmaceutical industry differed little from the findings of similar studies with clinical students in US. However students’ attendance at sponsored ground rounds was more influenced by their teachers’ recommendation than by the availability of a sponsored free meal or its time schedule. 

**Conclusions:** Students are clearly being influenced by the availability of pharmaceutical company inducements before they get to clerkship. 

**Take-home messages:** Teachers’ recommendation for pharmaceutical company sponsored activities should be strictly limited. 

6Y  **Posters: Written Assessment and Progress Test** 

6Y1  **Computer Learning Evaluation with Pre-test and Post–test in Preclinical Education**  
P Samrejongrat*¹, A Krikongjit², N Sungsirin², V Vanaprucks³ (¹Phramongkutklao College of Medicine, Department of Microbiology, Bangkok, Thailand; ²Royal Thai Army Medical Department, Bangkok, Thailand; ³Department of Medicine, Faculty of Medicine, Phramongkutklao Hospital, Bangkok, Thailand) 

**Background:** There are educational advantages to pharmaceutical company sponsored educational activities. Interestingly Japanese pre-clerkship students’ perceptions of their interactions with the pharmaceutical industry differed little from the findings of similar studies with clinical students in US. However students’ attendance at sponsored ground rounds was more influenced by their teachers’ recommendation than by the availability of a sponsored free meal or its time schedule. 

**Conclusions:** Students are clearly being influenced by the availability of pharmaceutical company inducements before they get to clerkship. 

**Take-home messages:** Teachers’ recommendation for pharmaceutical company sponsored activities should be strictly limited.
Background: Pre-test and post-test have been popularly managed in various designs. Such tests for basic computer were performed during 2004 to 2007 at Phramongkutkla College of Medicine, Thailand. This study aims to present the pre-test and post-test success via intranet as a tool in the computer learning evaluation.

Summary of work: There were 3 test contents of multiple choice questions taken by the medical cadets: content I in 2004, II in 2005 and III in 2006 and 2007. The content II and III were accessed via intranet. The data were analysed with descriptive statistics and the two-sample Z test for comparison.

Summary of results: Every year studied revealed significantly higher scores in post-test than in pre-test at p < 0.05. Both pre-test and post-test average scores in 2007 were significantly higher than in 2006 at p < 0.05. The largest percentage number of students were yearly in Fair group for pre-test and in Good group for post-test.

Conclusions: These pre-tests and post-tests are satisfactory to be used via intranet as a tool for computer learning evaluation. The pre-test and post-test are greatly beneficial for the course management.

Take-home messages: The pre-test and post-test are greatly beneficial for the course management.

6Y3 Overview of the Criterion- and Norm-referenced Standards for Multiple-Choice Examinations at German Medical Faculties

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Background: Following several legal rulings some medical faculties in Germany have added norm-referenced (NR) standards to the formerly purely criterion-referenced (CR) standards in their examination regulations. However, CR and NR standards vary between institutions.

Summary of work: Examination regulations of all German medical faculties (n = 36) were analyzed regarding CR and NR standards.

Summary of results: Most faculties use 60% as CR standard. Many faculties include compensatory NR standards by adopting the “not more than 22% below the average score of all first-time test takers” from national licensing examination regulations. Another approach is, for example, “not more than one standard deviation below the average score of all first-time test takers”. No medical faculty employs an optional NR standard to increase the pass/fail-standard to compensate for “easier” exams.

Conclusions: Most medical schools in Germany include a compensatory NR standard in their examination regulations. In the majority of cases this is the compensatory NR standard adopted from the national licensing examination.

Take-home messages: A CR standard of 60% and NR standard of not more than 22% below the average score of all first-time test takers are the most widely used standards in examination regulations of German medical schools.

6Y4 The influence of figures on difficulty and discrimination of items in written assessments of gross anatomy

Marc Vorstenbosch*, Tim Klaassen, Jan Kooloos, Sanneke Bolhuis, Roland Laan (Radboud University Nijmegen Medical Centre, Department of Anatomy)
Background: Anatomists often use figures in assessments. Literature shows that stimulus and response format both affect psychometrics of test items. We aim to investigate the influence of different types of figures on difficulty and discrimination of items in written assessment.

Summary of work: Two-hundred-ten of 460 students volunteered for a ‘practice’ assessment in a gross anatomy course. This assessment contained 39 questions grouped in seven themes. The response format was either a labelled figure or an answer list, resulting in two test versions. Volunteers were randomly assigned to one version.

Summary of results: Both tests had similar overall difficulty and reliability. Response format conditions were compared through item scores. Compared to an answer list, a scheme of foetal circulation led to smaller difficulty and less discrimination. Two cross-sections resulted in greater difficulty and better discrimination. Three figures showed bivalent effects.

Conclusions: Psychometrics from cross sections indicate an extra ability is being tested. Data from a scheme of foetal circulation indicate a cueing effect. Bivalent data from other figures indicated dependency on the content of the question.

Take-home messages: Difficulty and discrimination of items are affected when labelled figures are used instead of answer lists. Effects are dependent on the type of figure. Teacher should consider this when constructing assessments.

6Y5 A Survey on the Parameters of Test Analysis in Exams Using Crossword Puzzles
Mohammad Zoladl*, Hassan Abidi, Azam Molashafi, M. Ali Mansoorian, Marjan Sardsiri (Department of Psychiatric Nursing, Faculty of Nursing and Midwifery, Yasouj University of Medical Sciences, Yasouj, Iran)

Background: Prevalent questions in academic assessment entail essay, multiple choice, true/false questions, short answers, match and complete the answers. The crossword puzzle is a great replacement for some of the mentioned assessment questions in academic settings. The present study was conducted to determine the item difficulty, item discrimination, and correlation coefficient of the obtained marks of crossword puzzles as compared to the general examination mark.

Summary of work: In the final examination of the Parasitology course (students of nursing and operation room), and the Mind Health Nursing course and Nursing of Psychiatry Diseases (students of nursing) in the first semester of 2010, crossword puzzles replaced the “fill in the blanks” and “match the words” questions. After correcting the papers, test analysis was conducted.

Summary of results: The mean item difficulty of the cross-word puzzle was 0.42 which was in an acceptable range(0.3-0.7). The mean item discrimination was 0.21, which according to its positive value can be considered as a successful criterion to differentiate among weak and strong students. Moreover, Pearson Correlation Coefficient (r=0.429) in the meaningful significance of 0.01 revealed a meaningful relationship between obtained scores from solving the cross-word puzzles compared to the total examination scores.

Conclusions: Crossword puzzle is an assessment method with a precise ability of discriminating weak students from strong ones.

6Y6 How tailored are the empirical basis tests among the different curricular units within same medical school?
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Background: Most academic staff designs assessment tests relying on their empirical knowledge from years of experience. Objective: To determine whether multiple-choice written tests (MCTs) designed on empirical basis in different undergraduate curricular units showed good internal structure within same medical school.

Summary of work: We evaluated six curricular units (from a total of 16) in the first period of examination of 2010. The participant proportion ranged from 66% to 86%. From 1755 possible total tests, 1370 (78%) were completed in the first period of examination. The one-parameter logistic item response theory model was used to assess item and test quality.

Summary of results: The median difficulty and discrimination parameter ranged from -1.46 to 0.73 and 0.50 to 1.05, respectively. The maximum discrimination ranged from 3.8 to 22. The test information curve achieved maximum discrimination for ability levels ranging from -1.93 to 0.01 standard deviations below the average. The pass/fail cut-score ability estimated ranged from -1.36 to 0.25.

Conclusions: The MCTs designed on an empirical basis showed good internal structure. However, the optimum-cut score was discrepant from pre-specified pass/fail cut-score.

Take-home messages: With the use of calibrated item bank, it is possible to improve the reliability at the pass/fail cut-score ability on empirical basis tests.
6Y7 Item discrimination analysis: can point biserial correlation coefficient and discrimination index be interpreted with the same cut-off point? 

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Background: Not only reliability and difficulty, discrimination is also one of the quality indices for item analysis. According to analytical method, point biserial correlation coefficient (r-pbis) is accepted more than extreme criterion group methods called discrimination index (D). However, it is skeptical for validity to interpret them with the same criteria. The objective of this study is to determine the relationship of r-pbis and D-index including difficulty index (p).

Summary of work: All 4 tests of pediatric MCQ comprising of 80 items with 5 options in each test for 13-19 fifth-year medical students per group in 2008-9 academic years, were selected to analyze for difference and correlation between r-pbis and D-index using 25% and 27% extreme lower-upper criterion group methods.

Summary of results: D-index was higher than r-pbis (p-value <0.01), which mean of absolute different value was 0.16, and had linear relationship (r-pbis=0.7 D – 0.04). No difference was found in difficulty index with different criterion methods.

Conclusions: D-index correlates to and is higher than r-pbis. It would be exaggerated if it is interpreted as the same criterion as r-pbis.

Take-home messages: The value of discrimination index should be adjusted with point biserial coefficient for valid interpretation with the same cut-off point.

6Y8 Is there an Adequate Correlation Between the MCQ and Oral Test for Assessing the PGY Students? 
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Background: We aimed to determine the correlation between the multiple-choice question (MCQ) examination and oral test and evaluate the impact on student learning.

Summary of work: In 2011, 211 students who completed their one-year internship training from several hospitals applied for the post-graduate year (PGY) training program at Chang Gung Memorial Hospital. There were two parts of tests included in the evaluation: MCQ with 50 single-answer tests and 6-structure oral test. Every student undertook a 20-minute oral test by two doctors after completing the MCQ test. Pearson’s correlation co-efficient and Cronbach’s α coefficient were used to analyze the correlation and statistical significance.

Summary of results: The mean difficulty and discrimination level of the MCQ were 0.6 and 0.17. The mean MCQ test score and oral test score were 66 and 83. The two scores revealed a normal distribution. After analysis with Pearson’s correlation co-efficient, the R value was 0.282 and the p value was less than 0.0001.

Conclusions: The structured oral test is also an effective tool for the evaluation of student’s learning result. There is a strongly correlation with the MCQ examination. They are valuable in the evaluation of student’s medical education.

Take-home messages: Structured MCQ test and oral test must be evaluate during the examination.

6Y9 Benefits of negative marking at the European Board of Ophthalmology Diploma (EBOD) Examination, both for organiser and for candidates 

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Background: EBOD consists of a written paper (multiple true-false MCQs) and an oral examination. A measure to overcome guessing of candidates at the MCQs is the introduction of negative marking as from the 2010 edition of EBOD.

Summary of work: In order to validate EBOD, a statistical analysis package (classical techniques and item-response analysis), has been developed. A comparison of the results without (2008-2009) and with (2010) negative marking will be made.

Summary of results: The introduction of negative marking at EBOD has resulted in an increase of the discriminative power of EBOD and of the MCQs, without negatively influencing the pass rate. Negative marking did not discriminate female candidates.

Conclusions: Negative marking in case of multiple multi-lingual true-false MCQs is beneficial to both organisers (statistical performance) and candidates (better discrimination with poor candidates).

Take-home messages: Multiple true/false MCQs are a valid option to assess postgraduate medical education, especially in multi-lingual assessments, provided negative marking is applied.

6Y10 On the external validity of the Final Examination at the Katholieke Universiteit (K.U.) Leuven Medical School: the International Foundations of Medicine (IFOM) Examination perspective 

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Background: This research is a collaborative effort between K.U. Leuven Medical school faculty and NBME’s IFOM Examination program. IFOM is a comprehensive assessment in clinical science for international medical graduates. IFOM Clinical Science Examination is based on the USMLE Step 2 CK blueprint and uses retired USMLE questions.

Summary of work: The Final Examination total score and subscores, year-end scores, and IFOM scores were compiled in a study dataset for 241 students from K.U. Leuven who sat for the 2008 IFOM examination. A linear regression analysis was conducted to investigate the strength of the relationship between Final Examination scores and IFOM scores. Correlation analyses were run between year-end grades and IFOM score. Linear regressions were run to predict K. U. Leuven major discipline subscores from similar IFOM subscores.

Summary of results: IFOM score predicted K.U. Leuven Final Examination score with the coefficient of determination of 0.5. Raw correlations between similar discipline subscores ranged from 0.41 to 0.56. Year-end grades correlated with the IFOM total test score in the range 0.42 to 0.64, with correlation for year four being the highest.

Conclusions: Results of the study indicate a strong linear relationship between K. U. Leuven and IFOM scores, thus providing evidence of external validity of the Final Examination.

6Y12 What happens to item-difficulties and person-scores when written test-items are reused? M Wagner-Menghin*, I Preusche, M Schmids (Medical University of Vienna, Department for Medical Education, Spitalgasse 23, Vienna A-1090, Austria)

Background: Literature reports no increase in students’ person-scores when test items are reused, but information on change in item difficulty is lacking. These students did not expect reused-items; leaking and studying such items was regarded as cheating. But what happens when students expect reused items and leaking and studying them is not regarded as cheating? And what happens to item-difficulties, when items are reused?

Summary of work: Students (n=671) self scheduled for an exam on four subsequent test dates. The four test forms experimentally combined published, unused, and reused items. Figures quantifying reuse effects were obtained using the Rasch-model, which allows comparing item-difficulties from different person samples meaningfully.

Summary of results: Mean item-difficulty for reused items shows a nonsignificant decrease. However, depending on test dates, six difficulties decrease and two increase, seven stay stable. Students self-scheduling to the last test date performed significantly worse than other students did.

Conclusions: Only some of the reused items shift in difficulty as expected, which needs to be explored further. However, availability of leaked material did not translate into higher individual scores.

Take-home messages: Even when students leak and study items, an exam’s quality will not automatically deteriorate, when only a low ratio of randomly selected items is reused.

Summary of results: No statistically significant difference was found in the mean marks of MCQs and SAQs when compared according to their groupings in the Tables of Specifications at all levels of cognitive hierarchical testing. More questions were set at the lower cognitive testing levels. Expenses incurred in setting MCQs and SAQs were comparable but conduct and assessment costs for MCQs and SAQs were 6% and 94% of the total respectively. In both formats students performed better at higher cognitive levels. SAQs and MCQs were able to marginally test the lower levels of affective domain only. Student’s said that attempting MCQs required critical thinking, experience and practice.

Conclusions: MCQs are more cost effective means at levels of cognitive domain assessment.
**6Y13 Assessing the assessments**

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**Background:** The GMC Tomorrow’s Doctors document (2009) states that “assessments will be fit for purpose”. Criteria to judge this include reliability, validity, educational impact and acceptability. Reliability and validity can be determined by statistical analysis and mapping however it is more difficult to determine educational impact and acceptability. In this study we constructed a questionnaire to capture students’ evaluation of these criteria.

**Summary of work:** The participants in this study were Year 2 MBchB students at the University of Glasgow. After the end of year written examination, 225 students (97.4% response rate) completed a questionnaire which included space for free text comments.

**Summary of results:** In terms of perceived difficulty, 74.2% thought the exam was acceptable however only 43.1% agreed that it covered the topics they expected. Analysis of the comments revealed that students felt only a small sample of what they had studied was tested.

In terms of educational impact, 82.2% found PBL notes were useful in preparation for the exam however only 25.3% found the plenary lectures a useful tool. The most common comment regarding what would improve the exam experience was “more practice papers”.

**Conclusions:** Investigating student perceptions provides useful information to help improve the acceptability and educational impact of assessments in future years.

**6Y14 Contextual and variable electronic assessments in practical courses**

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**Background:** By linking data of digital data acquisitions in practical courses to questions of digital assessments, all new test questions can be generated automatically and individually.

**Summary of work:** In a practical course of pain physiology, student biometric data was acquired digitally on PCs and evaluated afterwards both manually by students and automatically by means of pre-defined algorithms. This data was linked to digital question frames of a computer-based assessment that took place immediately after the course and was held to find out whether students developed an in-depth understanding of the practical tasks. During the test runtime, the question frames imported some measurement data (tables, graphs, numerical results) in order to compile the final questions prior to their presentation to the examinees. Algorithms results were used as sample solutions.

**Summary of results:** The evaluation questionnaire (56 participants, 100% return rate) revealed that the majority felt comfortable with this type of examination. Most students provided suggestions for further fields of application.

**Conclusions:** During the assessment, students are confronted with their own data. This supports attention and concentration during the course and at the same time may prevent learning by heart of common knowledge questions and pool questions.

**Take-home messages:** Digital assessments may gain additional benefit when combined with real and actual data.

**6Y15 The Relationships Between Psychometric Test and Progress Test Results of Medical Students at the Faculty of Medicine**

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**Background:** Psychometric testing has been done for first year medical student at the Faculty of Medicine, University of Indonesia since 2008 to predict students’ success in completing their study. According to the test’s result, there were five recommendation categories which divided into two groups (student with no risk, and student at risk). Progress test has been used as a tool to evaluate students’ achievement. The aim of this study was to compare students’ achievement in progress test and psychometric test.

**Summary of work:** A psychometric test was designed by psychologists and educators specially for medical students. Psychometric test and progress test data were collected and analyzed using SPSS version 11.5.

**Summary of results:** From 97 students who completed the psychometric and progress tests, 45 students were grouped as no risk, while 52 students were grouped as at risk. By using independent t-test we found that there was no significant difference between the two groups in obtaining the progress test scores (p>0.05).

**Conclusions:** Students’ performance in the progress test was not statistically different within the two groups, since progress test only assesses the cognitive domain.

**Take-home messages:** There is no relationship between student at risk and no risk in term of the progress test result.

**6Y16 Grade Point Average, Progress Test, and Try Out Test as Tools for Curriculum Evaluation and Graduates’ Performance Prediction at the National Board Examination**
Background: Competency-based curriculum (CBC) has been introduced at the Faculty of Medicine, University of Indonesia (FMUI) since 2005. Afterwards, graduates should take National Board Examination (UKDI) to get the license as a general practitioner. To evaluate CBC and predict graduates’ achievement in UKDI, we used scores of Grade Point Average (GPA), Progress Test (PT) and try out test of UKDI (TO UKDI).

Summary of work: GPA, PT, TO UKDI and UKDI data were collected and analyzed using SPSS version 11.5.

Summary of results: The results showed no significant difference between CBC and non-CBC graduates in obtaining these scores, except for GPA’s scores. All GPA, PT and try out test’s scores in both CBC and non-CBC graduates were correlated with UKDI’s scores. The UKDI’s result can be predicted by the following equation: 5.90 + (10.14 x GPA’s score) + (0.39 x try-out test’s score) + (0.18 x PT’s score).

Conclusions: GPA’s scores of CBC graduates were significantly higher compared to non-CBC graduates. This may be due to the assessment, focussed on the learning process. These scores are able to predict the performance of the graduates at the UKDI.

Take-home messages: GPA, PT and TO UKDI are good instruments for curriculum evaluation and graduates’ achievement prediction at the National Board Examination.

6Y17 Searching for ways of scoring Progress test: Should wrong answers lead to deduction of points?

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Background: We have tested how scoring influences results in Progress test of Single Best Answer format.

Summary of work: In January 2010 test the students of all years were randomly divided into two groups. Group 1 was scored: right answer + 1 point, no minuses, group 2: right answer + 1, wrong answer - 0.5. Same grouping was applied in October. Every execution gave some results in Progress test since first year 26.3 % (STD 14.97) to V year 59.2 % (STD 17.87), and of group 2 from 11.6 % (STD 4.38) to 33.3 % (STD 17.38). In October group 1 of I year scored 33.7 % (STD 12.32), of V year 62.4 % (STD 14.31), group 2 correspondingly 11.3 % (STD 4.38) and 38.3 % (STD 15.82). The correlation of scores between January and October tests in group 1 per year was 0.713 - 0.337 - 0.640 - 0.299 - 0.294 and in group 2: 0.709 - 0.629 - 0.475 - 0.535 - 0.585.

Conclusions: Deduction of points for wrong answers diminishes scores, but increases slightly the correlation between tests. Quality of items and students’ answering strategies influence the results.

Take-home messages: Different scoring practices should be tested.

6Y18 Progress Test Evaluation in Faculty of Medicine University of Indonesia (Fmui): A Lesson Learned

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Background: Progress Test (PT) provides comprehensive longitudinal and cross-sectional design. It offers information for learners as well as faculties. FMUI conducted PT since January 2008, twice a year.

Summary of work: FMUI has held seven PT until January 2011. Module’s credit-hours, difficulty index and discrimination index have been use as blue print. All grades have the same item’s set.

Summary of results: From longitudinal view, there were inconsistent results in PT I–IV for all classes. Progress results of each class can be seen in PT V-VII. From cross sectional view, first grade had lowest average score and gradually increase in second, third, forth, and final grade which has the highest score in PT I, V-VII. There were some evaluation during Progress Test in FMUI. Item development trainings were conducted regularly, but clinical items still not dominant in PT I-IV. Revised blue print has been used as fixed blue print since PT V-VII. These factors may become the cause of inconsistent results in PT I – IV until finally become progress in PT V-VII.

Conclusions: Progress Test has shown rich information about faculty’s as well as each grade/class’s achievement.

Take-home messages: Every execution gave some lessons to learn for becoming better in the next progress test implementation.

6Y19 Percentile curve of knowledge gain for self assessment in the progress testing

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Background: Progress testing is an important tool to obtain information for feedback to the student and to the Medical School.
Summary of work: Botucatu Medical School-Sao Paulo State University has applied this test once a year since 2005 and 2827 students participated who were distributed in six years of medical school. Each test contains 120 multiple-choice-questions with five alternatives that are divided into six areas (Basic Science, Clinics, Surgery, Obstetrics and Gynecology, Pediatrics and Public Health). We aimed to analyze the reliability of the tests and to build a curve of percentile of knowledge gain of the students and evaluated the knowledge gain through the six years of medical school.

Summary of results: The reliability coefficients for all tests have been consistently strong. We built six curves of percentile for each area and another one to the overall performance of students.

Conclusions: The students have a tool for self assessment and the Medical School has an instrument to identify students with unsatisfactory performance. The curves of percentiles suggest knowledge gain of the students during the medical school is continuum.

Take-home messages: The Medical School that uses the progress testing has to elaborate tests with internal consistence and identify how to help the students to use it as a self-assessment.

6Y20 Guidelines for Developing High Quality Multiple-Choice Assessments
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Background: Multiple-choice questions are frequently used in high-stakes assessments across health science disciplines. Many teachers, however, lack the necessary knowledge and training to develop these tests. This paper will discuss test development guidelines to help teachers produce valid and reliable multiple-choice assessments.

Summary of work: We reviewed the assessment literature and identified relevant research papers on issues of quality in multiple-choice tests. We then synthesized this research literature and developed a set of sequential quality assurance processes that teachers responsible for test development can use as a guide or an organizational framework for multiple-choice test construction.

Summary of results: The guidelines for multiple-choice test development can be divided into three categories: (1) pre-test planning, (2) test development practices, and (3) post-test review. The relevant research is discussed for each recommendation and practical issues are highlighted.

Conclusions: Quality in educational assessments of health science professionals is an issue receiving increased attention as a result of a greater focus on outcome based assessments in tertiary educational institutions and the increased accountability the public is demanding from institutions that produce health professionals. Hence, clear research-based test development guidelines are required.

Take-home messages: By following multiple-choice test development guidelines, teachers will be able to develop high quality multiple-choice tests that assess instructional learning objectives and higher cognitive domains.

6Z Posters: Research/Evidence Based Medicine

6Z1 Medic-SHARE (Medical Doctors & Students Hospital Audit and Research Exchange)
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Background: Medic-SHARE is a London based project that aims to introduce, facilitate and enhance the active participation of medical students in research and clinical audits. Early undergraduate exposure to this field is recommended by GMC and The Foundation Programme.

Summary of work: The society works by collating a database of current research and auditing opportunities available, which is then offered to medical students, thereby initiating student-doctor collaboration. A code of conduct has been instigated for both researchers and students to ensure a fair and transparent system for both parties. Medic-SHARE was first established in 2009 at Barts and The London School of Medicine and Dentistry. Registering over 115 members in the last 2 years, it has rapidly become one of the most popular societies at the university.

Summary of results: Students have participated in a number of research/audits covering a wide range of specialties. Some of these have been presented at regional and international conferences, and have won prizes. A project on Statin and Clexane Prescription across London is currently pending publication in a peer reviewed journal.

Take-home messages: Medic-SHARE has been pivotal in developing a model system to increase research and audit opportunities for medical students, to prepare them as future doctors.
Background: The need for medical students to understand the importance of research through the development of appropriate skills is now underpinned by Tomorrow’s Doctors (GMC, 2009). The aim of this study is to assess student perceptions and attitudes of the role and importance of research skills training in undergraduate medical education and to investigate how such training might be delivered.

Summary of work: Questionnaires, focus groups and semi-structured interviews explore perceptions and attitudes of students (in years two and four) and senior academic members of staff. Thematic qualitative analysis and likert data analysis will be presented.

Summary of results: Our data addresses the key issues surrounding the application of scientific methods and reasoning skills, both to prepare students for future research possibilities as well as developing their evidence-based diagnostic skills. Our evaluation aims to aid curriculum design with regards to the teaching of research skills.

Conclusions: Understanding the key role of research in modern medical practice is a key professional attribute. This presentation reports on the findings of this study, highlighting the requirements for clear support and guidance for both students and staff. NI and RC contributed equally to this work.

6Z3 Student-led outreach: exploring academic medicine at a pre-university level
X Du*, J Clarke*, G Funston (University of Cambridge, School of Clinical Medicine, Addenbrooke’s Hospital, Hills Road, Cambridge, CB2 0SP, UK)

Background: The student-led Cambridge University Clinical Research Society organised a one-day event for students aged 16-18 who expressed an interest in studying medicine. They produced scientific posters reviewing an area of interest before the event. The day consisted of a poster competition, lectures and workshops with a medical research theme.

Summary of work: Students were asked to complete anonymous questionnaires before and after the event. Questions related to their interest and understanding of clinical research, which were rated on a ten-point scale.

Summary of results: 28 pre-event and 26 post-event questionnaires were completed. There was a significant increase in students’ perceived understanding of clinical research and its contribution to clinical medicine following the event (p<0.00001 and p<0.0005 respectively). Before the event, the interest of students in clinical research was high (mean = 7.8/10) and this remained unchanged.

Conclusions: This study shows that students with an interest in medicine also often wish to pursue research. However, their knowledge of research and its application does not match their interest. This novel medical student-run event demonstrates that this disparity can be significantly reduced.

Take-home messages: This was a positive experience for both participants and those leading it. We would recommend the implementation of a similar initiative in other medical schools.

6Z4 Introduce the qualitative research methodology into education program for pharmaceutical students
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Background: Nowadays, it is important for pharmaceutical students to understand the idea of Narrative Based Medicine. Qualitative research methodology is suited for research of the narrative of patients, but there was no chance to study this method in the pharmaceutical education curriculum in Japan.

Summary of work: The purpose of this study is to discuss the meaning to introduce the qualitative research methodology into education program for pharmaceutical students. We introduced M-GTA which is a kind of qualitative research methodology into the seminar of medical psychology. The curriculum of this seminar was constructed from “Introduction about the research of M-GTA”, and “Research practice by students”. Students interviewed each other on why they decided to enter the school of pharmaceutical science. After making the transcriptions, they analyzed transcripts by M-GTA and presented their results.

Summary of results: The students who experienced this program said they could appreciate how interesting and difficult qualitative research methodology is, and using this experience to broaden their views.

Conclusions: Participants of this program not only learn the qualitative research methodology, but also could broaden their views. This curriculum was useful in the method of education.

Take-home messages: Pharmaceutical students could have two view points by the knowledge of the quantitative and the qualitative research methodology.

6Z5 An Investigation of Research Foundation Programmes at University Hospitals in Sweden
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Background: Doctors’ research activity has declined steadily in Sweden during the last several years, with
fewer choosing to partake in PhD-studies. As an attempt to curb this trend, Research Foundation Programmes have been established at all Swedish university hospitals.

**Summary of work:** Open and closed questions in an online survey were being emailed to Foundation Programme directors at Sweden's six university hospitals, and to all Swedish Research Foundation doctors. Follow-up telephone interviews will be conducted with a selection of the doctors.

**Summary of results:** Preliminary results show that the Research Foundation Programmes are at various stages of development, and differ in their structure and entry requirements. The great majority of Research Foundation doctors are very pleased with their programme.

**Conclusions:** Final conclusions will be presented at the session.

**Take-home messages:** Specialised Research Foundation Programmes are a successful and appreciated way of helping foundation doctors establish a research career.

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**6Z6 Scientific research as learning style in education environment**

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**Background:** The extension project activities aims to promote an engagement of the involved agents in the action of the knowhow, converting itself in a privileged activity for the social and professional experience.

**Summary of work:** The project was developed to serve the University Hospital and it is composed of three teams of students who analyze the water, nutrition products and pasteurized human milk. The teams’ structure follows a flowchart of responsibilities and functions, acting from the reagents preparation, communication to the other areas about quality, equivalence and providence, whenever necessary to preparation of reports and work for scientific research events.

**Summary of results:** Between 2003 and 2010, 56 students participated in this project, presenting 2.5 works per year in scientific events. 26 had already finished the medicine course and 23 were approved in medical residency in the same year of the graduation.

**Conclusions:** The access to the complete process, since the identification of its needs, through the administrative organization, achievement, critical analysis, discussions bringing a wide view for the students, can culminate in scientific disclosure. Finally, feeling comfortable about scientific competences.

**Take-home messages:** It is necessary that the students recognize the research activity in the day-by-day work, to understand its relevance and its applicability.

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**6Z7 Scientific Initiation (SI) on medical courses (SIMC) in Brazil**

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**Background:** SIMC is an important tool to ensure the training of future researchers and improve medical practice.

**Summary of work:** Scientific literature and official data were assessed in order to determine the extension of SI and SIMC in Brazil.

**Summary of results:** SI started in Brasil in 1988. 72% of Brazilian colleges offer some kind of SI, most in public institution. 68% of Brazilian medical students achieved SI during graduation, but 30% of Brazilian undergraduates do not achieve any SI during their courses. To 84% students SI should be a compulsory activity. Only 25% of the SI projects receive financial support. In Brazil, according to the students, curriculum insertion (lack of institutionalization) and financial support are the main related difficulties.

**Conclusions:** Although in Brazil SI is young, there are many (public) schools that offer it to their students. In the medical schools, the SIMC is also spread, but is not inserted on the curriculum, remaining as extra and voluntary activity.

**Take-home messages:** Lack of institutionalization and financial support delay the growth of SI on Brazilian medical courses.

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**6Z8 A conference for M.D. interns focused at increasing the number of young physicians that combine clinical work with research**

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**Background:** A problem at Sahlgrenska University Hospital (SUH) is the declining number of physicians that complete a Ph.D. education.

**Summary of work:** The aim was to inspire young physicians to combine clinical work with research and also to emphasize the research which is performed by M.D. interns at SUH. To accomplish these goals a conference was organized – “The co-operation between clinical work and research”. The two main features were the presentation of research done by interns and inspiring lectures about why you become a more skillful physician if you combine clinical work with research. In order to spread the message as far as possible an abstract/program book was made and contact with media was taken.
Summary of results: The conference attracted about 100 visitors and was covered by newspapers and local television. 34 abstracts were presented, as a poster or an oral presentation, at the conference. The percentage of interns who answered that they “Strongly agree” or “Agree” to the statement “Research is an important part of a physician’s profession” increased by 13% during the conference.

Conclusions: The young physicians’ attitude to research was influenced in a positive way by the conference.

Take-home messages: Combine clinical work with research and you will improve as a physician!

6Z9 Evidence-based case write-ups: A learning strategy for clerkship students
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Background: Evidence-based medicine is an integral part of the undergraduate curriculum at Shifa College of Medicine. To strengthen students’ competency in point-of-care EBM, evidence-based case write-ups were introduced in clinical clerkships. The students are required to document clinical cases and investigate queries that arise.

Summary of work: A standardized method to evaluate case write-ups was developed with the focus on grading PICO questions, search strategy, level of evidence and applicability. Alongside, students’ perceptions about their own skills and attitudes towards EBM were obtained via survey. Finally, a faculty survey was distributed to assess the impact this exercise had on student learning.

Summary of results: The student survey revealed that students were split regarding their EBM familiarity prior to the clerkship. After the clerkship, student confidence significantly increased in researching clinical questions. Forty students have completed 80 write-ups so far. The details of the audit and faculty perceptions are awaited.

Conclusions: The case write-ups have had a positive impact on student outlook towards evidence-based practice. However, the evaluation of case write-ups may reveal a need for improvement in student skills and knowledge of evidence-based medicine.

Take-home messages: Evidence-based case write-ups are a means to achieve the goal of life-long learning and are a valuable tool for teaching EBM skills.

6Z10 GIN Kindergarten. A modification of educational programme for undergraduate medical students.
R Licenik, J Precek*, V Mihal, D Osinova, P Kurfürst, M Faix, L Prokopova, E Dorazilova, K Klikova, K Mokrosova, S Mikolajova, K Ivanova (Palacky University, Faculty of Medicine, Department of Social Medicine and Health Policy, Olomouc, Czech Republic)

Background: The Centre for Clinical Practice Guidelines of the Faculty of Medicine and Dentistry, Palacky University is concerned with issues of clinical practice guidelines (CPGs) as viewed from different perspectives. To disseminate knowledge on CPGs we have developed a comprehensive educational programme (CEP) for undergraduate medical students called The GIN Kindergarten in 2008. The programme has been evaluated and recently modified using the updated resuscitation guidelines of the European Resuscitation Council.

Summary of work: Series of lectures for final year medical students were listed in the standard curriculum in 2009/2010. The lectures covered the basic principles of systematic development, adaptation, evaluation and implementation of CPGs as well as search strategies for best evidence, applied legal and ethical aspects. The recent modification using the ERC 2010 resuscitation guidelines is an implementation of the guidelines and also shows medical students the basic methodological principles. The part of the lecture is a training of CPR using a mannequin and two scenarios.

Summary of results: Lectures focused on CPGs, a compulsory subject for final year medical students (n=360) since 2009. CPR training as an integral part of the lecture focused on methodological and other aspects of CPGs.

Conclusions: The best CPG implementation strategy is to incorporate it into undergraduate medical curricula. Both to attract medical students and disseminate the ERC 2010 guidelines we have recently modified the CEP.

Take-home messages: Implementation of clinical practice guidelines should start during undergraduate medical education.

6Z11 Faculty experience of practicing EBM to promote undergraduates’ learning through case write-ups
HY Khan*, T Jaffery, A Rauf, M Iqbal (Department of Medical Education, Shifa College of Medicine, Islamabad, Pakistan)

Background: At Shifa College of Medicine, case write-ups are used as a learning strategy to promote EBM practice. Students write detailed case history, formulate related questions, answer a desired question using evidence retrieved from literature and apply it to their patient.

Summary of work: Through open ended questionnaires clerkship faculty’s level of understanding, possible barriers and solutions for practice of EBM and their acceptance of case write-ups as an effective strategy for EBM learning, were
identified. Responses were coded and analyzed using SPSS.

**Summary of results:** 64% faculty members were beginners in EBM practice. 80% had time limitations to practice EBM. 76% used primary while 52% used secondary resources. 68% was concerned about availability of resources. 60% said required resources needed to be improved. 48% agreed that case write-ups promoted students’ thinking and enquiry. 48% stressed that assessment of case write-ups stimulate students to explore further. 56% emphasized on faculty’s training while 24% identified checklists to standardize evaluation of case write-ups.

**Conclusions:** Most of the faculty were beginners to EBM and perceived case write-ups as useful strategy to promote EBM practice in students and emphasized on training and resources.

**Take-home messages:** Faculty training and availability of resources impact effectiveness of case write-ups as a learning strategy.

**6Z12 Pursued characteristics of unanswered clinical questions among medical students**

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Background: Little is known about how often medical students encountered unanswered clinical questions and how they solve such clinical problems in terms of evidence-based medicine (EBM) is a matter of this study.

**Summary of work:** After 267 patient encounters, thirty-two medical students of the year 2010 were interviewed to determine whether they had any unanswered questions. A week later, they were reinterviewed to determine whether they pursued a search for the answers to those questions.

**Summary of results:** 125 new clinical questions were identified. The most common ones related to therapy (69.5%). Sixty-three questions were pursued within a week (50.4%). Average times for question searching were 17 hours. Textbooks and information on the web were common data sources (45.5%, 39.4%), only 9% access to primary studies or Medline. The usefulness of searching related to changing patient management. No significant difference of duration in pursuing the questions between the prior EBM teaching class group and the group without EMB class (p=0.15). Lack of time, forgetting the questions were respectively common reasons for not pursuing the questions (48%, 30.2%).

**Conclusions:** Medical students often encountered new unanswered clinical questions but infrequently answered all of them. Only half of these questions were pursued for the answers in framework of EBM, the rest remained unsolved. EBM media were available through internet access but showed no deep interest.

**Take-home messages:** This is a preliminary survey, passive learning --not so effective. Active learning and interactive session with clinical teachers may yield a better outcome.

**6Z13 A peer-assisted learning workshop series for junior medical trainees is useful for improving skills related to evidence-based practice**

*EYL Leung*\*, DA Colquhoun (University of Glasgow, The College of Medical, Veterinary and Life Sciences, Graduate School, Glasgow, UK; C/O The Glasgow Evidence-based Medicine Society)

**Background:** Research and audit are integral parts of undergraduate medical training. However, there are limited opportunities to develop skills required for the furthering of evidence-based medical practice. We therefore reviewed the first series of our extracurricular workshops as measured by student ratings and assessments.

**Summary of work:** Ten 90-minute interactive workshops relating to research or audit skills, including three statistical sessions, were facilitated by recently qualified doctors. Anonymised session evaluation forms were collected from each participant, who also underwent anonymised statistical assessments before and after all workshops. The assessments were reviewed by two independent assessors to ensure they had similar levels of difficulty.

**Summary of results:** On average, 14 (8-22) trainees participated in each workshop. The typical participant was a female, senior medical student with some research or audit experience. Out of 100 session evaluation received, 96% rated the overall quality of the workshops as good or excellent. 91% rated the workshops as useful or extremely useful. 42% reported improved confidence immediately after the workshops as measured by student ratings and assessments.

**Conclusions:** A structured peer-assisted learning model for evidence-based medicine-related skills demonstrated its demand, usefulness, and improved knowledge among the participants.

**6Z14 The acquisition and value of clinical guidelines as clinical and educational tools**

*I Ryland*\*, N J Shaw\*1,2 (1Mersey Deanery, Regatta Place, Brunswick Business Park, Liverpool L3 4BL, UK; 2Edge Hill University, EPRC, Faculty of Health, Ormskirk, UK)

**Background:** Clinical guidelines are used as standards of management of care and educational tools. Being costly and time-consuming to develop it is essential to...
establish the best method of dissemination. The aim of this study was to investigate factors that influence clinicians’ acquisition of knowledge of clinical guidelines.

Summary of work: Trainees and consultants from two specialties were invited to complete a questionnaire to identify how knowledge of guidelines was acquired and to complete a VARK learning-style questionnaire. Questionnaires were completed by 176 physicians of whom 18 were consultant grade with 76(43%) also providing a VARK profile.

Summary of results: Most common sources for accessing guidelines were electronic media (161/176,91%) and flow-charts in clinical areas (117/176,66%), with guidelines reported as being extremely or moderately useful in clinical practice (152/167,91%) or as an educational tool (121/166,72%). Electronic and flow-chart sources were aligned to visual or ‘mixed’ learning styles. One hundred and fifty-three respondents (87%,153/176) expressed guidelines should not be legally binding.

Conclusions: This study highlights physicians’ value and acquisition of clinical guidelines providing medical educationalists and guideline developers’ insight when developing specific methods for transferring guideline information to physicians.

Take-home messages: A multi-media approach provides greatest opportunity to recognize clinical guidelines as valuable clinical and educational tools.

6Z15 Evolution of Evidence Based Medicine in a Pakistani Medical School
A Junaid*, I Mobeen (Shifa College of Medicine, Department of Pathology, Islamabad, Pakistan)

Background: The concept of evidence-based medicine was introduced at Shifa College of Medicine to develop a culture of evidence-based practice in clinical decision making.

Summary of work: EBM was incorporated in two phases. Planning phase comprised of faculty training program, which over a period of two years created a task force which has acquired essential & elementary knowledge of EBM. During Execution phase, the concept was incorporated in foundation module and then throughout the year in each clinical module to reinforce the basic concept targeting 400 students at three levels of medical school.

Summary of results: Evaluation in form of MCQ assessing familiarity of EBM terminology & OSCE performance, reflecting application of EBM concepts, showed short term achievement in form of 75% students success rate in University examination. Long term impact is still awaited, though student’s approach of acquiring valid information for every clinical dilemma is encouraging & evident.

Conclusions: EBM incorporation in undergraduate curriculum is doable, the concept foster a mindset to provide up-to-date care to the patients incorporating their values and preferences.

Take-home messages: Ultimate beneficiaries of EBM would be the end users of medical education e.g. community and patients, can be introduced with minimum resources.

6Z16 A Need for Continuous Education for Evidence-Based Medicine in the Medical Curriculum
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Background: Objective: To assess the effect of integration of evidence-based medicine (EBM) in small-group discussion using case scenario among medical students on their knowledge, attitudes and skills.

Summary of work: A prospective study was conducted. EBM was taught to the fourth-year medical students in 2008 and continuation on the fifth-year medical students with small-group discussion and self-practice. The informative knowledge was measured by pretest and posttest. Attitudes and skills were measured by self-rating assessments: before learning (T0) and twice after 1 and 5 weeks of learning during the fourth year (T1 and T2) and three times at the fifth year after 13, 25 and 37 weeks of first learning EBM (T3, T4 and T5). Data were analyzed using ANOVA and paired t test.

Summary of results: Of 114 students, mean age was 22.1 years. Mean difference of knowledge increased significantly. Increase of proportion of students who achieved full 8 scores from 4% before to 54% after learning. Self-rating attitudes and skills were significantly higher compared to without learning. Continuing education of EBM by small-group discussion and self-practice improved their attitudes and skills (p<0.001).

Conclusions: Integration of evidence-based medicine into medical curriculum is needed. Continuous education with small-group discussion and self-practice is important.

Take-home messages: Continuous education on evidence-based medicine with small-group discussion and self-practice is necessary in medical curriculum.

6Z17 Effect of University Integration into Health Services on the Nature Of Master’s and Doctorate Thesis
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**Neck Surgery, University of Sao Paulo, Ribeirao Preto, SP, Brazil**

**Background:** Integration of the university into health services may influence Medical Education as a whole. We aimed at determining whether the implantation of the Unified Health System (SUS) in Brazil, and the subsequent integration of the university into it, has influenced the training of graduate students, especially regarding the research methods used to elaborate their thesis.

**Summary of work:** A documental analysis was conducted on samples of thesis (Ophthalmology area) produced during two periods of time, respectively before (1971-1991) and after (1991-2011) the implantation of SUS and the integration of the university into it. The work produced was divided in: a) experimental studies in animals; and b) observational and experimental studies in humans.

**Summary of results:** After the integration of the university into SUS there was a statistically significant increase in human studies, with a correspondent decrease in experimental research in animals (45.45% versus 14.90%; p= 0.0002; CI:2.11 – 10.70).

**Conclusions:** Modifications in the Brazilian health system favored better integration of research activities with health services, which is likely to have influenced training of future university faculty members.

**Take-home messages:** The involvement of university with health services to community is associated with significant increase in clinical research.

**6Z18 Clinical ethics distance education as a tool to bridge the gap between evidence-based medicine and values based medicine in the Mexican Social Security Institute (IMSS)**

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**Background:** The strengthening of the binomial evidence-based medicine-values based medicine (EBM-VBM) is the challenge of the 21st century. The health sector confronts the recognition of moral declination values; high levels of dissatisfaction, attrition and burnout have been documented, but little research has focused on health personnel values. This study sees the de-emphasis on axiological foundations in the healthcare personnel at the IMSS.

**Summary of work:** In 2009 the health personnel working in the IMSS were invited to participate in clinical ethics free online course with university recognition of 60 hrs. Each participant in order to be enrolled responded to a set of survey instruments online before and after the educative intervention.

**Summary of results:** The data yielded a unique and detailed account of the nature and scope of values and virtues in the health care personnel of IMSS. The most marked value cluster was formed for love and autonomy. Increasing patient autonomy and promoting patient choice is currently high on the clinical ethics agenda in IMSS, countering the more "paternalistic" approach to healthcare in the past.

**Conclusions:** The most marked value cluster was formed for love and autonomy. Increasing patient autonomy and promoting patient choice is currently high on the medical, social and political agenda in IMSS, countering the more "paternalistic" approach to healthcare in the past.

**Take-home messages:** Maintaining the axiological foundations is one of the sure ways of meeting the challenge of provide high quality care to the communities.

**6Z19 Does knowledge about EBM augment medical students’ skills in finding the answers to clinical questions?**

Jamile Moghimi, Farahnaz Gaharemanfard*, Raheb Ghorbani, Sanaz Ghashghaei (Semnan University of Medical Sciences, Internal Medicine Research Center, Semnan, Iran)

**Background:** The most noticeable fear of students is to find correct answers to questions raised in clinical rounds. So students generally find them in non-specialized sites. In this study, we teach students on the concepts of evidence based medicine (EBM), correct question making (PICO: Population Intervention –Outcome) and correct search.

**Summary of work:** In a before and after study, six groups of clinical students of Semnan University of medical science (24 students – each group for 2 week course) enrolled in the study. Pre and post tests were taken from the study on the concepts of EBM, PICO and a valid search. After pretest, students were asked about problems raised in clinical rounds. They were asked questions on the aforementioned concepts and then they were explained during the workshops. Data from pre and post tests were analyzed by Wilcoxon Signed Ranks Test.

**Summary of results:** Students’ knowledge about PICO (based on its design and use) was significantly increased (P<0001). The increase of knowledge about EBM wasn’t significant. The guarantee of an accurate search, relevant topic and validity of search were significantly increased.

**Conclusions:** According to our study, a change in clinical education process can improve the skills of students in their clinical problems and causes better management of patients.
6AA1  Junior Doctors as Medical Educators
E Onwordi*, M Thomas, K Asa’Ari, R Armstrong (Pilgrim Hospital, Sibsey Road, Boston, Lincolnshire PE21 9QS, UK)

Background: Many newly qualified doctors feel underprepared for clinical practice. Delivery of medical education has traditionally been seen as the role of senior clinicians. Doctors in core training have recently made the transition from medical school to the wards. As such they are uniquely placed to offer focused teaching to medical students that is directly relevant to medical finals and the expectations of a foundation programme trainee.

Summary of work: Core trainees in a district general hospital designed and led a bi-weekly interactive programme for final year medical students covering common medical scenarios encountered in finals and on the wards. Students were encouraged to apply theoretical knowledge to clinical scenarios.

Summary of results: Students completed feedback forms designed to evaluate the relevance of sessions to finals and subsequent clinical practice. An end of rotation evaluation feedback meeting was also held. The course was found to be overwhelmingly useful with many students referring to the programme as the most relevant and focused teaching received during medical training.

Conclusions: Core trainees are uniquely placed to offer training to medical students that will facilitate learning for final exams and for life as a foundation programme trainee.

Take-home messages: Senior clinicians should view core trainee doctors as essential allies in furthering medical education.

6AA2  A Comparison of Junior Doctor Led and Senior Doctor Led Bedside Teaching
K R Gibson1, Z Qureshi2*, S R Maxwell2, H S Cameron1, M T Ross1 (1Centre for Medical Education, The University of Edinburgh, 49 Little France Crescent, Edinburgh EH16 4SB, UK; 2Clinical Pharmacology Unit, 49 Little France Crescent, Edinburgh EH16 4SB, UK)

Background: Despite the benefits of bedside teaching, it is on the decline. We investigated perceptions of final year medical students concerning a Foundation doctor-led bedside teaching programme, designed to increase such teaching.

Summary of work: Foundation doctors successfully completing a training event delivered bedside teaching to final year students. Anonymous questionnaires were issued to all students, assessing benefits of junior compared to senior doctor led teaching.

Summary of results: 19 sessions were carried out, delivering tutorials to 42 students. 94% agreed or strongly agreed it provided a useful clinical experience that they would otherwise not have received. In comparison to senior staff, 88% agreed or strongly agreed junior doctors were more approachable. 79% agreed or strongly agreed they covered more relevant material to being a good junior doctor. 38% agreed or strongly agreed that they were more confident teachers, with 40% being neutral. 45% agreed or strongly agreed that junior doctor led teaching is overall of higher quality, with an additional 50% believing it is at least as good.

Conclusions: Junior doctors are perceived as more approachable, covering more relevant material from the learner’s perspective, with no perceived reduction in overall quality of teaching.

Take-home messages: With adequate training, junior doctors could effectively increase bedside teaching, with potential advantages over senior staff.

6AA3  Building a successful academic foundation program in medical education
D Darbyshire*, H Jones, S Heath, L Jawaheer, M Ahmed, O Tavabie (Education Centre, Royal Bolton Hospital, Farnworth, UK)

Background: An academic foundation programme in medical education is designed to allow junior medical trainees to gain experience in teaching and medical education research. After 2 years 3 trainees will have completed the programme and 3 more will be half way through it. The authors explore barriers trainees have to overcome and how they have made the most of their time to help inform future planning of similar programmes.

Summary of work: Unstructured group discussion covering the trainees thoughts and experiences were conducted.

Summary of results: Both site specific and general issues were raised, most of which were dealt with in a pragmatic fashion. The trainees goals and subsequent achievements varied. Important factors for trainees and those supervising them and organising the programme are discussed.

Conclusions: Medical education is an ideal academic discipline for academic foundation programmes and through collaboration between trainees and supervisors such an undertaking can be made a success.

Take-home messages: The role of the academic supervisor in medical education research is key, but those involved in the practicalities of helping trainees maintain their protected research time is just as important.
6AA4 Student integration, effective and responsive approach in teaching medical basic sciences
Roozbeh Amrollah*, Delaviz Hamdollah (Yasouj University of Medical Sciences, Education Development Office, Yasouj, Iran)

Background: Student integration is an approach of integration strategy. Students of different levels from the same or different majors constitute its basic framework. Its implementation in basic sciences phase is more difficult than in clinical phase. The purpose was developing and implementing student integration in medical basic sciences phase.

Summary of work: During the first week of semester medical students of two successive entrances hold an integration festival under the supervision of their instructors. They prepared concept maps, posters, reusable learning objects (RLO) and software in twelve stations. The sophomores taught freshman and had cultural and professional discussions.

Summary of results: Analysis of questionaire showed 81.7% learning enhancement, 76.9% professional learning, 87.6% interactions, 72.6% good motivations for learning, and 54% more familiarity with cultural and ethnic issues. Seventy percent of students voted for the repetition of the festival for the next semester.

Conclusions: Student integration needs gathering information from faculties and students of different levels. The keys in the student integration are supplies, tools, skills, attitudes and knowledge necessary for effective participation. Students’ roles should be prominent to achieve better output of such festivals.

Take-home messages: Students are such forces that have not any substitute but they need mobilization.

6AA5 Integration of student representatives in the institutional development of the medical faculty Tuebingen
F Baur*1, C Krejci2, S Zipfel2, M Lommerding-Köppel2 (1Eberhard Karls University, Faculty of Medicine, Office of Student Affairs, Tübingen, Germany; 2Competence Centre for University Teaching in Medicine Baden-Württemberg, Tübingen, Germany)

Background: Due to the increasing need of student support (caused e.g. by decreasing average age, and rising student numbers) a student-led mentoring system was established: 48 students, elected by their fellows, function as “semester representatives” (SR). Additionally a board called “Jour fixe” (JF) was implemented serving as communicational structure between faculty and SR.

Summary of work: Aim: To identify how SR experience and handle the JF, sense their role and duties, and what further support they need. Semi-structured focus group-interviews with 11 SR were transcribed verbatim and content analyzed.

Summary of results: Main themes: (1) JF offers contact persons and support. (2) The face-to-face contact alleviates commitment between faculty and SR. (3) The regular meetings keep a continuous bond between all participants and (4) advance transparency. (5) Nevertheless the JF shows structural limits. (6) SR need to prioritize and channel requests of their fellows and (7) have to lay down limits in which they can support them.

Conclusions: The combination of SR and JF is an appropriate support system to improve organizational quality (e.g. communication flow) of medical studies. Triggered by the possibility of regular meetings and mutual discussion of student’s needs a personal commitment is created which alleviates communication between students and faculty.

6AA6 Learning through teaching: Using a prospective medical student taster day to create a collaborative learning and teaching environment
S Kennedy*, P Bandipalyam (QEQM Hospital, St Peters Road, Margate, Kent CT9 4AN, UK)

Background: In March 2011, East Kent piloted its first MedStart day, a taster day for prospective medical students facilitated by our own medical students and foundation doctors.

Summary of work: 6th form students participated in the following activities: 1) Practical session with a variety of model stations staffed by medical students; 2) Interactive group session, with medical students, tackling a BMAT paper; 3) Small group practise of interview questions, facilitated by medical students; 4) A Q and A session given by a foundation doctor; 5) A mini-mock OSCE organised by foundation doctors which saw our medical students rotating round the stations each accompanied by a small group of 6th formers. Each station had a 5 minute feedback/Q and A session where foundation doctor, medical student and group of students were able feedback on the station.

Summary of results: Very enthusiastic feedback from the students, teachers, parents, medical students and doctors who took part in MedStart.

Conclusions: A taster day for prospective medical students not only provides a lively, engaging learning experience for them but also provides real opportunities for current students and doctors to develop their own learning, teaching practice and leadership skills.

Take-home messages: Tomorrow’s and today’s doctors can learn together through a day planned carefully to maximise such.

6AA7 Can students assist teachers using peer-assisted-learning techniques?
**Conclusions:**

Students to assist senior colleagues with learning.

6AA8 What Happens with Clinical Skills

The role of former students in course development: The ‘PHIP’ example

K McHardy*, P Ariana, E Plugge (University of Oxford, Department of Public Health, Old Road Campus, Headington, Oxford OX3 7LF, UK)

**Background:** The MSc in Global Health Science offered through Oxford University’s Department of Public Health aims to recruit students who display the capacity to assume leadership roles within major international healthcare organisations and ministries of health. A selection of MSc graduates elect to pursue doctoral degrees in Oxford and, of these, several continue to have an ongoing involvement in the course. Their contribution may occur via input into curriculum design, teaching and assessment, module audit, or pastoral care.

**Summary of work:** A specific example is ‘Public Health in Practice’ (‘PHIP’), which was conceived, developed and is now coordinated by a course alumnus. In this exercise, MSc students develop, implement and evaluate their own public health initiative within the University setting over a 15-week period.

**Summary of results:** ‘PHIP’ was introduced as a compulsory course component in 2009 and has been successfully delivered to two student cohorts.

**Conclusions:** ‘PHIP’ is an example of 2-way learning as it offers the project coordinator the opportunity to develop their leadership, communication, and other key educational proficiencies. The approach of engaging former students to lead ‘PHIP’ also helps to maximise the exercise’s acceptability, relevance and sustainability.

**Take-home messages:** Former students are uniquely positioned to make a valuable contribution to the future development of a course.

6AA10 Can student facilitators be as good as experienced faculty? A discussion with current examples

A Newton*, J Whiteley* (Medical student, University of Liverpool, School of Medical Education, Liverpool, UK; Co-chair, Junior Association for the Study of Medical Education, Queen Street, Edinburgh, UK)
Background: Evidence suggests that peer tutors can have equal or superior outcomes when teaching a small group. However, there is less evidence to support the role of students as facilitators.

Summary of work: We discuss examples of students in the facilitator role.

Summary of results: Faculty has trained a select number of motivated senior students with the skills to facilitate a problem-based learning group. Initially they were supervised, and then progressed to unsupervised facilitation. A focus group was conducted to establish the groups’ opinion of their facilitator. Views were favourable. A one-day student-organised workshop which educated students in basic teaching skills utilised experienced and senior student facilitators. Questionnaires assessed overall usefulness of the facilitated session, and the benefit of the feedback received from the tutor and peers. The two student facilitators received responses which were at least as positive as the experienced faculty members.

Conclusions: These examples demonstrate that trained, highly motivated, senior students have the potential to effectively facilitate a small group. Learning to teach is a critically important skill for future doctors to hone, and the facilitators involved have found the experienced gained invaluable in their professional development.

Take-home messages: Carefully selected student facilitators can be as good as experienced faculty, and provide a mutually beneficial learning experience.

Background: The concept of the ‘doctor as teacher’ is not a new one; peer instruction in anatomy has long been viewed as fundamental in undergraduate education and its use is well established within contemporary medical curricula. However little comparative data exists between peer-facilitated learning and a deeper understanding of the subject when tested using anatomy workbooks. The peer-educators also enhanced their own understanding of the subject alongside their teaching skills.

Conclusions: Our study suggests peer-led demonstrations provide a forum for deeper learning in anatomy and may promote greater engagement with the subject matter. With trends moving back towards traditional dissection; this work has implications for the increased use of student demonstrators in anatomy teaching.

Take-home messages: Students and peer-educators reported increased understanding; suggesting there is a role for formalised peer-led education in anatomy teaching.

6AA11  Body to body: a study of peer-led education in the dissecting room
R McDermid*, M Marshall1, J Rochester3 (1University of Sheffield, Medical School, Beech Hill Road, Sheffield, S10 2RX, UK; 2University of Sheffield, Academic Unit of Medical Education, 8 Wilkinson Street, Sheffield, UK)

Background: The concept of the ‘doctor as teacher’ is not a new one; peer instruction in anatomy has long been viewed as fundamental in undergraduate education and its use is well established within contemporary medical curricula. However little comparative data exists between peer-facilitated learning and a deeper understanding of the subject when tested using anatomy workbooks. The peer-educators also enhanced their own understanding of the subject alongside their teaching skills.

Conclusions: Our study suggests peer-led demonstrations provide a forum for deeper learning in anatomy and may promote greater engagement with the subject matter. With trends moving back towards traditional dissection; this work has implications for the increased use of student demonstrators in anatomy teaching.

Take-home messages: Students and peer-educators reported increased understanding; suggesting there is a role for formalised peer-led education in anatomy teaching.

6AA12  A comparison between impact of Online Peer Assisted Learning (PAL) method by buzz group and snowball group for instruction of basic concepts of medical education to medical students
M Bahrami1, P Farahdi1, E Ghafari2 (Presenter: M Zare*)
(1Medical Student of Shiraz University of Medical Science, Shiraz, Iran; 2 Medical Student of International Branch of Shiraz University of Medical Science, Kish, Iran)

Background: The integration of E-Learning and PAL has led to online PAL which is a new method in different forms but in this study we perused video conference type in front of a large group and snowball group.

Summary of work: This study was done on the 32 new members of SCC experimentally. All the participants were freshman of medical science and they were categorized into 2 identical groups based on their ranking in the university entrance exam and the same topics from basic concepts of medical education were taught to both groups in the method of online PAL but one in buzz group and the other one in snowball group.

Summary of results: The average of posttest result in buzz group was 15.73±1.14 which was statistically significant difference in comparison with pretest in the same group (p<0.00). The average of post test result in snowball group was 17.11±1.14 which showed statistically significant difference in comparison with pretest (p<0.00). On the other hand posttest results in snowball group in comparison with buzz group showed statistically significant difference, too (p<0.00).

Conclusions: The outcome of this study says that students’ learning on online PAL in the form of snowball group is more than the learning with online PAL method in the form of buzz group.

Take-home messages: Online PAL needs more attention specially in medical field considering that it is a new method and on the other hand its effectiveness because of the unique features such as self-directed learning.
6AA13  **The competitive environment in undergraduate medical education: Is it a barrier to becoming a “Good Doctor”?**

*M Klingenberg*, A M Gwozdz, D Gill (Division of Medical Education, UCL School of Life and Medical Sciences, London, UK)

**Background:** Collaborative working is a professional requirement in medicine. This preliminary study explores competition amongst contemporary medical students and its potential effects on the development of personal qualities necessary to work effectively in a collaborative professional environment.

**Summary of work:** A series of semi-structured focus groups with first and final year medical students at UCL Medical School, and an accompanying in-depth interview with the sub-dean. Data was used to identify themes regarding competition and its consequences.

**Summary of results:** Analysis revealed four themes regarding competition: an open acknowledgment of competitive culture; contested positions on the value of competition; formation of ethnographic clusters with limited intention for collaboration; and potential for sabotage. Based on this preliminary work, we are conducting a questionnaire-based study examining final year medical students’ experiences related to competition.

**Conclusions:** Competition in undergraduate medical education may form a barrier to developing a professional identity that is aligned with professional requirements and the contemporary healthcare milieu.

**Take-home messages:** Medical educators need to be aware that competition is a pervasive phenomenon that may affect the way medical students interpret the purpose of the undergraduate years, which can have detrimental consequences on the ability of graduates to go on to deliver a high standard of care and to ensure patient safety.

6AA14  **Survey of medical students’ views about the teaching of Rheumatology course by peer assisted learning (PAL) under vision**

*Jamileh Moghimi*, Raheb Ghorbani, Sanaz Ghashghaei (Semnan University of Medical Sciences, Semnan, Iran)

**Background:** The aim of this study was to determine the effectiveness of teaching of Rheumatology in physiopathology course via PAL method by leadership of instructor (PAL under vision), in Semnan University Medical Science.

**Summary of work:** This study was performed on 73 students. After teaching two sessions about overall content of Rheumatology by instructor, the rest of the Rheumatologic syllabus was distributed among the student groups (each group 4-6 students). Then under the supervision of the educator, they were asked to study the subject carefully and provide the slide, power point, film and photo for presentation. Then they began to teach the other students by leadership of instructor. At the end of each semester, questionnaires containing items about their views of the new method were completed by students and analyzed.

**Summary of results:** 57.5% indicated a much increased interest in research, 54.8% indicated increased student participation in the classroom; 53.4% indicated that the stress level had decreased greatly in the last examination session; 42.5% indicated much increased motivation of listening in class; 37% indicated a considerable increase in the level of learning.

**Conclusions:** Our findings indicate in the view of more than half of the students, this method significantly increased the interest in research, lowered the exam stress and increased the participation in class, increased their motivation for research and promoted scientific production.

6AA15  **Peer Assisted Learning – an innovative teaching concept for undergraduate education in Intensive Care Medicine**

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**Background:** Intensive Care Medicine (ICM) is a key discipline in medicine, but nonetheless only little topics are integrated in undergraduate curricula. In this setting students are easily overwhelmed by the complexity of ICM. Because of unpredictable workload and regular intermissions, student tutoring through physicians in ICM is very difficult and can hardly be structured. Peer Assisted Learning (PAL) as well known teaching concept might be a useful approach giving students hopefully the opportunity for getting continuous tutoring in ICM.

**Summary of work:** Additional student-tutors were appointed as peer tutors and trained by physicians concerning ICM-content and didactic approach. Learning objectives were defined for physicians, peers and learners intended to standardize requirements of course.

**Summary of results:** A structured PAL-concept for clinical clerkship in ICM was developed. During the current semester, three peer-tutors and approx. 120 students participated. Students acceptance as well as theoretical and practical knowledge was assessed with standardized checklists and pre-post-questionnaires.

**Conclusions:** First experiences already allow the statement that the implementation works well and that there is high acceptance among students and
physicians. There is some evidence that the concept increased knowledge of students in comparison to classical teaching methods like seminars with lecturers.

**Take-home messages:** Despite difficult learning conditions in ICM-setting PAL offers a useful approach.

**6AA16** Peer to Peer Mentoring for Individuals with Early Inflammatory Arthritis: Peer Mentor Training

M J Bell, P Veinot, G Embuldeniya, J Nyhof-Young, J Sale, J Sargeant, P Tugwell, S Brooks, S Ross, R Tonon, D Richards, J Boyle, K Knickle*, S Sandhu, N Britten, E Bell, F Webster, M Cox-Dublanski (M1-401 – 2075, Bayview Avenue, Toronto, Ontario, Canada M4N 3M5)

**Background:** An innovative peer mentor training model is described as part of a complex healthcare intervention to investigate the potential benefit of peer support for individuals with early inflammatory arthritis (EIA).

**Summary of work:** A peer mentor training model was developed from a synthesis of literature, consultation with key informants, and interviews with consumers, their family/friends and health care providers. Consumers are partners in our research team and have been involved in all stages of training (development, implementation, evaluation, revisions). Individuals with IA were recruited through a rheumatology clinic, The Arthritis Society, and the research team to become peer mentors.

**Summary of results:** Nine individuals with IA completed training (18 hours didactic and interactive sessions, including use of standardized patients) over 4 non-consecutive days. Supports for peer mentors include resource binder, ongoing communication with research team, and debrief session mid-intervention. Peer mentors have been paired with an individual with IA for support and feedback (face-to-face or telephone) over 12-week period.

**Conclusions:** The training was well-received by participants and is being revised based on input from consumer observers, research team members and participants. Information from this pilot study will inform a future larger study.

**Take-home messages:** Early peer support is proposed as a way to augment current care in rheumatology. Peer mentor training for EIA may serve as a model for other chronic diseases.

**6AA17** Facilitating clinical practice through peer-assisted learning

Rachel Varughese‡, Sarah Montgomery-Taylor‡, Anna Matthew‡ (‡4th Year Medical Students, Oxford University Medical School; ‡Western Sussex Hospitals NHS Trust)

**Background:** ‘MedEd’ is a peer-assisted learning course undertaken during the first three weeks of clinical training at Oxford University Medical School. Groups of first year clinical students are taught history taking, clinical examination and procedural skills by final year students.

**Summary of work:** All 133 students who took part in MedEd were given a questionnaire, to evaluate their learning and feedback from clinicians. Responses were presented on a 6-point Likert scale.

**Summary of results:** 76% of the year group responded (102/133). 70% of students rated their confidence on the wards highly (5/6-6/6) after MedEd teaching, compared to 87% rating confidence levels poorly (1/6-2/6) before this. 90% of students rated the feedback from doctors on their clinical skills as positive (4/6-5/6-6/6). Strikingly, 98% agreed that students were better teachers than doctors for preliminary clinical teaching. Comments established that the course was pitched at the appropriate level, although continual practice is necessary to maintain skills. In the absence of this, brief, intensive refresher courses should be considered.

**Conclusions:** The use of students as teachers facilitates the imparting of relevant core knowledge, while providing an environment conducive to questioning and reassurance.

**Take-home messages:** Peer-assisted learning is a successful introduction to clinical examination skills, after which continuity is essential in maintaining confident clinical practice.

**6AA18** Foundation Doctors as Education Leaders for Undergraduates

A Koo*, Z Mickute*, N D M Calder*, I Ali, C Koppel* (Chelsea and Westminster Hospital, Postgraduate Department, London, UK)

**Background:** Medical students are often left isolated in clinical settings without support for learning opportunities beyond scheduled teaching. Our aim was to encourage foundation doctors to strengthen their relationship with medical students and foster a culture of teaching through formal teaching experiences.

**Summary of work:** Four foundation doctors assumed roles of ‘Education Leaders’ for Undergraduates, representing foundation doctors as teachers. Working with the Trust Education Fellows, they were trained to deliver a two day induction programme and mock OSCE for year three medical students. All foundation doctors were invited to actively participate in teaching and underwent role-specific training as group facilitators and examiners. Likert-scale questionnaires and formal feedback sessions were used to evaluate the impact of foundation doctor teaching on students’ learning experience.

**Summary of results:** The response rate for completed questionnaires was 79% (n=37/47). Feedback showed that 81% of students felt foundation doctors were
more approachable having met them at induction. Following positive teaching experiences from foundation doctors, 95% of students felt encouraged to be enthusiastic to teach when they become foundation doctors. Qualitative feedback revealed that foundation doctors were the highlight of the induction course. Particular reasons included practical advice on poorly taught areas such as clinical presentation skills as well as constructive feedback.

**Conclusions:** Taking on education leadership roles and providing formal teaching experiences enabled foundation doctors to improve students’ learning experiences in hospital.

**Take-home messages:** Foundation doctors should be encouraged to assume leadership roles in education in order to develop a culture of teaching amongst their peers and medical students.

### 6BB Posters: International

#### 6BB1 Development of a model for responsible electives in Malawi: The MIMP programme

*J Dowell*, N Merrylees (University of Dundee, Tayside Centre for General Practice, Clinical & Population Sciences & Education Division, Mackenzie Building, Kirsty Semple Way, Dundee, UK)

**Background:** Many western medical students visit developing countries during their ‘electives’. However, educational objectives are often ill defined and students rarely contribute meaningfully to patient care, they may even drain scarce local resources. This project has developed and evaluated extended, more ethically based and educationally planned senior students’ electives. Three years’ data is reported.

**Summary of work:** A partnership was established with Kamuzu Central Hospital (KCH), and College of Medicine, in Malawi. Key elements: 1) Preparation, including global health. 2) Rolling programme of four month overseas attachments. 3) Fund raising by students prior to departure. 4) Reciprocal 6 week visits to Dundee by students from Malawi.

**Summary of results:** Over 3 years, 18 Dundee students have participated in extended attachments at KCH; with six on two month placements. Eight Malawian students have visited the UK. All report positive experiences, particularly highlighting development of clinical and procedural skills, assessing sick patients and seeing unfamiliar conditions. Challenges included ensuring adequate supervision and finding ethical ways to use money.

**Conclusions:** Students have gained academically and personally from the programme. However, challenges remain in guaranteeing supervision and identifying areas for funding support.

#### 6BB2 A pilot study to compare US and UK PA student performance on a core biomedical science examination

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**Background:** Physician assistants (PAs) provide cost effective, high quality care in the US, and there is growing international interest in utilizing PAs for a variety of pressing health care needs.

**Summary of work:** This pilot study compared the performance of US and UK PA students on a core biomedical science knowledge examination using multiple choice questions developed by the National Commission on Certification of Physician Assistants.

**Summary of results:** The study found that, despite differing educational models and health systems, the students performed similarly on the items. While robust statistical analyses were not possible given the small sample sizes, the study provides a promising indication of “common core biomedical science knowledge”.

**Conclusions:** The need for repeated studies and expansion of the pilot to other countries with PA programs will provide more generalizability and statistical support to establish whether there is an assessable, global core of PA biomedical science knowledge, which could become one component of locally-determined national standards for PAs.

**Take-home messages:** The possibility of identifying an assessable core of biomedical science knowledge is poised to assist in the development and adaptation of the PA role to meet global health care needs.

#### 6BB3 Using simulated clinical skills teaching as a catalyst for educational change: The Kurdistan/Cardiff DelPHE project

*B J Jenkins*¹, S E Williams¹, L A Talat², N Issadin² (¹Department of Anaesthetics and Critical Care Medicine, Cardiff University (Heath Park Campus), Cardiff CF14 4XN, UK; ²Hawler Medical University, Kurdistan)

**Background:** Undergraduate simulated clinical skills training in Cardiff University has been substantially improved recently. This was achieved by adopting a more constructivist method of teaching, investing in e-learning documentation and piloting a method of organised distributed teaching throughout Wales. We
shared our experiences with another institution in Kurdistan (Hawler Medical University) as part of a DelPHE project funded by the British Council.

**Summary of work:** Hawler does not have a programme of simulated clinical skills training, so some project funding was used to purchase manikins and other equipment. Two clinical skills trainers from Cardiff visited Hawler to deliver a short programme of presentations and teaching. E-documentation developed in Cardiff was presented to teachers at Hawler for distribution to their students.

**Summary of results:** The new method of teaching was well evaluated by students and staff. This led to much interest and matching investment by the partner institution. The Cardiff trainers gained an insight into the problems faced by teachers in Hawler, and the challenges of delivering healthcare in Kurdistan.

**Conclusions:** This initiative has met all project objectives and produced impressive and tangible results within a short period of time. Ongoing collaboration will provide benefits for both institutions.

**Take-home messages:** Global collaboration can facilitate positive change in undergraduate medical education.

6BB4 Veterinary Training Seminars for the Iraqi Veterinary Syndicate and the Iraqi Red Meats Association

**Background:** This session will highlight the efforts of a USDA grant-funded project to develop a curriculum and supply continuing education materials for the improvement of veterinary services and animal agriculture in Iraq.

**Summary of work:** Content experts from across the USA collaborated to design a curriculum based on the needs of the IRMA and IVMS groups in Iraq. The delivery methods used were designed to give participants continued access to the materials. A library of lectures, in both English and Arabic, were created and made available online. Live sessions were conducted using videoconferencing technologies to enable real-time collaboration with the content experts.

**Summary of results:** The project was very well received and both Iraqi groups benefited from contact with a variety of experts.

**Conclusions:** It is possible to leverage the combined knowledge of content experts from across a region to create an educational program that will have a nationwide impact.

**Take-home messages:** Technology, if used properly, can be used to eliminate spatial barriers and disseminate knowledge worldwide.

6BB5 Developing clinical skills training with a novice provider

**Background:** Malta Foundation School as part of their generic teaching programme wished to develop clinical skills and simulation training for Foundation trainees. There was no local expertise in delivering this training.

**Summary of work:** The Royal Derby Hospital (United Kingdom) collaborated with the Malta Foundation School to develop clinical skills training. Three facets were required: Development of a faculty, identification of site and equipment, training of Foundation Trainees. Faculty development and training of trainees occurred concurrently. Faculty were identified by the Malta lead following a visit to Derby to experience clinical skills and simulation training. The faculty were trained during a 3 day visit to Malta by the UK team. Training in simulation and Clinical Skills facilitation and feedback was delivered by the UK team whilst training the Malta foundation doctors.

**Summary of results:** A total of 60 FY1 trainees, were trained in Arterial Blood sampling, urinary catheterisation and NG tube placement and 6 faculty were trained. In addition 16 FY2 undertook simulation training using a Laerdal Simman trainer and 3 faculty were trained in the use of this facility.

**Conclusions:** Careful planning can ensure faculty development and training of junior doctors in a concentrated period within a novice provider institute.

**Take-home messages:** Successful implementation is possible with prior planning.

6BB6 Introducing the AAMC–HHMI Scientific Foundations for Future Physicians into Taiwan undergraduate medical education

**Background:** The Association of American Medical Colleges and the Howard Hughes Medical Institute published “Scientific Foundations for Future Physicians” (the report) to recommend a set of scientific competencies that premedical and medical graduates should possess.

**Summary of work:** In 2009, Medical Education Committee translated the report into Chinese with permission. A meeting with directors of 12 medical schools decided that instead of developing a set of scientific competencies for Taiwanese medical students, schools should use the report to review their
curricula. In 2010, another meeting was held to appreciate how schools introduced the report into their curricula.

**Summary of results:** Most schools used the report to review curricula contents. The eight “Medical School Competencies” were already incorporated in basic and clinical courses. However, integrating the eight “Entering Medical Student Expectations” into pre-med courses was not easy. Various methods were used to improve pre-med courses, e.g. put emphasis on topics with clinical relevance, clinical teachers participated in courses planning and teaching, started new interdisciplinary courses. Details of challenges will be discussed.

**Conclusions:** Introducing the report provides an opportunity for medical school to foster communication and collaboration between basic and clinical faculties, in order to improve students’ scientific foundation.

**Take-home messages:** Medical schools can use the report to revise pre-med and medical curricula.

**6BB7  How students perceive medical competences: a cross-cultural study between the Medical Course in Portugal and African Portuguese Speaking Countries**

**J Barbosa**, M Severo, M Fresta, M Ismail, M Ferreira, H Barros (*Faculty of Medicine of the University of Porto, Centre for Medical Education, Porto, Portugal; Faculty of Medicine of the University of Porto, Department of Hygiene and Epidemiology, Porto, Portugal; Faculty of Medicine of the University of Porto, Portugal*)

**Background:** A global effort has been made in the last several years to establish a set of core competences that defines the essential professional competence of a physician. Regardless of environment, culture or medical education conditions, a set of core competences is required for medical practice worldwide. African Medical Schools, supported by organizations, are trying to cope with this paradigm, changing their degree and qualifications systems in line with European reforms. The aim of this study was to determine to what extent medical students in Portugal and Portuguese speaking African countries, felt they have acquired the core competences to start their clinical practice.

**Summary of work:** A measurement tool was created to evaluate self-perceived competences across Portuguese and Portuguese-speaking African medical schools. The information was collected through a questionnaire that defines the knowledge, attitudes and skills that future doctors should acquire.

**Summary of results:** The students perceived their level of competence in personal attitudes very high, and in opposite, knowledge and clinical skills with some weaknesses.

**Conclusions:** This result confirms the compatibility between countries and the need to evaluate attitudes and conduct of medical students with direct measures.

**Take-home messages:** The definition and assessment of competencies is necessary to undergo a quality program in medical education in Africa.

**6BB8  Career Development Program for Cancer Prevention and Control Research in Minority Populations and International Settings: A Needs Assessment**

**PB Mullan**, A Soliman, R Chamberlain (*University of Michigan, School of Medicine, Dept of Medical Education, Ann Arbor MI, USA; University of Michigan, School of Public Health, Dept of Epidemiology, Ann Arbor MI, USA)

**Background:** The increasing total world mortality attributable to cancer, along with striking disparities in incidence and mortality, attest to the need for researchers in cancer prevention and control. This needs assessment was intended to inform the development of a training program supporting cancer research careers, focusing on underserved populations in domestic and international settings.

**Summary of work:** Subjects: Trainees in NIH- K01 and K07 programs, and the Department of Defense (DoD) Breast and Prostate Control Programs. We developed, piloted, and administered electronically a survey to elicit trainees’ career development needs and preferences.

**Summary of results:** Response rates from each training group exceeded 65%. The proportion of trainees interested in careers that include research on minority groups was 70% K01, 72% K07, and 75% DoD. A substantial percent of these trainees indicated their plans also include cancer research in international settings: 60% K01’s; 50% K07’s and 87% DoD. Respondents identified interest in a program that would provide: mentoring; collaborative research; manuscript writing skills; and focused modular courses. Respondents indicated considerable interest in careers focusing on alleviating suffering in minority populations and international settings.

**Conclusions:** Respondents indicated considerable interest in careers focusing on alleviating suffering in minority populations and international settings.

**Take-home messages:** This study offers encouraging evidence of interest in promoting cancer research career development through focusedextramural training emphasizing mentoring, collaboration, and focused and modular training.

**6BB9  Brazil FAIMER Regional Institute: An Educational International Partnership Answering to Local Needs**
E Amaral\textsuperscript{1*}, HH Campos\textsuperscript{2}, S Friedman\textsuperscript{3}, P Morahan\textsuperscript{3}, MNT Araujo\textsuperscript{2}, P Marcondes\textsuperscript{4}, VR Bollêlla\textsuperscript{5}, MGF Ribeiro\textsuperscript{2}\textsuperscript{6}\textsuperscript{7}UNICAMP, Ob\&Gyn Dept, Campinas/Brazil; \textsuperscript{2}UF, Fortaleza/Ceara; \textsuperscript{3}Faimer; \textsuperscript{4}FAMEMA, Marilia/Brazil; \textsuperscript{5}USP, Ribeirao Preto/Brazil

**Background:** The Brazilian public health system requires competent health professionals sensitive to the needs of the population. Since FAIMER goal is to build leadership in health professional’s education focusing on improving health of communities, an alignment with the Ministry of Health (MoH) initiatives linking academia-service to improve health professions education was identified, and a project-based, nation-wide faculty development fellowship\textsuperscript{2}y-program has started.

**Summary of work:** Descriptive data from the 2007-2010 application processes assessed the reach of the program and project themes. The effect size for the difference between post-pre self-ratings on knowledge acquisition, and importance of curriculum topics, at a Likert scale (1= none, 7= very high) was calculated.

**Summary of results:** A total of 17/26 Brazilian states are represented among 98 fellows, predominantly from public medical schools (75.5%), and schools with MoH grants on health professions education (89.8%). A large proportion (n=31) of projects was directly related to these grants goals. There were significant changes on all topic subscales for pre and post self assessment of knowledge with large effect sizes (1.22 to 2.78).

**Conclusions:** The alignment with the expectations of stakeholders and the focus on educational technology, leadership and management skills were powerful contributors to the initial success of this national-wide project-based faculty development program.

**Take-home messages:** An international collaboration based on similar goals towards the health of the population can built a succesful national faculty development program.

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**6BB11 Bologna first cycle in medicine**

M T Ross*, G Peer, A D Cumming (The University of Edinburgh, Centre for Medical Education, Edinburgh, UK)

**Background:** European Ministers of Education have stated, through the Bologna Declaration, that all European Higher Education institutions should adopt a three cycle system of degrees — Bachelors, Masters and Doctorate. A robust approach to agreeing core learning outcomes/competences for each cycle in all disciplines was developed by the Tuning Project. This was used by Tuning (Medicine) to reach consensus on core learning outcomes for primary medical degrees (Bologna second cycle / Masters) in medicine across Europe (www.tuning-medicine.com). Now, as part of the MEDINE2 Erasmus Academic Network (www.medine2.com), the Tuning approach is being used to seek agreement on core learning outcomes for Bologna first cycle / Bachelors degrees in medicine across Europe.

**Summary of work:** The process involves a Europe-wide internet-based opinion survey, which is currently open. Respondents are asked to indicate, on a rating scale based on Miller’s triangle (not required; knows; knows how; shows how; does), to what extent each of the second cycle competences must be achieved by a student who has successfully completed the first three years of university education in medicine. The results of this survey will be analysed by the MEDINE2 group and used to inform the Network’s recommendations on core learning outcomes for Bachelor degrees in medicine in Europe.

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**6BB12 Medical studies in Belgium undergoing mutation: A students’ perspective**
Background: On Friday 5th March 2010 the Belgian federal and community Governments announced a reduction of medical studies from 7 to 6 years to align with Bologna. Deans of French-speaking Belgian medical schools joined forces with ministers, professors and medical educators to work out how best to achieve this goal for 2012 (initially 2011), and medical students were involved alongside (legal decree MB10.07.2003).

Summary of work: Medical Deans and students were asked since 2009 to discuss this process with ministers. Students joined the newly-created UCL curriculum review steering committee responsible for suggesting changes compatible with attaining the expected key core competencies of future medical graduates.

Summary of results: These core competencies were written following the Dublin descriptors, CanMeds and Tuning learning outcomes and are now validated by the academic body. Following the Deans’ decision to integrate clinical experience and modules in the presently classical baccalaureate curriculum, students were invited to suggest specific curriculum changes. These are currently reviewed as the process is soundly underway.

Conclusions: Although communication of the authorities with the students is still far from being a real dialogue, a new sense of expectation has been achieved over the past three years.

Take-home messages: Students and authorities can indeed reshape the future of medical studies in French-speaking Belgium.

6BB13 Discourses on International Medical Graduates: A Critical Discourse Analysis from Taiwan
Tzu-Hung Liu*, Ming-Jung Ho (National Taiwan University College of Medicine, Taipei, Taiwan)

Background: 1. After Taiwan recognized medical degrees from Eastern European countries in 2004, studying medicine abroad became a trend. 2. The Federation of Medical Students in Taiwan (FMS-TW) protested against international medical graduates (IMGs) in 2009. 3. Discourses on IMG issue caught media and government attention.

Summary of work: We conducted critical discourse analysis on discussion about IMG from the following sources: interviews, internet, survey results, news reports, official statements from the Department of Health (DOH).

Summary of results: 1. The FMS-TW discourse focused on IMGs’ lack of domestic internship and poor quality of care on patients. 2. The IMGs reacted that the Taiwanese medical graduates feared competition. 3. The press reported this issue with emphasis on national control over the amount of physicians. 4. The DOH required the IMGs to complete one-year of internship before taking the licensure exam.

Conclusions: 1. Critical discourse analysis of IMG draws attention to the balance between free competition and control of physician supply. 2. The confrontation of two groups of medical students could be resolved with the integration of certification and licensing processes.

Take-home messages: For policy decision making in medical education, critical discourse analysis is useful to clarify and balance perspectives of various stakeholders.

6BB14 A combined linguistic and medical approach to improve written and verbal communication skills for International Medical Graduates
D Cross*, A Smalldridge* (REACHE North West, Mayo Building, Salford Royal Foundation Trust, Stott Lane, Salford, M6 8HD, UK)

Background: REACHE Northwest provides education, training and support for internationally trained Refugee and Asylum seeking Health Professionals (RHPs.) IMGs may have many difficulties adapting to the NHS. Several studies have identified effective communication as a challenge facing IMGs. This includes straightforward language barriers but also more complex issues relating to picking up non verbal cues and concerns about different cultural protocols.

Summary of work: A team of language teachers and clinicians ran a course for IMGs to improve written and verbal communication skills in a clinical context to a level appropriate for a foundation year 1 doctor. It included history taking, summarising and presentation skills. All training was placed in a medical context using simulated patients and ‘mock’ records.

Summary of results: The combination of language and clinical tutors meant that analysis of communication difficulties could be made from different perspectives and detailed, specific feedback could be given to each student in these areas. Sometimes small adjustments to syntax, pronunciation and context improved the effectiveness of communication.

Conclusions: Communication difficulty can take many forms: language, clinical and cultural. Many of the learning needs are hidden. Using a combined linguistic and clinical approach can provide solutions to clinical communication problems that individual approaches may miss.

Take-home messages: Teaching should be practical with multiple opportunities to practice skills in a variety of settings.

6BB15 Beyond assessment: Building a community model of support for International Medical Graduates
6BB16 Influence of Discipline, Organ System, and Task on Item Difficulty on the 2009-10 International Foundations of Medicine (IFOM) Examination

K Holtzman\textsuperscript{1}, D Swanson\textsuperscript{1}, I Grabovsky\textsuperscript{1}, J Phebus\textsuperscript{1}, K Angelucci\textsuperscript{2}, B Himpens\textsuperscript{2}, R Landolfi\textsuperscript{3}, N Sousa\textsuperscript{4}, L Pannizzo\textsuperscript{5} (\textsuperscript{1}National Board of Medical Examiners (NBME), 3750 Market Street, Philadelphia, PA 19104, USA; \textsuperscript{2}Katholieke Universiteit Leuven Medical School, 3000 Leuven, Belgium, 016/330511; \textsuperscript{3}Catholic University School of Medicine, Rome, Italy; \textsuperscript{4}University of Minho, Portugal)

Background: This study was conducted in conjunction with the IFOM program. A collaboration among the NBME and schools in Belgium, Italy, Portugal, the US, and other countries, IFOM is intended to facilitate interchange of students and mobility of graduates.

Summary of work: 322 clinical science items from USMLE Step 2 were translated into international English, Italian, and Portuguese for use on 2009-10 IFOM test forms. Using students who had completed core clinical rotations, regression was used to predict item difficulties (p-values and logit-transformed p-values) for students from Belgian, Italian, and Portuguese schools (student samples ranging from 65 to 439) from US difficulties. Residuals were analyzed by discipline, organ system, and clinical task.

Summary of results: Correlations between item difficulties ranged from 0.50 to 0.74, with higher correlations between European groups taking IFOM in different languages than groups (US/Belgium) taking IFOM in the same language (English). Mean regression residuals indicated performance on Psychiatry items was relatively lower in Belgium, Italy, and Portugal; performance on Medicine, Surgery, and Ob/Gyn items was relatively higher. Patterns by organ system were similar, though generally not statistically significant, reflecting small item samples. Performance was relatively higher for Diagnosis and lower for Prevention; results for Mechanisms and Patient Management varied by country.

Conclusions: Item difficulties correlated moderately well across examinee groups, and IFOM was sensitive to content-related variations in item difficulty.

Take-home messages: Item difficulties correlated moderately well across examinee groups, and IFOM was sensitive to content-related variations in item difficulty.

6BB17 Can the results of the UK MRCGP examination tell us something about variations in the medical educational environment in the UK, elsewhere in Europe and beyond?

J B Cookson*, V Allgar (Hull York Medical School, University of York, YO10 5DD, UK)

Background: Mutual recognition of qualifications means that doctors are increasingly mobile within the EU and the UK relies heavily on doctors from overseas. There is interest in selection of overseas doctors into NHS positions but also in significant variation between UK schools. There have been calls for a national examination for the UK and for a European-wide examination. This debate would be informed by good data about differences between countries and schools.

Summary of work: Data from the Membership of the Royal College of General Practitioners relates pass rates to country of primary qualification and, within the UK, to medical school. Around one-third of candidates graduated outside the UK; most have spent about 5 years in the UK postgraduate system. For this paper, confidence intervals are used to demonstrate significant differences between UK schools and between the UK, EU and elsewhere.
**Summary of results:** Differences between UK schools were few and inconstant. Results for European and International Medical Graduates (outside Europe) were both significantly below the mean of UK schools and significantly below most individual UK schools.

**Conclusions:** Factors contributing to these differences will be multiple. The effects of the early educational environment and of cultural competency may persist after doctors move to a different postgraduate environment.

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**6BB18 E-Learning: Comparative Assessment of Shared Case-Based E-Learning Among Multi-National Medical Schools**

J Muller, D Sutphin*, D Tookie-Rawlins, D J Sutphin (Edward Via College of Osteopathic Medicine International and Appalachian Outreach Department, 2265 Kraft Dr., Blacksburg VA 24060, USA)

**Background:** Shared case-based and interactive e-learning among medical schools can provide efficiencies, enrich the student experience and provide a cross cultural experience.

**Summary of work:** The Edward Via College of Osteopathic Medicine (VCOM) in the U.S. and three medical schools in the Dominican Republic, El Salvador and Honduras participate in a Global Seminar for Health and Environment. This learning network of scholars and community members study global issues pertaining to sustainable health. Each school concurrently conducts a shared case-based curriculum and all schools meet together to discuss the case via online discussion and real-time video conferencing.

**Summary of results:** The results of this program include enhanced collaborations among multi-national medical schools; exposure to tropical health topics; and student collaborations for improved learning as evidenced through student evaluations and reflections.

**Conclusions:** The shared curriculum is efficient and effective in an e-Learning environment and stimulates deep-learning in intercultural interaction and comparative practice, enhancement of problem-solving skills and development of sensitivity to diverse resource bases.

**Take-home messages:** Future plans include continuation and expansion of the program to include medical schools around the globe to form learning networks that include the European Community.

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**6BB19 Global Health in Post Graduate Medical Education: A Literature Review**

J-M Bourque*, M Masterson, D Raza, P Shrichand (Canadian Association of Internes and Residents, Canada)

**Background:** Global Health (GH) interest is increasing among residents. Although there are many GH electives and educational opportunities for medical students, equivalent opportunities are lacking for residents.

**Summary of work:** The Canadian Association of Internes and Residents (CAIR) is the national representative body of residents. A main area of interest is postgraduate medical education (PGME). A literature search related to global health educational options in medical residency programs was conducted. The search strategy returned 70 results which have been reviewed.

**Summary of results:** Different educational models for incorporating GH in PGME have been identified, ranging from didactic teaching sessions to mentorship-based programs. These have been shown to carry multiple benefits that reach beyond the scope of the home practice for both residents and residency programs. Barriers to these initiatives, such as sustainable funding and academic support, have been identified.

**Conclusions:** More residents are seeking GH experiences despite inadequate guidance and support from most accreditation organizations and residency programs. Based on these findings, 5 questions have been formulated and administered in a national survey, the results of which are pending.

**Take-home messages:** GH in PGME is highly valued by residents but there is a call for better GH training from existing academic structures and increased support from governing bodies.

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**6BB20 Evaluation of the Radiology Teaching System in the Medical School Curriculum and in an International Context**

Elena Oris (Kourdioukova) (Gent University Hospital, De Pintelaan 185, Department Radiology, 1K12, 9000 Gent, Belgium)

**Background:** The general research problem of the current dissertation centers on (1) an international benchmarking of radiology curricula in Europe, and (2) the evaluation of the innovative radiology curriculum as implemented at Ghent University (UGent). Four research objectives (RO) were put forward: RO 1: To describe how undergraduate radiology teaching is organized in Europe and to identify important characteristics of undergraduate radiology curricula. RO 2: To investigate how do students perceive the innovative undergraduate radiology curriculum at Ghent University, and what explains differences in student perception. RO 3: To explore the perceived value of clinical clerkships in the radiology curriculum as well as the impact of radiology clerkship on students’ beliefs about the radiology profession and radiology as a career. RO 4: To explore whether case-based learning within a computer supported collaborative learning (CSCL) setting results in student
satisfaction and helps to develop and improve radiologic problem-solving abilities of medical students. **Summary of work:** To map radiology undergraduate curricula in an international context, the “ESR (European Society of Radiology) questionnaire on undergraduate radiology teaching” was developed. In view of evaluating the UGent innovative radiology curriculum, a questionnaire “Evaluation Radiology Teaching Concept Scale” (ERTeCS) was designed. Analysis of online collaborative learning discussions was performed to investigate radiology case based learning in a CSCL setting. **Summary of results:** The descriptive results of the ESR questionnaire show large differences in the organization of undergraduate radiology curricula in Europe. The results from the evaluation of the UGent innovative radiology curriculum show that students - both during pre-clinical and clinical years - appreciate particular curriculum components such as ex-cathedra lessons with syllabus, E-learning, E-testing, the use of E-cases, etc. During clinical years when students are oriented to the application of knowledge and skills, a high appreciation is expressed for practice linked curriculum components. The results show that students highly appreciate the radiology clerkship to learn to order and to interpret imaging studies. The clerkship provides students a unique possibility to attend various radiological examinations and to get access to a variety of radiology software systems. The clerkship experiences affect positively student perceptions about radiology as a profession. The results about case-based learning via CSCL show that this approach is effective in terms of process and learning performance and useful for students of different grade levels in view of developing their radiology diagnostic skills and problem solving abilities. **Conclusions:** The differences between the radiology curricula in medical training in Europe introduces a focus on standardization of curricula in view of credit transfer between countries and different medical programs. Also the positive findings about the UGent curriculum innovation induce a further reflection. Only when a continuous critical evaluation perspective is adopted, we will be able to attain and maintain the potential benefits of the curriculum innovation.

**6DD** Secrets of Success 5

**6DD1 Working with Hybrid Simulation: The Ventriloscope®**

*D Souder*¹, *W May*², *T Owens*² ¹Keck School of Medicine, 1975 Zonal Ave., KAM B-31, University of Southern California, Los Angeles, CA, USA; ²Howard University College of Medicine, Washington, D.C., USA

**Short description of innovation:** Standardized/simulated patients (SPs) can accurately portray clinical scenarios, but these encounters often lack realistic physical findings. Normal and abnormal cardiac, pulmonary, and abdominal sounds in SPs can be achieved through the use of a Ventriloscope®, a simulated stethoscope. SPs can control the sounds, which the students hear in the simulated stethoscope. This use of hybrid human and mechanical simulators increases realism and allows students to hear cardiac, pulmonary, and abdominal sounds, which are case-appropriate. The relevant knowledge obtained from the hybrid simulation helps learners think in problem representations, make inferences, and relate information for drawing better conclusions.

**What will be demonstrated:** We will demonstrate the function and operation of the simulated stethoscope. Demonstration will include audience participants listening to abnormal cardiac and pulmonary sounds, and will also include instruction of how to program the simulated stethoscope’s SIMS card with abnormal findings.

**What is particularly interesting about the innovation/How could it be implemented:** In response to the need to have abnormal physical exam findings for cases utilizing standardized/simulated patients, the technology now exists to do so. These abnormal cardiac and pulmonary findings increase the realism of the student encounters with the standardized/simulated patients, and ultimately can influence the students’ differential diagnoses.

**Why participants should come to the demonstration:** Medical educators who are interested in the inferences students draw from the increased realism of standardized/simulated patient encounters using this methodology would benefit from attending.

**6DD2 Mass Realism? – Developing a Virtual Ward Round**

*J Round*, *T Bate*, *S Kohlhoff*, *J Dixon*, *D Walters* (Department of Child Health, St George’s, University of London, Blackshore Road, London SW17 ORE, UK)

**Short description of innovation:** Many factors move clinical education away from patients. Information technology can potentially bring disease and patient care to students. We devised an interactive web-based tool exposing students to ward based paediatrics.

**What will be demonstrated:** A virtual ward round (VWR) was built for the paediatric introductory programme with an html ‘ward’. With tutors facilitating
sessions, student groups perused clinical information, discussed normal/abnormal findings, understood disease processes and planned management. Developments were picked up the next day, and more plans made. Students rated sessions for content and presentation from 0-5, chose appropriate adjectives and used free text to comment on sessions.

What is particularly interesting about the innovation/How it could be implemented: Sessions were well received. The VWR mean content score (4.5/5) was similar to the rest of the introductory week. VWR presentation was rated higher than course mean: 4.4/5 (0.05) vs. 4.1/5 (0.02) (p <0.02). The commonest adjectives chosen for VWR sessions were Interactive, Interesting and Engaging. In free text, nearly 1/3rd declared the VWR the most valuable part of the week, and highlighted its breadth, realism and interactivity.

Why participants should come to the demonstration: The VWR successfully introduced students to paediatric clinical experiences, was well received and deemed particularly valuable.

6DD3 ABE The Tummy Dummy – A New Abdominal Simulator

Erle CH Lim*1, Felix Austin2, C C Yen2, Yvonne Chua2, Tiffany Loy2, C K Peng2, S C Thiam2, QY Ho1, C L Ng1, Sharif Mahaboob2, L K Lim1, Patrick SL Chia2 (*Yong Loo Lin School of Medicine, National University of Singapore; ’Design Incubation Center, National University of Singapore, Singapore)

Short description of innovation: In 2008, our group developed a prototype of an abdominal simulator, i.e. a facsimile of a human torso, made of plaster of paris and fibreglass, in which could be placed viscera (liver, spleen, kidneys, gallbladder and masses) of various sizes. This “tummy dummy”, which featured an opaque silicon skin, allowed medical students to palpate the enlarged/normal sized viscera after which they were asked to present their findings, as they would with a live patient. The so-named NUS tummy dummy was used during the H1N1 outbreak of 2008 to teach a group of medical students. The dummy was well received, and we proceeded to develop a more durable and realistic manikin, which we have since named ABE, the Tummy Dummy. ABE is a more realistic manikin, and will be used to teach medical and paramedical (nursing, emergency technician) students to perform the abdominal examination. In the same way as HARVEY and NOELLE have been used for teaching and assessment purposes, ABE can also be used for formative and summative assessment purposes.

What will be demonstrated: During these sessions, we will speak about use of simulators in medical education, highlight the use of ABE to teach abdominal palpation techniques and will provide hands-on use of ABE.

What is particularly interesting about the innovation/How it could be implemented: ABE is a realistic mechanismed simulator, which will allow trainees to learn palpation and ballottement techniques. It can be used to teach clinical examination skills, as well as provide realism for assessments and high-stakes examinations.

Why participants should come to the demonstration: We are seeking partners for research in medical education, to use ABE for teaching and assessment purposes.

6DD4 Case Based Tutor Training: Turn it upside down!

W A Stewart*1, M C Matte*2, A Hogan3 (Dalhousie Medicine New Brunswick, 54B Marr Road, Rothesay, NB E2E 3K7, Canada; †Dalhousie University, Division of Medical Education, Halifax, NS, Canada; ‡Dalhousie Medicine New Brunswick, Saint John, NB, Canada)

Short description of innovation: The presentation will demonstrate how tutor training for case based learning can be achieved without requiring significant preparation by the participants.

What will be demonstrated: Using the process of training as a case based learning module, this presentation will show how the participants come to and participate in a tutorial. The session will be “a case about case based learning” with associated videos. The facilitators’ take the group through a tutorial where they are the learners. The facilitators will draw on the teaching experience of participants to identify issues, challenges and principals of case based learning. It will be the participants themselves, with help from the facilitators, who will identify the objectives of case based learning and of their role as tutors.

What is particularly interesting about the innovation/How it could be implemented: Case based learning is a challenge for training as it is based on the expectation that a group comes prepared to interact after reviewing specific objectives and addressing identified questions. Potential tutors, however, often come to the training session without having reviewed prepared materials. This approach eliminates the need for extensive preparation by drawing on current knowledge.

Why participants should come to the demonstration: Come and see this in action and think about ways how this can be used in your curriculum.

SESSION 7: PLENARY 2

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AMEE 2011 Abstract Book: 29-31 August 2011, Vienna, Austria
7A Plenary: Globalisation of Medical Education: an exploration of models of transnational medical education and opportunities and challenges associated with them

David Wilkinson (The University of Queensland, Australia)

Disease, and doctors, are global, moving around the planet with ease and at pace. In recent years there has been an explosion in a variety of models of transnational medical education. What models exist, what are the pros and cons of each, and what might happen next?

David Wilkinson is Dean of Medicine and Head, School of Medicine at The University of Queensland, Australia. He has established the school as ‘Australia’s global medical school, and recently led the establishment of a novel partnership with the Ochsner Health System in New Orleans whereby US medical students spend 2 years in Brisbane and 2 years in New Orleans to complete their UQ medical degree.

7B Plenary: Transnational collaborative learning for students and faculty – the power of MedEdWorld

Madalena Patricio (University of Lisbon, Portugal)

International medical education is very much on the agenda. Much of the emphasis has focused on mobility of students and staff and collaboration between schools on research projects. There is an obligation to equip students with the knowledge and skills to work in an international context and the values to act as ‘global citizens’. Students themselves value a programme that meets these learning outcomes and this requires a fundamental rethink as to how we educate our students. Through MedEdWorld (www.mededworld.org) we have demonstrated a transnational collaborative learning approach where students from different countries can work together synchronously online, sharing views on the management of a patient problem. Using the same platform faculty can share synchronously and asynchronously their experience in medical education.

Madalena Folque Patricio, is President of AMEE. She is assistant professor at the Institute of Introduction to Medicine at the Faculdade de Medicina, Universidade de Lisbon and Coordinator of the Lisbon BEME Group (Best Evidence in Medical Education) where she coordinates a Systematic Review on the reliability, validity and feasibility of the Objective Structured Clinical Examination (OSCE). In addition to Assessment of Clinical Competencies her special interests are in Humanization of Medicine and Training Teachers.

7C Plenary: International Accreditation of Medical Schools

Stefan Lindgren (WFME/Lund University/University Hospital MAS, Malmo, Sweden), Pablo Pulido (Panamerican Federation of Associations of Medical Schools (PAFAMS), Venezuela), Emmanuel G Cassimatis (Educational Commission for Foreign Medical Graduates (ECFMG®) and Foundation for the Advancement of International Medical Education and Research (FAIMER®), USA)

The panel will review the need for international accreditation of medical schools and the rationale for the ECFMG’s decision to require such accreditation as a prerequisite for certification of the schools’ graduates in the United States. It will then outline a method for implementing medical school accreditation globally before reviewing an accreditation pilot in the Caribbean and other regional initiatives in the Americas.

Stefan Lindgren, MD, PhD, is a Specialist in Internal Medicine and Gastroenterology and is currently Professor in Medicine at Lund University and Senior Consultant in Internal Medicine/Gastroenterology at University Hospital MAS in Malmö. He is President of the World Federation for Medical Education (WFME).

Pablo Pulido MD is former Minister of Health, Venezuela. He is currently President of the Panamerican Federation of Associations of Medical Schools, PAFAMS, a network of Medical Schools in the Americas, and CEO of Project Globe, - a project for the education of primary care physicians.

Emmanuel G. Cassimatis, MD is President and CEO of the Educational Commission for Foreign Medical Graduates (ECFMG®) and Chair of the Board of Directors of the Foundation for the Advancement of International Medical Education and Research (FAIMER®). A graduate of the University of Chicago, Harvard Medical School and the Washington Psychoanalytic Institute, he was most recently Vice President for Affiliations and International Affairs and Professor of Psychiatry, Uniformed Services University of the Health Sciences (USU).

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SESSION 8: SIMULTANEOUS SESSIONS

8A Symposium: The Contribution of the Social Sciences to Medical Education Research

Chairs: Mathieu Albert (Wilson Centre, University of Toronto, Canada); Maria Athina (Tina) Martimianakis (Wilson Centre, University of Toronto, Canada); Panel: Alan Bleakley (Universities of Plymouth and Exeter, UK); Trisha Greenhalgh (Barts and The London School of Medicine and Dentistry, UK); Ming-Jung Ho (National Taiwan University College of Medicine, Taiwan); Cynthia Whitehead (University of Toronto, Canada)

The number of scholars drawing on social science perspectives and contributing to the field of medical education research (MER) has steadily increased in the past decades. Scholars have drawn on a variety of methods and approaches to explore new fascinating aspects of medical education including socialization processes, issues related to professional identity formation, the effects of globalization on medical training, etc. However, the conceptual and methodological tools offered by the social sciences have not yet been used to their full potential. The goal of this symposium is to foster dialogue about the potential contributions of the social sciences to MER and knowledge building. This symposium will bring together scholars from various social science disciplines and traditions (e.g., Sociology, Anthropology, Education). Each panelist will present results from a study, explain how their work is situated in a specific social science tradition, discuss how their methodological choices are linked to their location and explain how his/her work contributes to the field of MER more broadly. Large group discussion will follow the presentations focusing on possibilities for enhancing the role of the social sciences in MER as well as consideration to potential challenges in engaging with these traditions.

8B Symposium: Promoting foundational research literacy skills: from research literacy to research capacity in health science students

Organised by: The International Association of Medical Science Educators (IAMSE)

Chair: Frazier Stevenson (University of South Florida, USA); Adi Haramati (Georgetown University, USA); Des Anges Cruser (University of North Texas; Health Science Center, USA); Nehad El-Sawi (Kansas City University of Medicine & Health Sciences, USA); Bill Jeffries (University of Vermont, USA); Peter de Jong (Leiden University, Netherlands)

Health science professionals must be able to combine compassion, understanding and communication skills with a readily accessible knowledge base and strong scientific research skills. Unfortunately, students often have little concept of the world of research, and they have many misconceptions of what scientific research is. Research skills education can be divided into three stages. First students are taught fundamental research competencies, like procedural skills, declarative knowledge and comprehension in research design and methods, interpretation of simple to moderately complex literature, fundamental principles of epidemiology and evidence based practice. In the next stage students can practice these skills by performing mentored student research projects or joining established investigations. Finally, the student will gain independence, eventually becoming a physician-scientist or health practitioner-scientist. How do Medical Schools foster this research literacy? Do they really train students in the process of scientific thinking and do they challenge them to scientifically explore medicine? Are the required competencies for research skills internationally defined? As literature shows that scientific training is done in many ways around the world, this symposium will highlight and discuss some inspiring examples of science education from Medical Schools in the US and Europe.

8C Short Communications: Management

8C1 Overcoming the marginalisation of Academic Clinician Educators

K Kumar, C Roberts*, J Thistlethwaite (University of Sydney, Sydney Medical School, Sydney, Australia)

Background: Despite a need for richer narratives about academic medicine, the literature is limited to an analysis of the enablers and barriers associated with recruitment and retention, and focuses on research career pathways. We explored academic clinician educators’ experiences of entering into and navigating academic medicine.

Summary of work: Data were collected through interviews and focus groups across one medical school. Socio-cognitive career theory provided theoretical insights into the factors that influence academic clinician educators’ interests, choice, and motivations when pursuing a teaching pathway career within academic medicine. Framework analysis was used to illustrate the key themes.
Summary of results: There were a number of themes related to academic clinician educators’ socialisation within academic medicine; cultural perceptions regarding what constitutes legitimate practice in academia, the opportunity to develop a professional identity commensurate with being an educator, and the way that academic medicine is structured as a discipline.

Conclusions: The emphasis on research in academia can engender feelings of marginalisation and lack of credibility for those clinicians who favour teaching. The prevailing focus on privileging clinicians on research pathways will need to change substantially to facilitate the rise of the academic clinician educator.

Take-home messages: Faculties must support their academic clinician educators as well as clinician scientists.

8C2 Challenges for teacher development in a research intensive faculty of medicine
G Edgren*¹, G Helmstad² (¹Lund University, Faculty of Medicine, Lund, Sweden; ²Lund University, Faculty of Social Sciences, Lund, Sweden)

Background: University teachers are traditionally involved in both teaching and research. The aim of this study was to find out how these roles are perceived by teachers in a research intensive medical faculty.

Research question: How do teachers perceive the importance of the roles of researcher and educator and their career development?

Summary of work: Interviews with postdocs and lecturers in preclinical medicine, clinical medicine, and health sciences (13 interviews). We analyzed the transcribed material for carrier patterns, main work tasks, support for development needed and obtained.

Summary of results: Postdocs described research as the most important activity, although they took part in teaching. Support for development in research was obtained from colleagues, who did not support teaching. Staff from the health sciences perceived a lack of support in research, in contrast to staff from medicine. Support for teaching was obtained by the Medical Education Unit. Lecturers were more involved in teaching and also in application, and two lecturers could be considered scholars of teaching.

Conclusions: Research was perceived as the most important task in order to obtain promotion and teaching was seen as competing with research.

Take-home messages: Educational development should support local communities. The traditional relation between research and teaching has to be reconsidered in a research-intensive university.

8C3 GMC Quality Improvement Framework
M Hart (General Medical Council, London, UK)

Background: The General Medical Council protects the public by ensuring proper standards in the practice of medicine. We do this by setting professional standards including for medical education and training.

Summary of work: We are now responsible for overseeing every stage of a doctors’ training. The creation of the QIF (Quality Improvement Framework) builds on existing work to drive up standards of medical education and training in the UK, although previous approaches have separately quality assured undergraduate and postgraduate education. Many organisations are involved in ensuring the quality of medical education and training, and responsibilities can be split into three types of activity: quality assurance (QA), quality management (QM) and quality control (QC).

Summary of results: A framework has been created that can apply across all stages of training. The key elements are used to triangulate evidence and to make proportionate assessments of risk.

Conclusions: In less than a year, the GMC has created a framework that covers all stages of medical training. It is aligned with the principles of better regulation and provides an efficient and effective mechanism to carry out our statutory duties.

Take-home messages: Protecting the public through improvement of the quality of medical education is a key commitment of the GMC. The QIF is a transparent and proportionate tool to ensure that high standards are maintained.

8C4 An integrated quality assurance capacity building strategies program for health managers and quality coordinators towards a national health insurance
SJH Hendricks (University of Pretoria, School of Health Sciences and Public Health, PO Box 12856, Hatfield, Pretoria, South Africa, 0028)

Background: The capacity of nurses to deliver quality health services is coming under increasing scrutiny by patients who previously seldom challenged the service delivery paradigms and platforms. In response a capacity building program was developed to assist nurse professionals in their workplaces to manage all quality assurance issues. The Quality Assurance (QA) demands of a future national health insurance needs examination.

Summary of work: Quality assurance training programs were reviewed and analysed. An integrated program was designed in which both management and quality coordinators participated. Variations were included as options to enable managers and quality coordinators flexibility to their local situation.

Summary of results: The QA action plans were designed so that the basic principles of QA was observed but modified to suit the clinical, CHC or
hospital setting. The key factors included waiting times, infection control, processing of queues and patient satisfaction. The managers provided appropriate guidance and this process facilitated buy-in and support to enable successful implementation. The QA action plans was reviewed after 6 months based on patient feedback and peer review.

Conclusions: The uptake of health care services are increasingly under pressure because the communities are demanding quality health services that meets their needs. The introduction of the national health insurance challenges health workers to deliver optimum quality health care.

Take-home messages: The successful delivery of health care services is inextricably linked to the level of quality if such services rendered.

8C5 Medical students on long-term placements: a financial help or hindrance to preceptors? J N Hudson*1, K M Weston1, E A Farmer2 (1University of Wollongong, Graduate School of Medicine, Wollongong, NSW, Australia; 2Health Workforce Australia, Adelaide, SA, Australia)

Background: Medical student education is perceived as negatively impacting on clinical productivity and income. The current research aimed to test Worley and Kitto’s hypothetical model (2001), which suggests for community-based longitudinal placements there is a ‘turning point’ after which time the student is beneficial to the practice. Our study triangulated quantitative income and expenditure data with preceptor perspectives derived from qualitative data.

Summary of work: Preceptors provided gross practice income/expenditure. Preceptor interview data pre- and post- the year-long placement was analysed by two researchers who concurred on emergent themes.

Summary of results: The percentage change on previous-year-average-daily-practice-income lent some support to Worley and Kitto’s model. An infrastructure grant encouraged preceptor recruitment. Most preceptors perceived the longitudinal placement had neutral or slightly favourable financial impact, and some adjusted work practice to accommodate any additional time required. Some regarded the student’s contribution as financially positive, and others perceived minor financial loss was outweighed by personal satisfaction.

Conclusions: ‘Real world’ evaluation of the financial impact of medical education is difficult. The quality and extent of the students’ clinical contribution outweighed any perceived or real financial impact. Infrastructure is critical, facilitating student contribution to practice throughput while having access to ‘undifferentiated’ patients.

Take-home messages: To sustain the increasing role of primary care physicians in undergraduate medical education, further research is needed to clarify the costs/benefit.

8C6 Conceptualising the ‘D’: Moving From Distance to Distributed in DPME B Schrewe*, H Frost*, J Bates (University of British Columbia, Centre for Health Education Scholarship, JPPN 3300 - 910 West 10th Avenue, Vancouver General Hospital, Vancouver V5Z 4E3, Canada)

Background: Distributed postgraduate medical education (DPME), currently defined as teaching and learning occurring outside of urban tertiary hospitals, represents an emerging global phenomenon. Although there is an ever-growing wealth of practical experience upon which to draw, conceptual formulations of DPME remain underdeveloped.

Summary of work: We conducted a comprehensive review of 208 articles and interviewed twelve key informants representing a range of perspectives from within Canadian postgraduate medical education.

Summary of results: Our literature review revealed that distributed training environments tend to be perceived as a uniform set of generic sites due to their location outside of the tertiary centre. Our interviewees, however, indicate that there is significant social and cultural variability, not only between regional, rural and remote sites but also among their urban counterparts. As a consequence, learning experiences and environments differ substantially.

Conclusions: Dominant conceptualisations of DPME foreground the importance of physical distance between the tertiary centre and affiliated peripheral sites, obscuring potentially important variations between training experiences.

Take-home messages: We would benefit from rethinking DPME such that the conception of an urban tertiary hospital surrounded by homogeneous peripheral sites is reconstituted as a diverse network, enabling us to minimize tensions by taking advantage of the complementary strengths of multiple different workplace learning sites.

8C7 How can Engstrom’s Activity Theory inform partnership working? Understanding successful collaboration between healthcare and education A M Reid (School of Medicine, Worsley Building, University of Leeds, Clarendon Road, Leeds LS2 9NL, UK)

Background: A successful partnership between the NHS and UK Higher Education bodies has developed a new healthcare professional role – the Assistant Practitioner. This role is generic and patient-centred in a range of healthcare settings, and underpinned with a two year foundation degree. Whilst such partnerships are common, there is limited evidence about their...
sustainability. This study analysed partnership working through the lens of Engestrom’s Activity Theory (AT).

**Summary of work:** Empirical data from interviews and focus groups with key stakeholders explored experiences of partnership working and implementation of the role. Data was analysed thematically, and emerging themes considered in relation to the AT framework.

**Summary of results:** Analysis revealed differences in professional and organisational cultures, and differences in understanding of the purpose and value of education which impacted on curriculum design and delivery. However, resulting tensions appeared to stimulate innovation with consequent transformation of the curriculum as the role developed.

**Conclusions:** The partnership has successfully endured despite ongoing changes in personnel, policy and funding. Utilising the Activity Theory model has allowed a fuller understanding of how to foster innovation, providing insights into how the partnership has been sustained.

**Take-home messages:** Activity Theory provides a practical model in analysing factors conducive to successful partnership working between healthcare and educational institutions.

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**8D AMEE Fringe 2**

**8D1 "We need a database...thingie..."**

D Topps¹, M Topps², D Myhre³ (¹University of Calgary Department of Family Medicine, Calgary, Canada;² Northern Ontario School of Medicine, Sudbury, Canada)

Effective storage of and access to information is essential in medical education today... so why are we so poor at communicating our requirements about this? This short presentation will take a humorous look at some of the process disasters that are encountered when an academic department tries to "fix things with a database". Presented in meeting format, this will highlight the different jargons, acronyms, concepts and rationalisations employed by the knowledge experts in the academic, clinical, administrative and informatics fields as they do battle for supremacy and leadership of The Project. Audience participation will be encouraged with features such as buzzword bingo, decipher-the-jargon pop quizzes and other fun formats.

**8D2 Encouraging discussions on diversity using movies**

Daniel Kuo*, Julie Rogers*, Eddie Greene, James Newman (Mayo Clinic, Mayo Medical School, 200 First Street SW, Rochester MN 55905, USA)

Diversity in medicine is important and topical, however sometimes controversial and often difficult to discuss.

We describe a program that uses entertainment in the form of movies to initiate dialogue and create a safe space for meaningful discussions between community members, medical students, residents and medical school faculty. The topic featured in our first event was race. Participants viewed the 1950 movie “No Way Out”, which highlights the difficulties of a young African-American medical resident physician taking care of an overtly racist patient. The post-viewing discussions were held in small groups following the movie, and directed by a group facilitator/leader. Specific points for discussion included the meaning of diversity in race, ways that racial tensions can be overcome, and how racial issues interact with other diversity topics. Future events will address aspects of diversity including gender/female issues, cultural competency, and intellectual and physical disability. Representative film clips will be demonstrated in this Fringe session.

**8D3 Learning to do it right by doing it wrong**

N Wolff, E de Graaf (Erasmus University Medical Center, Department of Medical Psychology & Psychotherapy, P.O. Box 2040, 3000 CA Rotterdam, The Netherlands; Presenter: M Staphorst)

What better way to learn the right communication skills than by deliberately doing it the wrong way? In the Erasmus University Medical Center in Rotterdam, the Netherlands, the communication skills education includes a small group session on informing patients about diagnosis and treatment or giving lifestyle advice. Third year medical students perform role-plays in which they try to make as many mistakes as possible. Other students observe and note the mistakes. After the role-play, a group discussion is used to analyze what was wrong (and why) in order to derive a list of do’s and don’ts. By paying attention to what goes wrong, students see the effect that communication mistakes can have on the patient. Because of the highly fun format, students are expected to remember the learning material better. In the Fringe session we will do a short role-play including many mistakes and engage the audience in analyzing the mistakes and the consequences for patient care. This may inspire others to adopt this kind of role-play education into their own curriculum.

**8D4 In your shoes (Learning empathy)**

P Tempski¹,², B Perotto³, S Gannam⁴, H Paro⁵, MA Martins⁶ (¹Evangelical Medical School, Curitiba, Brazil; ²University of Sao Paulo, Faculty of Medicine, Sao Paulo, Brazil)

Empathy is the capacity to understand someone else’s feelings and express this comprehension in another person’s perspective.
What was our idea? We divided our second-year medical students into groups of four students each. Each group had to experience the needs of people with one type impairment, disability and/or handicap, such as visual or hearing deficiency or paraplegia. They had to eat, take a shower, walk on the street, take a bus, go to a shopping center and also to their classroom in the Medical School, at the end of the day. This experience was registered by photos, films and written reports.

What we learned? All students considered that this experience had a substantial impact on their perceptions of special needs and was the most important they had for their personal lives and for the learning of medical professionalism. It is possible to design activities during Medical Course specific to train emphatic abilities.

What are we going to share with the audience? We will show the photos and films of the experience and some interviews with students who participated in the experience of living for one day with a disability. We will also invite people from the audience to experience what our students experienced and to report to colleagues their experience as people with visual or motor impairment.

What is our take home message? Empathy is a social ability that is very important for medical professionalism and that can be taught and learned during medical training.

8D5 Create a NEW object – a strategy to activate creativity and teach about teamwork
E Kachur1*, T J Jirasevijinda2* (1Medical Education Development, New York, NY, USA; 2Well Cornell Medical College, New York, NY, USA)

Creativity and teamwork are important aspects of professional development. Over the years we have organized a variety of faculty development and conference workshops that aim to enhance individual and group creativity. One of the exercises requires participants to split up into small groups and to create a “NEW” object out of a limited number of arts and crafts materials. The materials provided are identical for all groups, but the resulting objects vary significantly (e.g., figures, boats, carousels, board games). Groups have just 10 minutes to decide on and produce their objects. The debriefing focuses on: a) What did you learn about creativity? and b) What did you learn about teamwork? Without fail participants realize how quickly teams can come up with new ideas, and how different these ideas can be despite identical resources and equal time limits. This fun warm-up exercise helps participants “step out of the box” and encourages them to find innovative solutions to educational challenges which are addressed subsequently. During the Fringe session we will demonstrate this approach with audience volunteers.

8D6 The donor show! Two kidneys, five patients – you decide who gets the transplant...
Eveline Kramer*, Anne de la Croix* (Erasmus University Medical Center, Department of Medical Psychology and Psychotherapy, Rotterdam, The Netherlands)

You, the audience, are the judges in this donor show! You will be introduced to five patients, who are all waiting for a kidney transplant. It is your task to choose which patients get a new kidney (we have two available). The show hostesses will give you information about the patients, but only if everybody in the room agrees that this information is necessary for the decision making process! At the Erasmus University Medical Centre in Rotterdam, The Netherlands, we use the donor show as a way to talk about medical decision-making. Even though this should be as objective as possible, students often base their selection criteria on implicit or non-medical arguments. The discussion in the donor show is an interactive way of eliciting and discussing hidden attitudes towards medical decision-making.

8E Short Communications: Improving the OSCE

8E1 What a difference an examiner makes! Detection, impact and resolution of ‘rogue’ examiner behaviour in high stakes OSCE assessments
R Fuller*, M Homer, G Pell (Leeds Institute of Medical Education, University of Leeds, UK)

Background: Examiner training is an accepted, evidence-based activity that improves quality and reduces measurable error within OSCE assessments. However, no work has focused on the impact of aberrant behaviour by a single, trained examiner within an OSCE.

Summary of work: Routine psychometric analysis of a year 3 undergraduate OSCE revealed unsatisfactory Station-level metrics (SLM) for 4 stations with poor R-squared correlation and alpha-with-item deleted metrics. These resulted from an outlying assessor, who had examined each of these stations over a 2 day OSCE assessment.

Summary of results: Identification of the outlying assessor revealed him to be experienced and trained. The assessor was unable to account for the errors in checklist completion, but was clear that the awarded global grades were correct. A range of resolutions was considered, with the corrective action based on estimation of his checklist marks from the overall grades) led to significant improvements in SLMs, a rise in the overall cronbach’s alpha from 0.7 to 0.745, and critically, 2 additional students passed the OSCE.
Conclusions: High quality assessor training is no guarantee of assessor compliance within an OSCE, with the potential to impact significantly on candidates and institutions.

Take-home messages: Routine OSCE analysis should focus as much on assessor behaviour (mark and grade profiles) as student performance.

8E2 Sequential testing: does reality meet expectations?
G Pell*, M Homer, R Fuller (University of Leeds, LIME, Leeds, LS2 9NL, UK)

Background: Institutions have conflicting pressures of quality, feasibility and cost in the assessment of students. Students desire a demonstrably fair assessment which is, ideally, completed by all within a single academic year. Previous work has outlined the theoretical case for sequential testing, with anticipated benefits of increased reliability in the critical area, reduced costs, and completion of student progression before the end of the academic year. Institutions have conflicting pressures of quality, feasibility and cost in the assessment of students. Students desire a demonstrably fair assessment which is, ideally, completed by all within a single academic year. Previous work has outlined the theoretical case for sequential testing, with anticipated benefits of increased reliability in the critical area, reduced costs, and completion of student progression before the end of the academic year.

Summary of work: Analysis of OSCE and written performance for final year medical undergraduates in a new sequential testing format. Examination of how the new format worked, and the extent to which anticipated benefits were realised.

Summary of results: Results include a detailed analysis of the delivery of the sequential format, the proportion of students who failed to pass the first part of the sequence, together with how they performed overall in the full sequence. We will also detail any important issues that arose during the implementation of sequential testing.

Conclusions: Based on our data and experience, we will examine the practicalities of delivery of sequential testing and its tangible benefits.

Take-home messages: Theoretical models of sequential testing require careful implementation to realise benefits.

8E3 Using Domain Templates to Improve Examiner Ratings in a High Stakes OSCE
B Holmes*, R Maudsley‡, L Mosher‡ (Dalhousie University Faculty of Medicine, Halifax, Canada; College of Physicians and Surgeons of Nova Scotia, Halifax, Canada)

Background: The Clinician Assessment for Practice Program uses a 12 station OSCE to assess IMGs for direct entry into family practice with Physician Examiners (PEs) who are active, experienced family physicians in urban and rural practice.

Summary of work: PEs receive on-line and group orientation. PE scoring has evolved since 2005 from detailed checklists to global ratings. In 2010 PEs used a checklist as a guide (but not actually scoring it) to aid global ratings. In 2011 domain templates were introduced to provide better guidance and standardization for global ratings.

Summary of results: For history, physical, problem definition and diagnosis, and investigation and management domains a separate template was developed. Each comprised 3-5 key elements capturing the essence of satisfactory performance. Brief descriptive anchors were given to differentiate performance on a 6-point scale. PEs also provided global ratings for communication skills, speaking skills, professional/ethical behavior and an overall global rating. Key features for each case are used to guide the latter rating.

Conclusions: PEs found the templates to be more helpful in determining global ratings.

Take-home messages: Examples of domain templates will be illustrated to show how they can be used to improve PE global ratings.

8E4 Development of a review form for OSCE stations: validity, relevance, plausibility and realizability have to be checked before using the station
S Kujumdshiev*, Ch Conrad, TOF Wagner (Johann Wolfgang Goethe-University Frankfurt, Department of Internal Medicine, Theodor-Stern-Kai 7, 60590 Frankfurt, Germany)

Background: A standardized review form making the evaluation of stations efficient is important.

Summary of work: The first version was developed with the Delphi procedure. 30 OSCE observers reviewed stations blindly. 44 observers filled in the second version form before and after examining. Stations had been reviewed before by an expert. Scores and score limits were analyzed.

Summary of results: Criteria for OSCE stations were validity, relevance, plausibility and realizability. Each criterion had to be scored from 1 to 10, multiplied with importance and added to general score with a maximum of 100. Score limits for usable, improvable or not usable stations were set. Observers specified station difficulty; stations between 0-1 and 9-10 cannot be used at all, 2-5 for lower grades and 6-8 for higher grades. The usable station was rated as such by 87%; non-usable by 67%. The score limits were: 0-60 = non-usable, 61-75 = improvable, >75 = usable. 93% of the
observers in the second test gave scores higher than 60. Difficulty lay between 3 and 8 in 85%. Difficulty was rated significantly higher afterwards (T= 44, p=0.012).

**Conclusions:** The review form is a comprehensive and valid instrument for reviewing stations.

**Take-home messages:** Using a form for reviewing OSCE stations is a very efficient method.

**8E5  Improving the validity and reliability of OSCE scores through a comprehensive measurement instrument**

_E Tor*, J Macnish, C Steketee, A Wright (School of Medicine Fremantle, The University of Notre Dame Australia, PO Box 1225, Fremantle, WA6959, Australia)_

**Background:** As an integral tool for clinical skill assessment, the quest to enhance the validity and reliability of OSCE scores should be ongoing.

**Summary of work:** A new instrument with a wide spectrum of scales that allow objectivity and precision (i.e. checklist, process performance rating, and an overall global rating) was introduced, replacing the use of holistic numerical scoring. The new marking format was piloted and used in nine OSCE stations for first year students and 14 OSCE stations for second year students in 2010. It was also specifically designed for computerized scoring using Optical Mark Recognition software.

**Summary of results:** Findings suggest that the new instrument is well accepted by examiners for its ease of use and enhanced objectivity. Empirical evidence also indicates better discrimination for students' clinical skills, stronger internal consistency, greater inter- and intra-station reliability, and improved individual examiner marking consistency.

**Conclusions:** The validity and reliability of OSCEs can be enhanced with the use of practical scoring scales that offer examiners greater objectivity and precision.

**Take-home messages:** The procedural nature of the OSCE should not preclude the incorporation of scales targeting various levels of objectivity and precision to enhance the validity and reliability of student results.

**8E6  What do faculty and simulated patients (SP) evaluate? Analysis of global rating (GR) and domain scores of OSCE**

_M Tagawa*, K Ikeda (Kagoshima University, Graduate School of Medical and Dental Sciences, Center for Innovation in Medical and Dental Education, Kagoshima, Japan)_

**Background:** GR is commonly used for assessing clinical competence. SP assessment has been validated by reliability and correlation study, but different perspectives of faculty and SP raters have not been examined.

**Summary of work:** Six SP cases in OSCE encountered by sixth-year medical students at Kagoshima University were analyzed. Items of information gathering (I), physical examination, explaining the diagnosis and plan (DP) to SP were scored by an in-room faculty rater, while communication and interpersonal skills (C) were scored by the same faculty and an SP. Clinical reasoning (R) was scored by three faculty raters based on medical records. Correlation of faculty and SP GRs and domain scores were examined.

**Summary of results:** Faculty GR correlated with R, DP, and C by faculty. SP GR strongly correlated with C by SP, weakly correlated with I and C by faculty, but not correlated with R.

**Conclusions:** Faculty evaluated R while SP evaluated her impression of C, when they score global rating.

**Take-home messages:** Faculty and SP raters evaluated different aspects of clinical competence. Therefore, the translation and use of GR scores requires care.

**8E7  Rater training increases scoring concordance of OSCE in certain, but not all items**

_C C Chien*, 2 M R Hsieh*, 3 C J Hung*, C W Yang*, S T Lee* 4 (1The Division of Nephrology, Department of Internal Medicine; 2Department of Medical Education; 3Section of Cardiovascular Surgery, Department of Surgery; 4Neuropsychiatric Section, Department of Neurosurgery; Chang Gung Memorial Hospital, Taiwan)_

**Background:** The consistency of rating is always a concern of an OSCE test. It is controversial whether training of the rater will influence the inter-rater reliability of the assessment. The authors investigated the correlation of training of the rater and what types of item will be affected. The analysis is intended to provide better module of training of the rater.

**Summary of work:** The authors invited 26 senior experienced faculties who have been OSCE raters for at least 2 years to score three OSCE stations with the same scenario. The scores of each item in the stations were compared. Inter-rater reliability was calculated with Cronbach alpha. The response of training of the rater was compared. Raters then were asked to score a different station. The concordance of the raters was compared with the previous one.

**Summary of results:** Training affects scores in communicating skills and making a diagnosis, but not in taking history and doing physical examination. The effect of concordance disappears if the raters are asked to score a case of a new scenario.

**Conclusions:** Rater training helps to provide more consistent assessment in certain skills, such as making a diagnosis and communicating. Training might be helpful in the setting of a similar scenario, but has little impact on a new case.
Take-home messages: In order to have the best effect, rater training should use exactly the same scenario to be examined.

8F Short Communications: Patient Safety

8F1 Teaching Teamwork? Using simple projects to aid complex learning and assessment within an integrated curriculum
Rob Lane*, Anne-Marie Reid, Richard Fuller (Leeds Medical School, Leeds Institute of Medical Education, Level 7, Worsley Building, University of Leeds, Leeds LS2 9NL, UK)

Background: A key output of the recent review of the Leeds MBChB curriculum is the delivery of a pan-curriculum module covering themes core to professional development. This encompasses patient safety, learning and teaching, career development, professionalism, understanding health services, leadership and management.

Summary of work: A challenge was to integrate these themes into inspiring projects which would achieve horizontal and vertical integration throughout the programme (Harden 2009). This aims to achieve ‘contextualised learning’ (Regeher and Norman, 1996), with a consequent challenge in matching authentic assessment to this integrated approach.

Summary of results: Students drew on the module’s key themes by investigating another country’s healthcare system in teams. Aims were met through implementing strategies for self-regulated learning including peer feedback on their team performance, triggering reflection and change. Assessment involved a ‘passport’ across themes, awarding a non-graded pass and rich tutor feedback congruent with assessment for learning (William 2009). Students were able to demonstrate progression in a number of curriculum areas and identify support requirements.

Conclusions: Feedback indicates students are contextualising learning from key themes in an integrated way as evidenced by the quality of the passport assessment submissions.

Take-home messages: Simple projects, which encompass careful forward planning, can integrate and reinforce learning whilst assessing multiple facets of the curriculum.

8F2 Interprofessional Education in Undergraduate Medical Curriculum: One Approach to Improve Patient Safety
A Kearney*, O Heath, S Peters, J Barrett (Centre for Collaborative Health Professional Education, Faculty of Medicine, Memorial University, Room 3467 School of Nursing, St. John’s, Newfoundland A1A 2P4, Canada)

Background: An interprofessional team approach improves patient safety and quality of care by facilitating more effective communication and shared responsibility for patient care. The Newfoundland and Labrador Task Force on Adverse Health Events recommended the creation of interprofessional education (IPE) curriculum at Memorial University on patient safety. Concurrently, the Faculty of Medicine was renewing the Undergraduate Medical Education program, based on CanMEDS competencies and objectives, including those related to patient safety.

Summary of work: An interprofessional education module for students in medicine, nursing, and pharmacy was created by a team of faculty and staff from participating academic units and community experts. The module consists of case-based learning encompassing on-line and face-to-face discussion of key issues related to patient safety, a standardized patient simulation of disclosure, and a plenary discussion led by a panel of experts. Evaluation results were mapped to competencies and objectives.

Summary of results: There was a high level of student satisfaction with the module, and significant short term impact on student knowledge and attitude toward interprofessional teamwork, patient safety and adverse event disclosure.

Conclusions: Some short term gains in attitude towards adverse event disclosure were lost over time indicating a need for continued curriculum in health professional programs.

Take-home messages: Patient safety must be reinforced in curriculum.

8F3 Effects of an undergraduate course on patient safety: transfer from learning to behavior
J.M. de Feijter*, W.S. de Grave1, R.P. Koopmans2, A.J.I.A. Scherpier2 (1Maastricht University, Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht, The Netherlands; 2Maastricht University Medical Centre, Department of Internal Medicine, Maastricht, The Netherlands; 3Institute for Education, Maastricht University, The Netherlands)

Background: We have developed a course on patient safety, which aimed to increase the awareness of final year students about patient safety. Although existing literature on learning about patient safety is extensive, knowledge about how a student transfers theoretical knowledge into practice is limited.

Summary of work: The aim of this study was to gain insight into how students applied knowledge learned in a course on patient safety, based on workplace learning and reflective journaling, into practice. We performed a
qualitative study of 32 final year undergraduate students, using focus groups. Template analysis was used to analyze and interpret the results.

**Summary of results:** Students explained how they thought about patient safety issues before and after the course and how their attitudes, concerning system thinking and diagnostic error, had changed. They also described situations in which they had showed different behavior based on what they had learned.

**Conclusions:** The topic of patient safety can be used for a training in which theory and practice have to be integrated by the participants. The course in which students have to transfer learned theory into practice proved to be a good method as students showed changes in their behavior, which they accredited to taking the course.

**8F4** Team training in human factors: Follow up and transfer of learning

*N Jenkins*, R Ellis*, M Piper, J McFetrich, S Corbett (Northumbria Healthcare NHS Foundation Trust, Rake Lane, North Shields NE29 8NH, Tyne and Wear, UK)

**Background:** Training used to reduce non technical errors is being used in medicine to enhance Patient Safety. It aims to enhance leadership, teamwork, communication, decision making, and situational awareness.

**Summary of work:** The Human Factors and Simulation Training (HuFaST) group based in a UK NHS Trust delivers training events using Human Factors theory. The training involves whole clinical teams, simulated scenarios based on critical incidents and action planning with follow-up interviews to ensure the transfer of training into practice. Effectiveness of training is evaluated using the Safety Attitude Questionnaire (SAQ) before and after training, post-training evaluation forms and during a follow-up visit with teams to review the implementation of their action plan.

**Summary of results:** Results of twenty training days are presented. The SAQ data shows marginal changes. The evaluation forms and post training follow up interviews show an increased awareness of the importance of human factors and its impact on patient safety, and real changes in practice.

**Conclusions:** The HuFaST is highly valued by clinical teams and has led to key changes in routine practice that enhance patient safety. The small changes found in the SAQ were attributed to overestimation of safe practice prior to training.

**Take-home messages:** Team training in human factors is valued by teams within the NHS and can change clinical practice. The transfer of learning and reduction in non-technical errors are difficult to measure.

**8F5** Medical education in practicing interprofessional teams: Improving collaboration and patient safety

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**Background:** Improving collaborative safe patient care in practicing teams is critical because students observe and model the behaviour of their preceptors. One of the most significant patient safety challenges identified for practicing teams is the interprofessional transfer of patient information. This paper describes an innovative intervention developed to address this issue on an inpatient medicine team.

**Summary of work:** A workshop was implemented with the goals of increasing knowledge and developing solutions for barriers to collaboration and safe patient care identified by the team including medical residents and physicians involved in all aspects of the intervention. Prior to the intervention, all team members were surveyed about barriers on the unit to interprofessional transfer of patient information and the results shaped the content of the session. Intervention follow-up includes communicating identified barriers and solutions to management and tracking of implementation of solutions.

**Summary of results:** Preliminary intervention results show very high satisfaction and a significant increase in knowledge about collaboration and patient safety (p<.001) with a large effect size (eta squared=.56). Six weeks post-intervention, 22.2% of identified solutions have been acted upon.

**Conclusions:** Interprofessional education on patient safety for residents, physicians and healthcare teams is enhanced when the team identifies their own barriers and solutions to safe, quality care.

**8F6** Measuring the emotional response to patient narratives in a patient-led intervention on patient safety: results from a randomised controlled trial

*Z Thompson*, V Jha, N Quinton, A Winterbottom, J Symons, C Melville, D Torgerson, I Watt, J Wright (Yorkshire Quality and Safety Research Group, Bradford Institute for Health Research, Bradford Royal Infirmary, Duckworth Lane, Bradford, BD9 6RJ, UK)

**Background:** Interventions involving patient narratives of personal safety incidents are an emerging means of facilitating patient safety training. A pragmatic trial of a patient-led intervention highlighted the need to capture the emotional response of learners.

**Summary of work:** An RCT was conducted within a Foundation school in Northern England. The intervention consisted of patient safety champions
narrating personal experiences of safety incidents to facilitate discussion. The Positive and Negative Affect Schedule (PANAS) scale, a reliable and validated 20-item self-report measure of affect was used as a main outcome measure. This was administered 1 week before (T1), immediately before (T2) and immediately after teaching.

**Summary of results:** Ten sessions with 150 trainees were carried out with randomisation to intervention or control sessions. Baseline scores at T1 were similar in both groups. At T2, significant differences in scores between groups occurred: interested, distressed, nervous, jittery and active. More importantly, at T3, significant differences occurred for 12 affects, including upset, guilty, scared, alert, ashamed, inspired and attentive.

**Conclusions:** Patient narratives trigger emotional responses amongst learners that help facilitate engagement with consequences of safety incidents.

**Take-home messages:** Measuring emotional response is an important outcome measure of any intervention using patient narratives to teach about patient safety.

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**8G Short Communications: Clinical Reasoning**

**8G1 Clinical experience and clinical reasoning** Rushmi Shahi, David Prideaux*, Helena Ward, Lucie Walters, Sarah Mahoney (Flinders University, Innovations in Clinical Education School of Medicine, GPO Box 2100, Adelaide, South Australia 5001)

**Background:** Recent literature has emphasised the role of experience in clinical reasoning. Greater patient contact can assist students in developing pattern recognition.

**Summary of work:** In the clinical years of the medical course at Flinders University students can choose between rotations in acute hospitals and one year longitudinal community-based programs in rural or outer metropolitan settings. In this study the nature and frequency of patient contact in the three programs is recorded and related to the results of a test of clinical reasoning.

**Summary of results:** In a pilot study with a small number of students in 2010 the clinical reasoning of students in the rural community-based program was greater than that of the students in the hospital program but the difference was not significant. Analysis of data from a larger study in 2011 has revealed important differences in patient contact in the three programs but clinical reasoning is yet to be tested.

**Conclusions:** The students in community-based clinical education programs have greater patient contact than those in hospital programs but the effect on clinical reasoning is not yet established definitively.

**Take-home messages:** Students in community-based clinical education programs have greater patient contact with potential effects on the development of clinical reasoning.

**8G2 Cognitive Continuum Theory (CCT): A different perspective on teaching clinical reasoning**

EJFM Custers (University Medical Center Utrecht, Center for Research and Development of Education, HB Building, 4.05, P.O. Box 85500, 3508 GA Utrecht, The Netherlands)

**Background:** Recently, several papers have appeared about the respective roles of the analytical (deliberate, conscious) versus the intuitive (unconscious, non-analytical) system in diagnostic reasoning.

**Summary of work:** According to Cognitive Continuum Theory, these systems form a continuum, rather than a dichotomy, ranging from pure analytical to pure intuitive processes, with quasi-rationality covering the middle ground. Most importantly, the continuum represents tasks as well – including clinical reasoning tasks.

**Summary of results:** Novice students will approach diagnostic tasks in a predominantly analytical mode; with increasing experience, processing shifts gradually toward the intuitive end of the continuum. For optimal learning, the clinical problems students are expected to solve will have to match the proper position on the cognitive continuum. Clinical Problem Analysis (CPA) is an instructional format that epitomizes an analytical approach to clinical problem solving.

**Conclusions:** Appropriate instruction in clinical reasoning requires that novice students are presented with problems that can be approached in an analytical way, such as CPA, to enable them to gradually develop the non-analytical knowledge structures experts use in routine problem solving.

**Take-home messages:** For optimal learning of clinical reasoning, the problems students have to solve should move, with increasing experience, from the more analytical toward the more intuitive end of the cognitive continuum.

**8G3 Research on clinical reasoning: More than making a diagnosis**

M Goldszmidt*4, Paul Minda3, Georges Bordage3

(1Schulich School of Medicine & Dentistry, Centre for Education Research & Innovation, London, Ontario, Canada; 2University of Western Ontario, Department of Psychology, London, Ontario, Canada; 4University of Illinois at Chicago, USA)

**Background:** While medical reasoning research has the potential to influence clinical and teaching practice, to date, its impact has been limited by a nearly exclusive focus on diagnosis. To begin setting a new agenda for
research in this field, the purpose of this study was to identify the spectrum of reasoning tasks that a physician engages in during a clinical encounter.

Summary of work: A purposeful sample of 46 international researchers in the field participated in a two-phase, modified online Delphi in order to develop consensus on a list of reasoning tasks.

Summary of results: Thirty participants responded (65%); 66% were physicians and 38% had doctoral degrees. As a result of the Delphi, 22 reasoning tasks were identified and organized into three broad categories: 1) Problem identification and agenda setting, 2) Diagnostic tasks, and 3) Management tasks. Examples of each include: Identify active issues; identify modifiable risk factors; determine the impact of co-morbid illness on management.

Conclusions: The identification of these 22 reasoning tasks represents a first step in broadening the research agenda to embrace this broader list of tasks and their interactions.

Take-home messages: Results can be used to inspire new research questions such as “how do different levels of performers deal with task switching and multitasking during an encounter”?

8G4 Assessing clinical reasoning among experienced nurses as a base for a new assessment method for nursing students
Elénita Forsberg*, Uno GH Fors (1School of Social and Health Sciences, Halmstad University, Sweden; Dept. of Computer and Systems Sciences, Stockholm University, Stockholm, Sweden)

Background: Postgraduate nursing education is a program which require knowledge and skills that guarantee the quality of professional competence. Many courses in nursing have learning outcomes including clinical reasoning (CR). Assessment is an important part of the learning process and should assess clinically relevant performance. Virtual Patients (VPs), have successfully been used in nursing education to promote learning and also been piloted for assessment of CR.

Summary of work: However, it remains to solve how to score and grade VPs for assessment. Therefore, we need to determine the best practises that the assessment should be based on. This study investigates how clinically experienced specialist nurses apply CR for clinical decision making, to create the basis for a holistic assessment method based on VPs.

Summary of results: VP cases representing different subdisciplines in paediatrics are implemented in a VP-system. 40 experienced nurses will work in pairs to solve the VP-cases, and their actions are logged in terms of what they do and in what order. Think Aloud is used to capture their thinking process.

Conclusions: This study will give information about how experienced nurses solve clinical cases and thus which issues that should be assessed in VP-based assessment for nursing.

Take-home messages: VP-based assessment for specialist nursing education is being developed.

8G5 Can equals be different? Exploratory study of differences and similarities in Clinical Reasoning strategies between PBL vs BMedSci students
A L Da Silva*, R Dennick (Medical Education Unit, Faculty of Medicine and Health Sciences, University of Nottingham, Medical School, Queen’s Medical Centre, Nottingham, NG7 2UH, UK)

Background: Clinical Reasoning is one of the most important skills of a clinician. A systematic literature search shows that there is a remarkable scarcity of studies dedicated to the identification of the effects of different curricula on the development of clinical reasoning in undergraduate Medical Education. Research shows also a lack of objective instruments to assess clinical reasoning at this level that can be used with large samples.

Summary of work: We developed an empirical and theory-driven instrument (Clinical Reasoning Test-CRT) aimed at evaluating and differentiating between clinical reasoning strategies used by medical students at an undergraduate level. The CRT revisits some of the characteristics and strengths of other clinical reasoning assessments, mainly PMP, DTI, KF, CRP and SCT(you need to spell these out). Thirty-five students with only minimal clinical experience, from two different medical schools PBL and a Systems Integrated were asked to answer the CRT.

Summary of results: Students from a PBL curriculum seem to use more heuristic reasoning strategies, while students from a science based curriculum, seem to adopt reasoning strategies that reflect a more analytic hypothetic-deductive approach to the cases. Differences and similarities between the two cohorts are discussed, and further research direction highlighted. Differences and similarities between the two cohorts are discussed, and further research directions highlighted.

Conclusions: Educational strategies can have an impact on student’s clinical reasoning ability, as measured by the CRT.

Take-home messages: Medical Schools should make the necessary efforts to encourage students to start develop their clinical reasoning in the pre-clinical years.

8H Short Communication: Student engagement with the curriculum
8H1  Medical Student is more than a learner: the roles of medical student in 21st century
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Background: Saudi Arabia has witnessed a fast movement in medical education. Currently, there are more than thirty medical schools in the Kingdom of Saudi Arabia, twenty four public and seven private schools. Student is considered as the nucleus of any educational program. The practice of medicine in 21st century has changed. To add more roles for future doctors, medical schools should be responding to the core development in future medical practice. Traditionally, student focused mainly on learning how to learn medicine. However, medical student can play more than one role.

Summary of work: This paper aiming at introducing new roles of medical student in 21st century.

Summary of results: Two semi-structured focused groups were undertaken during the month of June 2011. The first one with a group of faculty members who actively involved in both undergraduate and postgraduate education. The other focus group with medical students from deferent levels of undergraduate program at three medical schools in Riyadh, Saudi Arabia.

Conclusions: Twelve roles of medical student were identified out of the two focus group sessions; 1. Active learner. 2. Curriculum developer. 3. Assessor. 4. Researcher. 5. Facilitator. 6. Teacher. 7. Community heath promoter. 8. Manger. 9. Leader. 10. Organizer. 11. Faculty developer. 12. Professional developer

Take-home message: Conclusions: Medical student in 21st century is really more than a learner. Medical schools can play a major role for encouraging students to broaden their roles. Not every single student has the potential to play all twelve roles. However the majority can do that. Recommendations: Quantitative study with larger sample size is recommended for testing the current finding in larger scale.

8H2  Students versus Consultants? Comparative study of student and consultant opinions of clinical education
V Vijayakumar*, D Bee (Academic Unit of Medical Education, University of Sheffield, Sheffield, UK)

Background: During the clinical years of the University of Sheffield MBBChB programme, students learn predominantly in the hospital. The researcher, a medical student, identified a number of disparities in the quality of clinical education both from first hand experience and second hand anecdotal evidence.

Summary of work: A qualitative study using a grounded theory approach with focus groups and interviews of clinical students and hospital consultants across a number of sites and specialties.

Summary of results: The analysis identified 4 main domains impacting on Learning Activities: Students, Tutors and Staff, the Medical School and the Trust/Management. Students and Consultant had similar expectations of Learning Activities and the role of Tutors but had different opinions on issues relating to the Medical School and the role of Students. Interestingly students had little awareness of the influence of the Trust/Management on clinical education.

Conclusions: The research identified the current strengths and weakness of the clinical curriculum and a wide variety of opinions regarding clinical education. Students and Consultants were generally in agreement about standards of clinical education though students had a poor understanding of the wider influences on their education.

Take-home messages: The project highlighted the strengths of using a student as a researcher in removing outsider bias and gaining more valid data. The research found that in order to engage students and consultants in the educational process three main qualities are required: Communication, Transparency and clear Learning Objectives.

8H3  Evaluation of the Educational Value of a Student-led Interprofessional Workshop for Quality Improvement and Patient Safety
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Background: Quality improvement and patient safety (QIPS) are becoming increasingly important in modern healthcare. The Institute of Healthcare Improvement (IHI) Open School is a global network consisting of student led societies aiming to promote QIPS.

Summary of work: As leaders of Open School Cambridge, we have piloted a student-led interprofessional workshop. A prospective longitudinal study evaluated the current knowledge and attitude of healthcare professional students towards QIPS, and the impact of our workshop on these factors.

Summary of results: The median score for students’ subjective evaluation of their confidence of QIPS knowledge increased from 3 to 4 on the Likert scale (p<0.001). Furthermore, an objective assessment showed an increase in students’ knowledge from an average of 56% to 94% (p<0.001).

Conclusions: For the first time, we have shown that a student-led QIPS workshop can successfully increase the confidence and knowledge of the participating students.
students. Peer-to-peer student led teaching is essential to the propagation of QIPS in the student community. Furthermore, interdisciplinary participation is effective as it reflects the realities of clinical practice.

**Take-home messages:** Our study demonstrates that QIPS workshops can be efficiently delivered by a student-led team. We propose that such workshops should be incorporated into the healthcare professional student curriculum, to actively engage future healthcare professionals in QIPS.

**8H4 Learning to teach in the undergraduate medical curriculum: a Delphi study of UK experts in medical education**

*M T Ross*, C Kreber (The University of Edinburgh, Centre for Medical Education, Edinburgh, UK)

**Background:** The UK GMC require medical graduates to be able to teach, although it is not clear what this means in practice. This is the first study in a series exploring perspectives on core learning outcomes in teaching for undergraduate medicine.

**Summary of work:** Directors of nine UK undergraduate medicine and nine medical education programmes were randomly selected to participate in a Delphi. Round 1 asked open questions. Data were analysed thematically. Learning outcomes were synthesized for rating in Round 2. Combined responses were added for Round 3.

**Summary of results:** All 18 Delphi panellists completed Round 1. Fourteen thought medical students should learn to teach; 3 gave qualified responses; and one thought they should not, withdrawing before Round 2. 144 learning outcomes in teaching were synthesized from Round 1 data, and 9 more added from Round 2. Combined ratings for most were ‘important’ or ‘very important’ for medical students to learn, with a high degree of consensus.

**Conclusions:** 153 detailed learning outcomes in teaching were generated by the panel, most of which they felt should be achieved in the undergraduate medical curriculum.

**Take-home messages:** Most of our sample of UK medical education experts felt medical students should learn to teach, but opinions still vary and further research is required.

**8H5 Teach to Teach: The Medical Education Pathway at the University of Rochester School of Medicine and Dentistry**

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**Background:** The purpose our Medical Education Pathway (MEP) is to prepare students to become academic medical educators.

**Summary of work:** The goal of the program is to teach students how to give instruction to large and small groups, write high quality learning objectives and exam questions, perform assessments and give feedback, and critically evaluate the medical education literature. MEP students give lectures and do small group teaching during their third and fourth years supervised by the mentor or course directors, who, along with the student audience, provide formal feedback. MEP students also attend workshops as well as journal clubs that focus on teaching and learning theory.

**Summary of results:** Over 40 students have enrolled in the program. Audience student feedback has been positive, and MEP students themselves felt the value of both self-reflection and feedback for their growth as teachers. The subject matter that the student lectures cover is very diverse and some topics are some are new contents for the curriculum. An unexpected result of the program was an increased interest in the MEP by first and second year students who were the recipients of MEP teaching.

**Conclusions:** Programs to provide medical education experience to medical students can be a valuable experience that can foster interests in teaching.

**Take-home messages:** Formal training in medical education is an important means to prepare students to become medical educators.

**8H6 Student-led evaluation- worth the effort?**

*C Coulby, J Laxton, C Murray, R Fuller (University of Leeds, Leeds Institute of Medical Education, Room 7.09, Level 7 Worsley Building, Clarendon Way, Leeds, LS2 9JT, UK) Presenter: G Frith*

**Background:** Mobile learning plays an increasing role in healthcare education. Evaluation of this learning is usually institutionally led, with little student input regarding their perceptions of value in mobile learning.

**Summary of work:** Leeds ‘MBChB mobile’ supplied 500 senior medical students with iPhones to enhance their learning. Students were supported in designing and implementing their own evaluation examining student and staff perceptions relating to iPhone provision, using questionnaires and focus groups. Students contributed to a thematic analysis of data which was triangulated against Faculty-led research.

**Summary of results:** Students were successful in designing and implementing their evaluation, which explored a range of areas not undertaken by Faculty. Most themes were concordant with Faculty-led research, but student work revealed new/discordant themes about iPhone related professional behaviour concerns. Successful delivery of this evaluation required significant facilitation.
**Conclusions:** This student-led approach added dimensionality to the evaluation, enhancing the nature of data captured and realising benefits to Faculty led research. However, student-led analysis provided less value as a result of limited experience and interpretation

**Take-home messages:** Student-led approaches facilitate depth of evaluation, providing tangible benefits to students and faculty, but require significant resource to ensure authentic evaluation.

**8I Research Papers: Postgraduate Education/CME**

8I1 “Getting up the next morning”: Surgeons’ reactions to adverse events in the Operating Room

Shelly Luu1, Glenn Regehr1, Lucas Murnaghan1,2, Steven Gallinger1, Carol-anne Moulton1,4 (1Wilson Centre, University Health Network, Toronto, Ontario; 2Centre for Health Education Scholarship, University of British Columbia, Vancouver, British Columbia; 3Hospital for Sick Children, Toronto, Ontario; 4Department of Surgery, University of Toronto, Canada)

**Introduction:** Adverse events are inevitable in surgical practice but many surgeons are poorly prepared for accompanying psychological events, as well as subsequent short and long-term effects on professional practice. In this study, we explored surgeon reactions to error in order to develop a framework for understanding the cognitive and emotive responses involved with these experiences.

**Methods:** In this constructivist grounded theory study, semi-structured 60-minute interviews (SL & CM) were conducted with 15 surgeons, purposively sampled from both genders, and different specialties and experience levels. These interviews explored surgeon experiences with recent adverse events and major errors, and a preliminary framework was created from the emergent themes. Subsequently, brief interviews were conducted with surgeons to explore real-time experiences. Theoretical sampling allowed the exploration of themes until saturation of all major themes occurred. A reflexive approach was adopted throughout.

**Results:** Throughout the interviews, surgeons consistently described feeling a “perceived uniqueness” [being female (female surgeons) or being an ‘outlier’ (male surgeons)] in the strength of their psychological reactions. Surgeons experienced a consistent set of profound reactions and phases with cognitive and emotive components. The first phase was characterized by a feeling of failure and self-doubt (“am I good enough?”). The second phase involved a personal assessment of the extent of the surgeon’s contribution towards the event (“was it my fault?”). During the third phase surgeons invoked coping strategies for dealing with the event whilst continuing with routine practice (“moving on”). These included use of counterfactual thinking that included both a judgmental bias component (“if only he hadn’t done that, this would not have happened”) as well as a behavioural modification component (“At least I have learned something, I won’t do that again”). Finally, surgeons noted a long-term cumulative effect whereby they incorporated their reactions into their sense of self.

**Discussion and conclusion:** The development of a framework that describes surgeons’ reactions to adverse events will help surgeons understand their emotional reactions and thoughts. In addition, the use of different counterfactuals has been linked to different cumulative effects. It is suggested that using judgmental biases lead to little change in the surgeon’s future behaviour, whereas behavioural modification counterfactuals invoke cumulative change. Predominant usage of one counterfactual type over the other may be the basis of various archetypal surgeons: the ‘cowboy’ and the ‘too timid’. An understanding of the surgeon reaction framework might enable surgeons to more appropriately focus on their role in the event and provide better opportunities for learning.

8I2 Limited awareness of strategies for approaching change management by departmental leading consultants

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**Introduction:** Clinical departments are constantly changing their postgraduate medical education (PGME) programs to meet altering societal and educational demands. There usually is a “leading consultant” responsible for PGME at departmental level, who is therefore responsible for introducing these changes. Organizational change is a subject of interest in corporate business and social psychology, in which the approach of the person in charge is considered important. In PGME, there usually is limited attention for the leading consultant’s approach to organizational change. We investigated how leading consultants deal with these changes. The research questions of our exploratory study were: which approaches to change PGME do leading consultants utilize? What are factors that influence their approaches?

**Methods:** This interpretive phenomenological study was performed in the Netherlands in 2010-2011. Sixteen leading consultants for PGME were interviewed. Transcripts were thematically analyzed.
using template analysis and theoretical saturation was reached, meaning the final transcripts introduced no new themes. Theoretic background for the interview structure and template analysis was found in change management literature within corporate business and social psychology, including themes like leadership style, communication, and personal beliefs about change.

**Results:** Three themes about consultants’ approaches of change were recognized. The process (theme 1) consists of the consultant’s efforts and tasks within the change process. The consultant approaches the process with a certain ‘strategy’; a strategic plan about which elements (tasks, efforts, sub-processes) should be involved in the process and the sequence of these elements to achieve the intended change. Usually only a few elements are deliberated. Communication is often considered consciously. It is recognized as an important element, since it is used for both the development and performance of a strategy. Awareness of the existence and development of strategies varies between persons and most consultants seem to have a limited repertoire of elements of strategies. Two types of factors influence the consultant’s approach and the course of the process. Personal factors (theme 2) include leadership style, beliefs about change, motivation, task interpretation, reflective thinking and education. Contextual factors (theme 3) include nature of the change, persons involved and culture.

**Discussion and conclusion:** Leading consultants have limited awareness of their strategies to change and lack possibilities to adapt these strategies. This causes their approaches to be rigid, while adaptation to context is considered important for effective change management. Future research and interventions could be aimed at awareness, of leading consultants and others involved, of strategies to approach changes in PGME.

**References:**

**813  The Effect of Graduate Medical Education on Patient Outcomes: a Systematic Review**

**Introduction:** Graduate medical education (GME) is intended to prepare residents to provide high quality of care. However, the impact of GME training programs on (future) patient outcomes is unclear. Therefore, our objective is to identify the impact of GME on patient outcomes through a systematic review.

**Methods:** In light of current, worldwide modernization efforts in GME, literature was searched from December 2004 until February 2011 using Medline, Cochrane, Embase and ERIC with terms related to GME and patient outcomes. Studies were included if they evaluated GME (i.e. specific training courses, residents’ learning curve or comparing different levels of experience) and the impact on patient outcomes including mortality, morbidity, complications, length of stay and patient satisfaction. Information about participants’ characteristics, applied teaching interventions, patient outcomes, additional outcome measures, effect of GME on patient outcomes and study design was extracted.

**Results:** The literature search identified 2001 citations. Review of abstracts led to the retrieval of 182 full text articles for assessment, of which 105 were included. Study designs included two randomized studies three randomized controlled trials, nine case-control studies, 34 cohort studies and 57 case series. Due to heterogeneity of studies and observational study designs, the possibility to generalize study results to a broader population is low. Therefore, we chose to report study outcomes descriptively. 104 studies focus on patient care as delivered by residents and one study focused on patient outcomes as a result of GME after residents started independent practice as faculty. With adequate supervision, residents achieve similar clinical results compared to faculty (44 studies). Studies report positive trends in patient outcomes with increasing learning experience of residents (ten studies) and increased individual residents’ learning curve (seven studies). New residents are considered a risk to patient care when they start GME (in July). However, no differences in patient outcomes were reported in July compared to other months (13 of 17 studies). Specific training situations yield positive patient outcomes of residents’ care in stepwise programs (17 studies) and in teaching hospitals compared to non-teaching hospitals (10 studies). One study describes the possibility to rank training programs by complication rates of their graduates, thus linking patient outcomes back to where physicians were trained.

**Discussion and conclusion:** We conclude that patient care is not at risk in a GME setting. However, there is a lack of knowledge on how, where and by whom doctors should be trained to deliver high quality care in their careers after GME.

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Asch DA, Nicholson S, Srinivas S, Herrin J, Epstein AJ. Evaluating obstetrical residency programs...
Is a short e-learning course effective at improving paediatric prescribing skills amongst UK Foundation Doctors? An open label randomised controlled trial

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(1Royal Manchester Children’s Hospital, Manchester, UK; 2North Western Deanery, Manchester, UK; 3University of Dundee, Centre for Medical Education, Dundee, UK)

Introduction: Junior doctors make many prescribing errors and these are the single biggest cause of critical incident reports in UK hospitals, occurring in up to 8% of prescriptions. Mortality and morbidity are known to result, with up to 7000 deaths per year in the USA attributed to such errors1. The GMC has recommended improved prescribing be achieved via educational resources, such as e-learning. We designed an e-learning resource for paediatric prescribing and evaluated its effectiveness in a non-blinded randomised controlled fashion.

Methods: Using Gagne’s nine events instructions and the CRISIS criteria for continuing medical education2 as the educational basis, we developed a self-contained, downloadable flash programme consisting of relevant content from the Foundation curriculum. Optional self-assessment exercises, taking 1-2 hours for participants to complete, were included. The content was reviewed by two paediatric pharmacists and piloted before delivery. Volunteer trainees in the North Western Foundation School were randomised for the study, after informed consent, which resulted in 86 in the control and 76 in the intervention groups. All participants were assessed on basic prescribing tasks and completed a prescribing habits/confidence questionnaire. The intervention group completed the e-learning exercise and gave feedback. At 1 and 3 months post intervention all participants were assessed on similar basic prescribing tasks and with the same habits/confidence questionnaire. Prescribing scores were analysed using a two sample t-test and confidence/satisfaction scores with the Wilcoxon signed-rank or rank-sum test.

Results: Both groups showed no pre-intervention differences in their ability to perform the basic prescribing tasks (66.5% vs. 66.4%, p=0.56). Post-intervention, the e-learning group scored significantly higher (62.7% vs. 78.2%, p<0.0001). Participants reported changed prescribing behaviour, with significantly less prescribing without reference materials in the intervention group compared with the control group (38% vs. 30.1%, p<0.05). The feedback on the e-learning exercise was positive with 87% recommending it to be mandatory for Foundation doctors. At 3 months post intervention, the e-learning group still scored significantly higher (68.1% vs. 79.0%, p=0.0001), with improved confidence scores (p<0.0001). There was no significant drop in scores in the e-learning group between 1 and 3 months post intervention (78.0% vs. 79.0%, p=0.80), suggesting retention of skills.

Discussion and conclusion: A short, educationally sound self-administered e-learning intervention can significantly enhance the paediatric prescribing ability, confidence and practice amongst junior doctors for a significant length of time. The use of such a resource to train doctors prior to commencement of paediatric placements should have positive impact on patient safety.

2Harden RM, Laidlow JM. Effective continuing education. The CRISIS criteria.

Starting as a consultant; competent through specialty training or burned out?

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Introduction: In the transition from specialist registrar to hospital consultant, physicians face new responsibilities within patient care and non-clinical tasks, situated in an unfamiliar organizational structure, culture, and amongst new colleagues1. Transitions are associated with raised stress levels and negative emotions and a paucity of research into the transition to consultant exists2. This study was performed to investigate if levels of achieved competence through specialty training are associated with burnout among new consultants. Evidence from research within medical education, burnout, and social psychology resulted in the following hypotheses: 1. A bigger lack of competence, in (1A) medical competencies and (1B) generic competencies is related to burnout among new consultants. 2. A more intensely perceived transition is related to burnout among new consultants. 2. Perceived social support from colleagues and the personal setting protects against burnout among new consultants.

Methods: All 2643 new consultants who registered in 2007-2009 within 27 specialties in the Netherlands received the Transition to Physician Experience Survey
The validated Dutch version of the Maslach Burnout Inventory. Due to the complexity of the model caused by the multiple hypotheses and predictor variables we used structural equation modelling (SEM) for the analysis.

**Results:** Of the 2643 questionnaires, 840 were returned (32%). Most new consultants felt adequately prepared by their specialty training for clinical tasks, and competent in different medical competencies. However they felt unprepared and more incompetent within the generic competencies. Ten percent of the responders met the criteria for burnout and 18% scored high on the emotional exhaustion burnout subscale. Model fit parameters of the hypothetical model were good and all hypotheses, except hypothesis 1A, were accepted. The association between lower levels of generic competence and burnout scores was $r=0.16$, between social support and burnout $r=-0.11$ and perceived intensity and burnout $r=0.24$ (all p-levels $<=$0.01).

**Discussion and conclusion:** This study shows that unpreparedness within generic competencies is related to burnout among new consultants. Many new consultants felt inadequately prepared within different generic competencies needed for their new post. Different hypothesized associations and not prevalence were investigated. Therefore, the response rate was sufficient. These results bring evidence to the widespread debate on the importance of training generic competencies in medical education.

**References:**

**8J1** The impact of longitudinal integrated clinical placements on health care: the patient perspective  
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**Background:** Students completing their medical degree at the University of Wollongong experience continuity of care and clinical supervision during an innovative year-long integrated (community and hospital) clinical placement. This study evaluates the impact of the initiative on patients, who can offer unique perspectives on new approaches to training ‘much-needed’ doctors in their community.

**Summary of work:** Collective case study methodology was used. Semi-structured, face-to-face, interviews with patients provided cases from a number of regional and rural locations. Case data were analysed thematically within each case, and a cross case analysis performed.

**Summary of results:** Initial analysis revealed that patients are willing partners in the development of medical student confidence and competence. Patients perceive that both they and students benefit from continuity of care experiences. They report that when a senior student has the chance to become an integral rather than a peripheral member of local health care team(s), the student value-adds and improves access to patient care.

**Conclusions:** Patients perceive that they have an important contribution to make to medical education and new strategies to address mal-distribution of medical workforce. They value the long-term engagement of senior students in their health care team(s).

**Take-home messages:** The patients’ perspective reveals important insights to enhance and sustain new models of medical education.

**8J2** The influence of the longitudinal learner-teacher relationship in the student experience of assessment and feedback in longitudinal integrated clerkships  
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**Background:** Longitudinal integrated clerkships (LICs) place undergraduate medical students in one community for 6 to 12 months of a clinical year. They create a learning environment with unique socio-cultural qualities. This qualitative study explored how LIC students experience assessment and feedback.

**Summary of work:** The question was: “What is the influence of a longitudinal learner-teacher relationship on the student experience of assessment and feedback in longitudinal integrated clerkships?” Thirteen students from two faculties of medicine placed in six communities across two provinces were interviewed for this qualitative study between weeks 26-36 of the year-long clerkships. The interview framework was modified periodically. Transcripts were iteratively coded by team members who confirmed emergent themes. Six of the 13 participants were interviewed a second time to explore these themes further.
Summary of results: In the context of trusting student-preceptor relationships, preceptor assessment and feedback are experienced as valid and reliable. Students are able to accept critical feedback, which then affords an opportunity for reflection on their learning and self-study.

Conclusions: LICs create unique learning environments in which trusting student-preceptor relationships develop. These relationships have a significant influence on how student experience feedback and assessment and, ultimately, on how they learn.

Take-home messages: Longitudinal student-preceptor relationships positively effect learning in LICs.

8J3 Validation of Gynaecological Emergency Skills Drills (GESD): a Educational Development Tool

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Background: Recognition, assessment, investigation and management of the acutely ill patient is paramount. Experience of this is limited for junior Medical staff (clinician). The intensive 3 hour GESD established in 2008, consists of 6 stations – Miscarriage, Acute Abdominal Pain, Acute Urinary Retention, Hyperemesis Gravidarum, Ovarian Hyperstimulation Syndrome and Post-operative acute deterioration. Validation is required to investigate if GESD improves clinical care.

Summary of work: In 2009/10, validation using a proforma based on local and National Guidelines was undertaken. A score was attached to each parameter. Level of seniority of the clinician was included. Pre-GESD: Investigation and management of patients admitted with hyperemesis gravidarum (over 5 months). Post-GESD: Same assessment undertaken. Performance of both attendees and non-attendees scored (over 7 months). Investigated if improvement in score, if patients seen by a GESD attendee during their stay.

Summary of results: Pre-GESD - average investigation and management score = 13, Post-GESD (i) Attendees =17.5 (ii) Non-attendees = 13.1. Level of seniority of the clinician did not affect scores. Scores improved if patients seen by a GESD attendee during their hospital stay.

Conclusions: Results show GESD improved clinical investigation and management of patients.

Take-home messages: GESD is valid, economical but labour intensive. Translation into E learning could provide continuing/ongoing access.

8J4 Socratic maieutics as a method of small groups teaching of intensive care medicine

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Background: With curricular reforms in the Faculty of Medicine of Lisbon, a discipline of “Intensive Care Medicine” was put into practice in 2008/10 as a facultative one-week course for 4th or 5th year medical students, to promote enthusiasm about intensive care medicine and to focus on severe life-threatening illness.

Summary of work: The “practical work” (5 hrs.) in small groups (3-5 students) inside the ICU was fulfilled with a student-centered approach to task-based learning using the socratic method of maieutics, trying to bring into conscience “latent” stored knowledge from basic disciplines. “As a clever ventilator you are, what would you change to increase exhalation of CO2?”. The primary answers came without thinking, but with some debate, students “reached the light” with clear conclusions. All students were asked about this methodological approach at the end of the ICU period.

Summary of results: The maieutics methodology was considered to be a different new way to learn clinical medicine in a “non-disposable” mode. The discipline was considered to be relevant for student’s actual study and “surely” for their future professional life.

Conclusions: Socratic maieutics proved to be an important/feasible method to use in small groups medical education, namely in teaching/learning intensive care medicine.

Take-home messages: Maieutics can be used in small groups medical education.

8J5 Visual expertise in paediatric neurology

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Background: Visual expertise relies on perceptual as well as cognitive processes. Patient video cases simulate the dynamic diagnostic challenges that may occur when diagnosing patients. This study investigates visual attention and cognitive processes of clinicians diagnosing authentic paediatric video cases.

Summary of work: A total of 43 clinicians with varying levels of expertise diagnosed four video cases of children: two with seizures and two with disorders mimating seizures. Using eye tracking we investigated...
how long clinicians looked at relevant areas in the video cases and we used a concurrent think-aloud procedure to explore the associated clinical reasoning processes.

**Summary of results:** More experienced clinicians were more accurate in visual diagnosis (+77%; p< 0.001) and spent more of their time looking at relevant areas (+18%; p<0.05). They generated and evaluated more diagnostic hypotheses (+20%; p<0.001).

**Conclusions:** More experienced clinicians who analyse patient video cases are superior in focusing on relevant areas and in generating and evaluating diagnostic hypotheses.

**Take-home messages:** Clinicians of varying expertise analyse patient video cases differently. Clinical teachers should take these differences into account when planning educational formats with patient video cases.

**8J6 It’s all connected! Nursing students’ experiences of an integrated case seminar**

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**Background:** Traditionally, nursing students learn medical subjects and nursing separately which makes it difficult to develop an integrated understanding. A case seminar was developed to help students to connect knowledge of diseases with nursing care. The seminar was divided into two parts: small groups examining surgical specimens and patient histories followed by questions related to nursing which were discussed during the second part. The aim of this pilot study was to investigate nursing students’ experiences of this case seminar.

**Summary of work:** 28 nursing students in their 3rd year volunteered to participate. Data was collected in an open-ended questionnaire and analysed with a thematic content analysis approach.

**Summary of results:** The analysis resulted in four themes: motivational, integrative, authentic and collaborative. Students found the case seminar interesting and thereby motivating. The seminars helped them to reach a deeper, integrated understanding of how medical knowledge is related to nursing. They felt that the content of seminars was authentic and helped them to connect to real life situations. The collaborative work in small groups contributed to new insights.

**Take-home messages:** Integrating case seminars could help nursing students to connect medical knowledge with nursing and thereby prepare them for their future professional role.

**8M Short Communications: Gender**

**8M1 Integration of Gender-related knowledge and skills into the new modular medical curriculum at Charité Berlin**


**Background:** Since winter term 2010/2011 Charité has started a new modular medical curriculum. One key goal of the new programme is to directly incorporate gender issues and important concepts of gender medicine in the curriculum to make sure that future doctors have adequate knowledge, practical and communicative skills on gender differences as far as the development, diagnosis and therapy of diseases is concerned.

**Summary of work:** In cooperation with the institute of Gender in Medicine at Charité, it was defined which concepts of gender medicine should be integrated into which module of the new curriculum. Through the participation at the module design sessions and at the meetings of the curriculum development team, it was possible to systematically integrate gender aspects within the new modular curriculum.

**Summary of results:** By now, 12 out of 40 modules have been designed. The integration of compulsory gender-related courses as well as the integration of gender aspects into several lectures and seminars has found great acceptance.

**Conclusions:** In order to successfully integrate gender aspects into the curriculum, it is important to place a person in charge of this task directly into the module design groups and the curriculum development team.

**Take-home messages:** Institutional support facilitates the implementation of gender aspects into medical curricula.

**8M2 Swedish medical students interpret gender in patients’ narratives – an experimental study on gender bias**

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8M3 Gender aspects in learning Basic Life Support
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Background: Learning and training Basic Life Support (BLS) is essential in resuscitation training. Especially quality of external chest compressions within the BLS-algorithm is key to improve patient outcome. The objective of the study was to evaluate a possible gender bias during training and learning BLS.

Summary of work: First-year medical students (n=251) were randomly allocated in three groups for BLS-training after baseline assessment: Group Female (F): Only female participants practising together; Group Male (M): Only male participants practised together; Group Standard (S): male and female participants. All participants were tested on a manikin in the same cardiac arrest single-rescuer-scenario and surveyed by questionnaires after one week and six months later.

Summary of results: Overall groups were comparable in practical performance. In detail after six months group F showed significantly more too shallow compressions (F: 20% vs. M: 8%; p= 0.0419), but significantly less too deep compressions (F: 23% vs. M: 43%; p= 0.0049). In addition, group F performed superior concerning mean compression rate (90-110/min: F: 36.56% vs. S: 20.27%; p=0.0232).

Conclusions: The gender aspect has an effect on practical performance concerning BLS. Especially female participants could improve their skills because of a more suitable learning environment.

Take-home messages: Influence of gender in resuscitation training has to be researched in more detail.

8M4 Gender Specific Examinations: a Survey on Knowledge and Experience of Final Year Medical Students
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Background: We reported the experiences of graduated medical students in performing the breast, rectal, female pelvic and male genitalia examinations, and to identify the reasons for not performing these GSEs.

Summary of work: A web-based questionnaire was developed and was sent through emails to all medical interns. We asked the participants to estimate the number of breast, pelvic, rectal, and male genitalia examinations performed and the reasons of not performing these GSEs.

Summary of results: Two-hundred and eleven (66.9%) out of 315 medical interns completed the survey, 59.7% males and 40.3% females. The mean percentage of interns who never performed any GRE was 42.3% (43.1% for rectal, 32.7% for breast, 28.9% for inguinal, 48.8% for male genitalia and 57.8% for female pelvic exam). Male interns performed more inguinal hernia and male genitalia examination compared to female interns (p=0.001 and p=0.004, respectively), whereas female interns performed more female pelvic and breast examination compared to male interns (p=0.413 and p=0.013, respectively).

Conclusions: Suboptimal exposure to GSEs among medical students can result in less confident graduates in performing opposite sex examination. New strategies such as use of standardized patients, and simulation need to be implemented in their curriculum to help students acquire the GSE skills before they graduate.

8M5 Gender effect in medical school admission decision using Multiple Mini Interviews scores
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Background: Multiple Mini Interviews (MMI) are gaining popularity for assessment of non-cognitive dimensions in the context of admission to medical schools. As many published studies have not been conducted in authentic setting of real students admissions, potential sources of bias remained undetermined.

Summary of work: Objective. To study the effect of assessor and candidate gender on MMI scores in an authentic context of medical student selection.

Methods: A large database of near 1200 MMI results was used to investigate characteristics of assessors, candidates and settings that may affect MMI results. Data were obtained during admission process in three Quebec Universities in early 2009.

Summary of results: Results: Clear effects of candidate gender, assessor gender and their interaction were observed, as well as differential effects of sites.

Conclusions: This study highlights the possibility of significant biases and sources of unreliability in scores associated with gender of candidates, gender of assessors and differential effects according to sites.

Take-home messages: The impact of this gender difference in empathy should be further studied.

8N短文通讯: 通信技能

8N1 准备未来的医生面对今天的病人沟通挑战

Background: Society and today's patients place high demands on doctors' professionalism. Patients are better informed than earlier through the Internet and Patients Networks and doctors use more time and resources to inform patients of different types of treatments.

Summary of work: Seven focus group interviews were conducted, each with 4-6 participants: Three interviews with last year medical students and four interviews with first-year residents from three different gynaecological/obstetric departments. Aim is to investigate which communicative and ethical challenges junior doctors experience in the clinic and to examine to how well last-year medical students feel prepared to handle communicative/ethical issues in their clerkships.

Interviews were analyzed using thematic content analysis in order to identify key areas that should qualify the existing curriculum on communication.

Summary of results: Preliminary results show that medical graduates do not feel adequately prepared to meet demands of today's patients. Problems relate to lack of skills for more complex situations of communication where ability to apply knowledge of legal issues alongside professional ethics become crucial i.e. informed consent and treatment refusal; confidentiality and shared decision-making.

Conclusions: Final analysis of focus group will be completed summer 2011 and we are able to present the results during the AMEE meeting.

8N2 发展新型的沟通竞争力框架: 国家共识项目

Background: Communication skills are an essential domain of competence for all health professionals. While numerous instructional methods and
frameworks exist, the diverse multitude of approaches can sometimes hinder the adoption of a competency-based approach.

**Summary of work:** We set out to define a national consensus framework of the essential competencies in the communications domain for contemporary medical education. We convened a working group of medical educators (n=79) with an interest in physician-patient communications nominated from among all of the medical education organizations in Canada and engaged them in a national online bilingual Delphi process to identify essential competencies. This was overseen by a steering committee of 15 leaders.

**Summary of results:** Consensus on a novel framework of physician communications abilities was achieved after 3 rounds, followed by 2 rounds among the steering committee. Response rates per round ranged from 74-100%. The first round added 582 new items. Using an a priori criteria of 75% endorsement, subsequent rounds reduced these to an essential framework of 264 unique competencies. The final framework of communications expertise was organized around: content, process, and perceptual abilities; issues and special considerations; caregiver interactions; enhancing communication within the healthcare system; written communications; and teaching and assessment.

**Conclusions:** We describe a novel comprehensive 21st century framework of communication competencies for medical education.

**Take-home messages:** This Delphi approach can be used by others interested in deploying competency-based medical education around the world.

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**8N3 Experiential learning methods have a positive effect on medical students’ attitudes to learning communication skills**

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**Background:** Despite numerous studies exploring medical students’ attitudes to communication skills learning, there are apparently no studies comparing different experiential learning methods and their influence on medical students’ attitudes. Therefore, we adapted a translated version of the Communication Skills Attitude Scale (CSAS), and evaluated whether a pilot course in speech communication or different experiential methods had any effect on medical students’ attitudes to learning communication skills.

**Summary of work:** Second-year medical students (N = 129) were randomly assigned to three groups. In group A (n = 42) the TIE method, in group B (n = 44) SPs, and in group C (n = 43) role-play were used. The data was gathered before and after the course.

**Summary of results:** Medical students’ positive attitudes to learning communication skills (PAS) increased significantly and their negative attitudes (NAS) declined significantly between the beginning and end of the course in the whole sample of students. Female students had more positive attitudes than male students. There were no significant differences on the mean scores for PAS and NAS measured before or after the course in three groups.

**Conclusions:** However, the results support the use of experiential learning methods in teaching communication skills to medical students.

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**8N4 Tailoring communication training to clinical needs: doctors use goal-directed communication techniques**

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**Background:** Most communication training is generic, without attention for the context of the consultation. However, situation specific communication training, for example a training on breaking bad news, is getting more attention. Which context factors matter for doctor patient communication, has not been empirically investigated.

**Summary of work:** Stimulated recall and think aloud interviews with 16 GPs based on observation of morning clinics. The communication with patients in the 259 observed consultations was scored with the MAAS-global.

**Summary of results:** Based on the interviews we developed a model that describes GPs’ choices of communication techniques. These choices are influenced mostly by two consultation specific factors. Firstly, by the goals GPs pursue in a consultation and secondly by the assumptions doctors make about their patients (regarding preferences, emotions, intelligence etc.). GPs’ personal characteristics and the environment influence GPs’ communication mostly because they influence doctors’ goals. A quantitative test of this model showed that GPs consultation goals indeed predict their communication scores on MAAS-global items.

**Conclusions:** Doctors choose communication techniques based on consultation specific goals.

**Take-home messages:** To develop communication training that is tailored to the needs of clinical practice this training needs to pay attention to goal directed communication strategies.

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**8N5 The effects of a post-graduate training program in teaching communication skills**
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**Background:** Lack of clinical supervisors’ training is a main obstacle to post-graduate teaching of communication skills (TCS). We report the results of a training program on TCS.

**Summary of work:** In a pre/post control-group design, we distributed clinical supervisors working at the Geneva University Hospitals into two groups: 29 supervisors attended a 6-month training in TCS while 20 did not (control group). The training consisted of 5 small-group sessions with simulated patients followed by two individual supervision sessions. Before and after the training, supervisors self-assessed their knowledge in TCS.

**Summary of results:** After training, a higher percentage of trained participants considered their knowledge to be good about communication skills (pre-post: 27%-60%, p=0.02) and teaching skills (3%-77%, p<0.001) compared to the control group (pre-post: 11%-22% p=0.5; 5%-11% p=0.8, respectively). However, they did not teach communication skills more often in practice.

**Conclusions:** The training led to an increased knowledge of TCS. Further research is needed to investigate transfer to practice.

**Take-home messages:** TCS does lead to an increase of knowledge in these skills, according to participants’ perceptions.

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8N6 Accounting for context factors in communication assessment
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**Background:** In competency-based specialty training, the assessment of communication performance is limited to generic skills. However, the context of daily clinical general practice may require more specific skills, or account for specific application of the generic skills.

**Summary of work:** We looked for contextual factors in daily practice by observing different GP consultations.

**Summary of results:** We found 20 contextual factors that could explain why generic communication skills were absent or applied in a specific way in daily practice. Decision rules were developed to incorporate these contextual factors into performance assessment of GP registrars.

**Conclusions:** Contextual factors play an important role in daily practice. They affect communication performance of GPs and GP registrars. Incorporating contextual factors in assessing communication performance of GPs and GP registrars may do more justice to daily practice.

**Take-home messages:** In assessing communication performance of GPs and GP registrars in daily practice, contextual factors are identifiable and should be taken into account by making explicit decision rules.

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8O Workshop: Milestones: Essential Tools for Competency-based Education
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**Background:** Competency-based medical education (CBME) is an emerging approach to organizing curricula around outcomes in the form of graduate competencies. CBME involves first defining these program outcomes, then defining teaching and assessment by working backwards using a series of “milestones” which are markers of the progression of competence. While this approach is increasingly used around the world, many educators struggle with the development of meaningful and practical milestones.

**Intended Outcomes:** This session will prepare educators to work with “educational milestones” for CBME. By the end of the session, participants will be able to: 1) Define CBME and milestones; 2) Describe 3 approaches to defining milestones from competencies; 3) select one approach and write draft milestones suitable to guide teaching and assessment.

**Structure:** This session will use large-group interactive activities and individual exercises. Following a brief large group discussion on CBME, milestones will be defined. Three approaches to identifying milestones will be introduced, with exercises exploring each. Finally, participants will practise developing their own milestones. Participants who have a particular program in mind should bring along their own
competency frameworks or learning objectives if they have them.

**Who Should Attend:** Curriculum developers, program directors, faculty developers, and those interested in competency-based medical education.

**Level of workshop:** Intermediate.

### 8P Workshop: Studying the medical education learning environment: exploring international perspectives

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**Background:** Learning environment is a growing concern in many countries, becoming an issue of medical school accreditation in some. Although many studies of the learning environment have been conducted, there is considerable variability in how the learning environment is defined and what institutional, social, educational, and personal factors are considered to be part of it.

**Intended Outcomes:** Through interactive discussion, this workshop will seek to identify key variations in the definition of ‘learning environment’ across nations and institutions. It will also explore educational problems associated with the learning environment, and possible research designs and collaborations.

**Structure:** This workshop will be facilitated by representatives of three U.S. medical schools who are members of a 14-school consortium to study the learning environment. The workshop will begin with a brief overview of the literature and underlying theory and a description of the 14-school collaborative study. Participants will then explore the various educational problems that are attributed to the learning environment and close with discussion of potential research designs and questions that could be pursued across institutions.

**Who Should Attend:** Faculty and administrators who are interested in or responsible for insuring a productive and supportive environment for learners.

**Level of workshop:** Intermediate.

### 8R Workshop: When Mayhem Reigns: Developing Teaching Skills for Hectic Clinical Situations

**Authors:** D Dath*, E D Matsumoto, D Szalay, J Hoogenes (Juravinski Hospital and Cancer Centre, 711 Concession St., Hamilton, ON Canada L8V 1C3)

**Background:** Operating rooms (OR), busy clinics, emergency rooms and intensive care units are complex environments that challenge clinical teachers to perform optimally. These settings can be fast-paced, involving high-stakes decisions, time pressures, competing interests and frequent interruptions. However, clinical teachers still need to meet their educational objectives despite these challenges. Clinical teachers need to have a repertoire of teaching skills that they can access explicitly for deliberate teaching.

**Intended Outcomes:** 1) Identify controllable factors that contribute to the complexity of various clinical teaching environments. 2) Describe techniques that can be incorporated into clinical practice to improve teaching in complex environments. 3) Apply teaching techniques in complex teaching environments such as ORs or busy clinical practices. 4) Commit to adopting three new teaching techniques that can be applied in complex teaching settings and situations.

**Structure:** An interactive, exercise-driven, workshop. Participants will generate teaching styles and behaviours in small groups using operative video vignettes to stimulate the discussions. They will summarize their findings in large groups. Individual participants will decide upon new teaching styles that they will adopt, or styles they use now that they will either improve on or discard.

**Who Should Attend:** Clinical teachers who interface with undergraduate and graduate-level learners in complex teaching environments.

**Level of workshop:** Intermediate.

### 8S Workshop: A professional approach to multi-source feedback (MSF) in specialist training – how to qualify feedback facilitators

**Authors:** B Malling*1, G Eriksen*4, G Bjørg*2 (1Center of Medical Education, Aarhus University, Denmark; 2Department of Human Resources, Aarhus University Hospital)

**Background:** The use of multisource feedback (MSF) deserves a professional approach. Several reports have described how the use of personal feedback improves trainees’ benefit from MSF. A professional approach to MSF would include the use of personal feedback provided by an educated feedback facilitator in addition to a validated instrument and written reports. The question is how to educate feedback facilitators involved in MSF procedures.
**Intended Outcomes:** The workshop intends to raise awareness of the importance of qualifying feedback facilitators in the overall improvement of the trainees’ outcome of the MSF process. In addition, a model for feedback facilitator training will be presented and discussed.

**Structure:** The workshop will include theoretical considerations on education of feedback facilitators. It will be based on experiences from the development and implementation of a training program for feedback facilitators in a university hospital setting. The format will be short introductions followed by plenary and small group discussions.

**Who Should Attend:** Staff involved in daily work with, and design of MSF-models in hospital departments or in hospitals.

**Level of workshop:** Intermediate.

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**8T Workshop: MDcme.ca – Online Continuing Medical Education for Physicians and Other Health Professionals**

*F Kirby*, *S Peters*, *R Haywood (Faculty of Medicine, Memorial University, St. John’s, NL, Canada; Presented on behalf of the MDcme Consortium)*

**Background:** MDcme.ca is a web portal unique in the world of Canadian online continuing medical education (CME). Comprised of a pan-Canadian consortium featuring all seventeen medical schools in the country, MDcme.ca facilitates access to a diverse group of content experts and course development teams. The portal also facilitates the broad promotion of its offerings across Canada. MDcme.ca provides physicians and other health professionals with trusted, accredited, evidence-based CME in a range of clinical and non-clinical areas.

**Intended Outcomes:** Participants will: (1) increase their understanding of the process for designing, developing, delivering, and evaluating online CME programs; (2) have an opportunity to review the web portal, its programs and resources; and (3) identify best practices for online learning which can influence physician performance and in turn, patient care outcomes.

**Structure:** Presentation, small and/or large group discussion (depending on size of audience). Participants will have an opportunity to ask questions and discuss the information presented.

**Who Should Attend:** CME administrators, physicians, health professionals; anyone with an interest in providing accessible and relevant online CME to physicians.

**Level of workshop:** Intermediate.

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**8U Workshop: Using The Improvement Model to Improve Educational Innovation**

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(1Emory School of Medicine, Atlanta, GA, USA; 2Vanderbilt School of Medicine, Nashville TN, USA)

**Background:** As health care attempts to improve quality and safety for patients, it is increasingly relying on tools and strategies from industry. The value of these tools is not limited to the clinical community but can also be useful for educators as they seek to make educational improvements for learners at various levels. One of these processes is the model for improvement: the Plan-Do-Study-Act cycle (PDSA). The format of this workshop will be to introduce models of improvement including PDSA cycles and have participants apply these principles to current or upcoming projects.

**Intended Outcomes:** Participants will understand and be able to apply the key concepts of the Improvement Model to their educational practice.

**Structure:** Background and evidence for use of the Improvement Model will be presented along with short examples. Then, in small groups, participants will begin to use these tools on projects related to their own institutions. We will conclude with pearls and pitfalls of the process including change fatigue and readiness to change. This workshop will be highly interactive, requiring participants to engage and use the tools.

**Who Should Attend:** Educators designing teaching, learning or assessment exercises.

**Level of workshop:** Intermediate.

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**8V Workshop: Structured Approach to Effective Virtual Patient Authoring**


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**Background:** Computer-based clinical simulations or Virtual Patients (VPs) increasingly complement pre-clinical and clinical training. However, designing and authoring an authentic and educationally effective case can be challenging, especially complex branched-narrative style VPs with multiple decision points and variable outcomes. Educators new to VP authoring can benefit from a structured, template-based approach.
that applies education theory, research and the experience of others.

**Intended Outcomes:** 1. Identify educational opportunities for VPs; 2. Incorporate aids such as templates and storyboarding for VP authoring; 3. Apply theoretical and evidence-based concepts to VP case design.

**Structure:** 1. INTRODUCTION: Review background on, and rationale for, VPs in medical education; 2. SKILL BUILDING: Introduce case writing templates, storyboarding and virtual patient authoring software; 3. HANDS-ON: Separate into groups of 6-10 to apply the template and begin storyboarding of partially constructed VP cases that address different educational challenges; 4. REVIEW: Structured review of case design decisions supported by pedagogical theory, evidence, explicit and tacit knowledge; include the use of branching, counters, rules, and feedback.

**Who Should Attend:** Educators interested in developing virtual patients.

**Level of workshop:** Beginner.

### 8W Workshop: Causes and remediation of underperformance in medical school

**MJ Costa***1, R Patel***2, J Cleland***2 (Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho, Portugal; Leicester General Hospital, Department of Nephrology, Leicester, UK; Division of Medical and Dental Education, School of Medicine and Dentistry, University of Aberdeen, UK)

**Background:** Underperformance in medical school impacts on the culture of the medical school and thus influences both students and staff. For the failing student, it can be a serious source of distress. For institutions, it is an issue of organizational, financial and academic accountability. Information available about academic failure suggests the causes of underperformance are many and, as such, may require multiple remediation strategies.

**Intended Outcomes:** Participants will be informed about available evidence on the causes and predisposing factors for underperformance in medical students. The workshop will develop participant’s awareness on issues associated with prediction, detection and remediation of underperformance. Participants will be encouraged to consider their own contexts and generate strategies for ‘prediction-detection-remediation’.

**Structure:** Following a brief didactic introduction, including an overview of recent evidence, the workshop will use case studies to facilitate discussion around common causes for underperformance.

**Who Should Attend:** All school medical faculty, in particular those with responsibility for identifying students in difficulties.

**Level of workshop:** Beginner.

### 8X Posters: Outcome Based Education

#### 8X1 Learning and sharing in a social network of educationalists

**Corry den Rooyen***1, Beatrijs de Leede**2 (The Royal Dutch Medical Association; Leiden University Medical Centre, Netherlands)

**Background:** In the Netherlands all postgraduate medical education programs were recently transformed into competency-based teaching programs (CanMEDS). Medical staff members have to implement the program in their own setting. More often, educationalists are asked to assist faculty groups with the development and implementation of the programs. These educationalists aren’t familiar enough with the medical domain and residents’ learning. Information exchange isn’t apparent because educationalists often work in a solo position at an hospital.

**Summary of work:** A social network to assist and strengthen their expertise, was developed on national initiative. Some activities were done to expand the expertise: a national network was established, in which meetings to exchange information and expertise were organized; a social network Linked Inn-account was produced to share problems and solutions and master classes were held to educate basic implementation knowledge. Topics of the master class are background information, work-place learning in the context of the hospital and specifics of the competency-bases teaching programs.

**Summary of results:** Network’ results and parts of information will be evaluated in June 2011. We would like to present are findings at the AMEE.

#### 8X2 A Method for Designing an Integrated, Competency Based Syllabus for a Medical School Undergraduate Curriculum

**JF Perez-Gonzalez***1,2, M Patiço**2, Z Uzcategui**2, M Salazar**2, J Insignares**2, ME Martinez**2, N Medera**2, V Miguel**2 (Centro de Investigación y Desarrollo de la Educación Médica (CIDEM); Escuela de Medicina “Luis Razetti”, Facultad de Medicina, Universidad Central de Venezuela)

**Background:** Current curriculum development is Competency Based (CB) and Outcomes Based (OB). Combining both in an integrated curriculum requires skills (SS), attitudes (AS) and knowledge (K) in a non
disciplinary syllabus. We wanted such an integrated, CB, OB syllabus for our Medical School.

**Summary of work:** We adopted as Outcomes List (OL) a 303-item competency profile. OL items (Ss or As) were associated with five areas of medical competency: Understanding Health and Disease, the Art of Medicine, Patients, the Environment and Oneself. The Syllabus was organized into six components and Curricular Units (CUs) were created for each. The cognitive contents of each CU were assigned as the K required to develop the Ss and As included, and the educational strategies to reach that goal were defined.

**Summary of results:** 25 CUs were constructed with Ss and As from all areas of the OL. All contained Ss and As from the five competency requirements. K in each unit integrated the aspects from basic and clinical disciplines relevant to the specific outcomes included. All aspects of the OL were allocated to CUs.

**Conclusions:** We designed a CB, non-disciplinary syllabus using “understanding medicine” as the basis for integration of items in the OL.

**8X3** The views of Core Medical Trainees on the importance and learning of non-technical skills

Laura Azzopardi*, Aza Abdulla (Princess Royal University Hospital, Department of Medicine, Orpington, UK)

**Background:** Acquiring non-technical skills to complement knowledge and technical ability is an essential part of junior doctors’ development and contributes towards safe performance and better outcomes. This survey explores the views of Core Medical Trainees (CMT) on non-technical skills.

**Summary of work:** A nine-point questionnaire was developed based on Time management, Decision making, Teamwork, Communication and Leadership, to explore confidence levels, training received, how essential skills would be as senior doctors and what teaching methods would CMTs find useful.

**Summary of results:** 42 CMTs participated. Confidence was highest in communication & teamwork. Respondents considered all skills as essential for senior doctors (Likert scale above 4.73/5). More than 83% had received formal training in communication skills & teamwork, however the majority had never received training in the remaining skills. The preferred learning method was active training through seminar & learning by observation.

**Conclusions:** A correlation was noted between confidence & previous experience. Despite e-learning being commonly available and accessible, most trainees did not find it appropriate for non-technical skills. The learning methods most valued involved direct patient contact, active “hands-on” experience and observation of senior colleagues.

**Take-home messages:** The development of non-technical skills for CMTs should be encouraged and facilitated by means of targeted activities and interactive learning events.

**8X4** Integrating ACGME Competencies into First Year Undergraduate Medical Education at Ross University School of Medicine

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**Background:** RUSM recently adopted an organ system based undergraduate curriculum mirroring competencies required by the US Accreditation Council for Graduate Medical Education (ACGME). The RUSM competencies are systems-based practice (SBP), professionalism, interpersonal & communication skills, relationship-centered care (RCC), improvement in practice (Improvement), and tenets of medicine (SPIRIT).

**Summary of work:** 276 students started the curriculum in September, 2010 and 440 in January 2011. Curricular elements include: lectures, problem based learning (PBL) and medical simulation (MS). Assessment in MS and PBL include: professionalism, teamwork, research techniques, and system process literacy.

**Summary of results:** The average class score on MCQs in September was 79% for Improvement, 75 % for RCC, and 67.6 % for SBP, the latter included correct use of a fishbone diagram. Some students struggled with professionalism in PBL and MS but all students passed using concepts of process literacy and error identification when discussing cases.

**Conclusions:** Beginning medical students with limited direct clinical experience can learn and apply the concepts of the SPIRIT competencies.

**Take-home messages:** Evaluation of the competencies should be multifaceted and utilize multiple learning modalities such as simulation and performance on standard elements of PBL cases.

**8X5** CanMEDS competencies most associated with optimal performance of emergency medicine residents

D Blouin (Queen’s University, Department of Emergency Medicine, 21 Arch St., Kingston, ON K7L 3N6, Canada)

**Background:** Canadian residency programs teach and evaluate residents on all seven CanMEDS competencies. Identifying the relative influence of each competency on resident performance would help
focus resident teaching and evaluation on the competencies of greater influence. This study identified which CanMEDS competencies were most often involved in instances of extreme (good or bad) performance by Emergency Medicine residents.

Summary of work: A focus group of five representative teaching faculty members (20% of the workforce) of our Emergency Medicine department used the ‘critical incident technique’ to generate scenarios of poor and excellent resident performance. After identifying features were removed, three faculty members independently reviewed and labeled each scenario with up to three CanMEDS competencies felt to be illustrated in the scenario.

Summary of results: 51 incidents were generated. Considering only the scenarios' primary label, averaged across raters, 'Professional' (28%, 95%CI 0.16-0.40) was the competency most commonly associated with extreme (good or bad) performance, followed by 'Communicator' (17.7%, 7.2–28.1) and 'Scholar' (15.7%, 5.7-25.7). When considering all 353 labels attached to the 51 scenarios, 'Professional' and 'Communicator' ranked equally high (21%, 16.7-25.2).

Conclusions: 'Professional' and 'Communicator' are the CanMEDS competencies having the most impact on Emergency Medicine resident performance.

Take-home messages: Particular emphasis should be placed on the teaching and evaluation of the these two competencies in our curriculum.

8X6 Effectiveness of Reflective Clinical Debriefing in PBL Based Curriculum: Some initial explorations

C Skinner*, J Hadden (University of Notre Dame, Medical School, Fremantle, West Australia)

Background: Over the last six years a programme has been established in pre clinical years entitled Clinical Debriefing (CD). This programme focuses on providing an opportunity to address primarily the Personal and Professional Domain through discussion of relevant learning objectives, course experiences and reflection on clinical placements.

Summary of work: This initial exploratory evaluation focused on understanding: 1) Why some CD groups appeared to be effective in achieving the agreed outcomes; and alternatively why some CD groups failed to meet the stated outcomes; 2) Why some PBL problems appeared to work well and yet other problems appeared to pose major problems for student learning.

Summary of results: Initial Data examination was based on first and second year weekly evaluations, addressing three main areas: Professional Development Benefit, Achievement of Learning Objectives and Usefulness of Resource Material.

Conclusions: Preliminary findings suggest that individual tutor variability and overall tutor acceptance of CD philosophy are critical in achieving stated CD outcomes. Quality of Learning Objectives, links to succinct reading resources and the nature of the actual PBL problem itself appear to have major implications for success in linking PBL Problems and CD effectiveness.

Take-home messages: Main implications for practice include: 1) Appropriate selection and training of CD Tutors; 2) Relevant, succinct Personal and Professional Learning Objectives; 3) Clear links between CD Philosophy, Learning Objectives, Resource material and Assessment processes; 4) Need for a gradual, evolving and involving CD structure to be accepted.

8X7 Current trends of humanistic point of view in mentoring doctors’ expectation on graduated doctors

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Background: Processes in the follow-up and annual evaluation of graduated doctors, 6-8 months after graduation from the Faculty of Medicine, Srinakharinwirot University, have been conducted continuously to analyze the needs of stakeholder in the recipient hospitals.

Summary of work: Research teams had been visiting 81% of the graduated doctors from the academic years 2008, 2009 and 2010. Thirty items of desired qualifications; consisting of medical knowledge, emotional quotient and practical social skills, were used to be selected randomly by the supervising doctors (1-3 per one graduated doctors) at the recipient hospitals. Then all selected items were put into order accordingly to reveal the results.

Summary of results: More than 40% of stakeholders wanted the graduates to pursue social skills such as teamwork, responsibility, attitudes, work ethics, punctuality, respectfulness, decision making, friendliness and faithfulness. While the less important qualifications (25-39%) are medical knowledge and skills such as holistic and humanistic approaches, continuous learning, consultation when in doubt and smart to get correct diagnoses.

Conclusions: Outcome evaluation of the curriculum is irrelevant to the need of the stakeholder.

Take-home messages: Development of the medical school curriculum must emphasize on the evaluation of the outcomes indicating the socially desired qualifications of the medical graduates.

8X8 Triple loop of PDSA on curricular development to achieve customers’ satisfaction
Background: Based upon the surveys of needed qualifications in medical graduates and conclusions of the 8th National Conference on Medical Education, our institution has designed the six-sided desired characteristics of the graduates (6 H’s): Head, Heart, Hand, Health, Happiness and Humanistic.

Summary of work: We set up a six-year curriculum for medical students with integrated education and potential development in the academic years 2008, 2009 and 2010. Evaluation of the characteristics was conducted, to be an indicator for the monitoring and development in the PDSA (Plan, Do, Study, Act) loop, used as an important tool to review the educational settings.

Summary of results: Study reveals that satisfaction of the customers, in this three-year period, was more than 80% in all aspects (6 H’s). Communication and manual skills (Hand) possessed the possibility to improve.

Conclusions: Therefore improvement in this aspect is an important aim for the institution to produce high quality graduates, and can be elaborated clearly to executives, teachers and students, for they can understand and evolve at the same pace. For example, provide the medical students with choices to train in provincial hospitals to improve their skills.

Take-home messages: Solid and measureable indicators are essential for the improvement of the educational process, to match the satisfaction of the customers.

8X9 Reflections on religious values can help promote desired competencies in a physician

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Background: Religious values are important determinants of behavior. Therefore important competencies reflected in CanMEDS, which are the framework for the curriculum at the Shifa College of Medicine, can be enhanced by using religious values as a platform to promote behavioral changes. Religion is typically categorized as one of the components of the humanities but has never been thought of as a complete and separate entity which can help foster the growth of a physician.

Summary of work: Over four years, SCM has hosted annual students’ Islamic events, which have consisted of lectures by scholars, student debates, various arts competitions, and inter-mural sports. An analysis of the influence of religious values on the organization of the events, students, organizers, and participants was done using purposive sample focus group discussions.

Summary of results: After analyzing the organization process of the events, the qualities displayed by those involved coincided with most of the competencies expected from an ideal physician. These include manager, collaborator, communicator, professional, scholar and health advocate.

Conclusions: Religious values are synchronous with the expected character of a physician.

Take-home messages: Theolian activities, if incorporated into the learning environment, can facilitate the attainment of competencies required for physicians.

8X10 Study on the performance standard of clinical practice using Taxonomy of Educational Objectives for education of Occupational Therapy students in Japan

Chihiro Sasaki1, Keiko Satomura*2 (1Tokyo College of Welfare, Department of Occupational Therapy, Japan; 2Graduate School of Human Health Sciences, Tokyo Metropolitan University, Japan)

Background: The purpose of this study was to clarify the performance standard of clinical practice by using Taxonomy of Educational Objectives gained through students’ experience in clinical practice.

Summary of work: We investigated 80 Occupational therapy students in 2007 who were registered the clinical practice at college T. of Occupational therapy school in Tokyo. We have carried out a questionnaire. It included questions regarding experiences learned from clinical practice and we asked to describe their clinical experiences. We made it a label and we collected the labels which resembled it and classified categories.

Summary of results: The free description and students’ comment on meanings of clinical practice was classified in a category and the label number of "Experience learned of the occupational therapy" 128 pieces, "Self-insight" 92 pieces, "The construction of Image of Occupational therapist" 50 pieces, "Others" 5 pieces.

Conclusions: We thought that the contents about the occupational treatment skills of "Experience learned of the occupational therapy" arrived at, "Application of cognitive domain", "Valuing of affective domain", "Precision of psychomotor domain".

Take-home messages: Useful possibility was suggested as information the contents of the learning from the students who experienced clinical practice holds using Taxonomy of Educational Objectives, and to clarify the formative process and the performance standard.

8X11 What is a “good doctor”?: Comparison of the viewpoints of medical and nursing students

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Background: Our previous study suggested that there is a gap between the perception of a “good doctor” among medical students and individuals involved in clinical practice: doctors, nurses, and patients. The perception varies according to factors such as experience, education, and profession.

Summary of work: A survey using Conjoint analysis, a statistical method, was conducted to determine the relative importance of each of the 7 attributes of medical doctors: relationship with patients, thoughtful explanation, morals and ethics, basic medical knowledge, acquisition of new knowledge, diagnostic ability, and therapeutic capability. The subjects were medical and nursing students who had not started clinical training.

Summary of results: The questionnaire was answered by 63 medical and 33 nursing students. As per both the groups, the relative importance of the attributes related to humanity and morals (the first three) was almost the same (about 40%). For medical students, the 2 most important attributes of doctors were therapeutic (22.1%) and diagnostic (16.3%) abilities, whereas nursing students placed lesser importance on diagnostic ability (13.3%).

Conclusions: The perception of a “good doctor” seems to be similar in both the groups, probably because they are not “professionals” but “amateurs.”

Take-home messages: Students seem to change their preferences of a good doctor in order to adopt requirement of real clinical practice.

8X12 Occupational and generic competences in the system of doctors’ training

Yu V Dumansky, A N Talaalaoenko, M S Kamenetsky, M B Pervak* (Donetsk National Medical University, Ukraine)

Background: Since starting license examinations in 1996 the graduates of the Donetsk National Medical University have shown the best results in Ukraine. This fact proves the efficiency of our system of doctors’ training. The distinguishing feature of the system is the orientation of education to learning outcomes – doctor’s competences.

Summary of work: The experienced physicians and professors as experts formulated occupational competences which must be acquired by medical students. According to these learning outcomes the objectives and content of all subjects were determined. The teaching process was organized to provide individual work of students and their mustering doctor’s skills. The efficacy of education is assessed by testing. To determine generic doctor competences we asked with TUNING questionnaire 800 persons: 400 graduates, 165 employers, 235 professors. The survey showed that for the graduates of higher medical schools all 30 generic competences are necessary but significance and the levels of their formation are different. The most important are capacity for applying knowledge in practice, capacity to learn, capacity for analysis and synthesis, ability to solve problems, creativity. Formation of these competences is provided not only by content of educational process but its organization.

Conclusions: Competency-based education improves quality of doctors’ training.

8X13 From stakeholders’ needs to doctor’s competencies

N van der Lee*, M Westerman1, J.P.I. Fokkema1, C.P.M. van der Vleuten2, A.J. Scherpbier1, F Scheele2 (1St Lucas Andreas Hospital, Department of Health Care Education, Jan Tooropstraat 164, 1061 AE Amsterdam, the Netherlands; 2Maastricht University, Department of Educational Development and Research, Faculty of Health, Medicine, and Life Sciences, Maastricht, Netherlands; 3Faculty of Health, Medicine, and Life Sciences, Maastricht, Netherlands; 4VU University, Amsterdam, Netherlands)

Background: The CanMEDS framework was developed for postgraduate education in Canada after exploring societal needs. Many countries, including the Netherlands, adopted the framework for their medical curricula. However literature on the validity of the CanMEDS outside Canada is sparse.

Summary of work: Semi-structured open ended questionnaires were used to explore the needs for improvement in gynaecologists’ performance in stakeholders in the Dutch ObGyn health care (patients, nurses, midwives, general practitioners, hospital boards). Data was categorized into the CanMEDS roles to test if the CanMEDS framework also provides for these needs outside Canada.

Summary of results: All data could be categorized into the CanMEDS roles. Within the roles focus areas were identified. Patients focused on respectful communication with consideration of their personal values. Nurses and midwives stressed the need for equal, respectful collaboration and unambiguous communication. General practitioners focused on individual patient communication and more collaboration with primary care workers. Hospital boards valued gynaecologists with more proficiency in organisational structures and finances.

Conclusions: The CanMEDS framework provides for the needs of stakeholders of Dutch ObGyn health care. Identified focus areas should be given special attention
in the CanMEDS based postgraduate ObGyn curricula to meet the stakeholders’ needs.

**8X14 ‘Good Learners’ and their image of the ‘Good Doctor’: Medical students and missing links**

_G Maudsley (The University of Liverpool, Division of Public Health, Liverpool, UK)_

**Background:** The literature tends not to relate thinking frameworks (and personal epistemology) and medical students’ learning approaches to students’ concepts of the good doctor.

**Summary of work:** Aim: To explore changes in and links between medical students’ learning approaches, thinking, and notions of the good doctor from pre-medical school to pre-graduation. Setting: Liverpool problem-based curriculum. Participants: a cohort of mid-Year 5 medical students who answered a questionnaire (2007) including Entwistle learning approaches, Moore’s Cognitive Complexity Index (CCI), and a ‘good doctor’ ranking-item, and had also provided learning approaches and/or good doctor data pre-admission (n=74).

**Summary of results:** Rankings of nine ‘good doctor’ descriptors were comparable in paired data. Deep and strategic learning significantly decreased, while surface learning increased, however cognitive development appeared greater in the ‘deep increased, surface decreased’ versus ‘deep decreased, surface increased’ subgroups. Students scoring higher on strategic learning pre-graduation compared with pre-admission tended to rank descriptors ‘thinking, flexible learner’ and/or ‘listening, informative communicator’ significantly lower originally.

**Conclusions:** Interpreting influences between these concepts is challenging.

**Take-home messages:** Missing links between good learners, good thinkers, and their image of the good doctor merit attention (…towards professionalism and a more scholarly doctor, as per Tomorrow’s Doctors (General Medical Council, 2009)?).

**8X15 How well are our post graduates prepared for practice? The opinion of recently graduated specialists**

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**Background:** Postgraduate Medical Education (PGME) programmes in The Netherlands introduce competency-based education based on the seven CanMEDS-roles. These efforts give rise to the question: are post graduates after introduction of competency-based education better prepared for practice than before? To establish a baseline we asked recently graduated medical specialists from traditional programmes to what extent PGME prepared them for practice.

**Summary of work:** From a valid inventory of tasks and activities of medical specialists a questionnaire stated for each task: “My PGME prepared me well for …” Respondents answered on a five point Likert scale ranging from “fully agree” to “fully disagree”. Respondents were 265 medical specialists, graduated in 2004-2009 at the University Medical Center Groningen.

**Summary of results:** Response 65%. For 51% of tasks ≥75% (fully) agrees with the statement. For 22% of tasks, ≥25% (fully) disagrees with the statement. Respondents feel most prepared for tasks connected to the role of Medical Expert.

**Conclusions:** Traditional PGME programmes do not fully prepare medical specialists for practice. They prepare best for the Medical Expert role.

**Take-home messages:** These results from traditional PGME programmes underpin the introduction of the CanMEDS framework in PGME. Preparedness for medical practice can be established.

**8X16 A report on resident and fellow perceptions of helpful learning experiences in acquiring U.S. Accreditation Council for Graduate Medical Education Core Competencies**

_S Baillie*, L Guerrero, P Wimmers, N Parker* (David Geffen School of Medicine at UCLA, Office of Graduate Medical Education 12-139 CHS, Los Angeles, California 90095-1722, USA)_

**Background:** To report and understand what post-graduate trainees at the David Geffen School of Medicine at UCLA perceive as helpful in learning the core competencies mandated by the ACGME.

**Summary of work:** An annual survey was sent to all level of residents and fellows at UCLA from 2007-2010. Survey questions asked trainees about their perceptions of learning the core ACGME competencies, as well as the helpfulness of six common learning activities in acquiring these. The response rates for this survey varied by year: 2007, 77% (744/967); 2008, 81% (755/933); 2009, 66% (636/962); 2010, 82% (812/989).

**Summary of results:** Over 2,900 responses were analyzed over the four years. Overall, the housestaff perceived their knowledge of the six competencies to be overwhelmingly “adequate.” They rated independent reading and didactic sessions as very helpful in acquiring medical knowledge, and patient care activities as most helpful in acquiring the other five.

**Conclusions:** Results suggest that residents perceive differences in helpfulness of learning activities depending on the competencies.
Take-home messages: The results show the richness of multiple activities for learning the ACGME competencies. These findings should serve as guidance for program directors in creating educational environments for addressing the competencies.

8X17 Student Awareness and Attitudes toward ACGME Competencies in Pre-Clinical Years of Undergraduate Medical Education Before and After the Introduction of a Competency-Based Curriculum

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Background: All U.S. residency programs are required to integrate the six ACGME core competencies into their curricula. Recently, Ross University School of Medicine adopted an undergraduate competency-based curriculum to prepare students for residency.

Summary of work: Using a Likert scale, we compared awareness and attitudes toward the competencies in 1st semester students (n=137) who received the introduction to this curriculum with 5th semester students (n=66) as historical controls. Questions focused on familiarity with and importance of each competency for future practice.

Summary of results: 1st semester students determined that the competencies will be “very important” to medical practice more frequently than 5th semester student (80.4% versus 46.2%; p<0.001). There was no significant difference in the “awareness” rating; most students rated being “familiar” with the competencies in both groups.

Conclusions: The introduction of a competency-based curriculum to early medical students improves student attitudes toward the competencies compared to students who had limited exposure in a traditional curriculum. Awareness of the competencies after one semester in the new competency-based curriculum was equivalent to 5 semesters of the traditional curriculum.

Take-home messages: Introduction of an undergraduate competency-based curriculum makes a measurable difference in student attitudes toward the competencies and their importance for lifelong learning and practice.

8X18 What are the non-academic attributes important for the veterinary profession? The Ontario Perspective

P Conlon*1, K Hecker2, S Sabatini1 (1Ontario Veterinary College, University of Guelph, Guelph, ON, Canada; 2Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada)

Background: The purpose of this study was to determine: 1) which attributes the veterinary profession in Ontario, Canada deemed most important; and 2) if there are between group differences in the importance of each attribute.

Summary of work: 11 non-academic attributes were paired and participants (veterinarians, DVM students and veterinary faculty) were asked to choose which of the two attributes were most important. The paired comparisons method was used to rank order the attributes; multivariate analysis of variance (MANOVA) assessed between group differences.

Summary of results: 4,710 surveys were sent out and 1,308 responded (27.8%; female = 59.80%). The top ranked attributes were “ethical reasoning”, “sound judgment”, “communication”, and “critical and creative thinking”. There were no significant differences in rank order between sex, practitioner type, or student vs. non-student groups. There were significant differences on the weightings of each attribute between groups; e.g. females scored “communication” (p < .001) and “empathy” (p < .001) significantly higher than men.

Conclusions: While there were no significant differences in the rank order, MANOVA results showed significant differences in the importance that the respective groups place on the attributes.

Take-home messages: These findings provide empirical evidence for the non-academic attributes deemed necessary for success in veterinary medicine by the various constituent groups.

8Y Posters: OSCE and Clinical Assessment

8Y1 The validity of objective structured assessment of technical skills (OSATS) by using porcine model for surgical residents

Yun Chen*, Pei-Chun Lin, Shu-Hsun Chu (Far Eastern Memorial Hospital, Department of Medical Education, New Taipei, Taiwan)

Background: We investigated objective structured assessment of technical skills (OSATS) for surgical residents evaluation and obtained good responses last year. We continued and modified the assessment format in this program. The construct validity, face validity and interrater reliability were analysed.

Summary of work: The program has been in use since 2007. We defined the essential surgical skills for junior residents and evaluated through porcine model annually. Raters performed OSATS after a videotaping scoring training to achieve consensus. We modified the assessment format by extending task-specific items. Two raters scored one resident. The residents filled in a questionnaire after the test.
Summary of results: All the residents passed the assessment. Their construct validity was high when compared with the previous score and different grades. They satisfied the examination and results with good face validity. They thought the narrative feedback from raters was very helpful. The interrater reliability was high (0.76-0.85).

Conclusions: The preliminary study suggests that the OSATS is a good assessment tool for assessing surgical skills. Through porcine model they can represent their skills as in the operation room.

Take-home messages: OSATS by porcine model is a good assessment tool for evaluating essential surgical skills in residents with good validity and reliability.

BY2 Validity and Reliability of Pre-Internship Objective Structured Clinical Examination
M Alizadeh Naini*, N Vaseghi (Shiraz University of Medical Sciences, Clinical Skill Lab Center, Shiraz, Iran)

Background: In Shiraz University of Medical Sciences, all 6th year medical students’ clinical competence is evaluated by objective structured clinical examination. This study examines the validity and reliability of pre-internship OSCE. Validity is the extent to which the test measures what it is intended to measure. Reliability is whether a test gives the same results over different samples and time.

Summary of work: Face validity and content validity were established from expert opinion and blueprinting. The construct validity was evaluated by correlating station scores with the total OSCE score and interstation correlation. Interexaminer reliability was assessed using the coefficient of correlation.

Summary of results: The face validity had been reviewed and accepted by faculty members. Content validity was established by alignment between the curriculum and the OSCE using blueprints. Correlation station scores with the total OSCE score were positive and meaningful in all stations except 16th station (suturing). The interexaminer reliability, as assessed by the coefficient of correlation, averaged 0.83 (range 0.33 – 0.99).

Conclusions: Our findings support the assumption that the pre-internship OSCE is suitable to assess students’ clinical competence.

Take-home messages: Validity and reliability studies should be performed for all new assessment tools, particularly in high-stakes assessments. We see a number of areas in which to improve the process.

BY4 Do Students Really Pass The OSCE Checklist?
Jarunee Intarangsi (Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand)

Background: The Faculty of Medicine, Chiang Mai University, has been running its own OSCE to prepare medical students for the National OSCE. 14 checklists are used for assessing students’ competence. The checklists contain items with weighed scores assigned to each. An MPL score is also assigned to each but not all of the items. The items which are not assigned MPL scores are considered non-essential. The MPL score for the exam paper is obtained from the sum of the MPL scores for these items.

Summary of work: Analysis of the 14 checklists reveals that 13 checklists contain items without MPL scores. The number of such items in each checklist ranges from 1-7 and the sum of the weighed scores for these non-essential items ranges from 5-28 points out of 100. When the weighed scores from these items are ignored, the number of students failing these exams increases from 6 to 83 out of 183 students.

Summary of results: The result shows that items without MPL have a positive but misleading effect on the total MPL. Therefore, all checklist items must be
assigned MPL scores, or the items without MPL scores should be removed from the list.

**Conclusions:** This study has led to an understanding of appropriate MPL score assignment and eventually to the improvement of checklists used in the OSCE.

**Take-home messages:** It’s a sin to patients when an incompetent passes an exam. And it’s a sin to learners when a competent one fails.

**8Y5** The effect of the inclusion of a dedicated “Ask the Panel” session in a near-to-peer revision program on students’ anxiety and perceptions of Objective Structured Clinical Examination preparation

**Background:** Our study explores whether the inclusion of an open discussion between participating students and near-peer tutors improved students’ perceptions of how best to prepare for the OSCE and reduced anxiety towards the exam.

**Summary of work:** Students (n= 150) participating in a near-peer tutor lead OSCE revision program that included a 45-minute “Ask the Panel” discussion were asked to rate the session. This open forum was designed to give students’ the opportunity to ask recent graduates any questions relating to the final OSCE in order to reduce student anxiety and aid examination preparation. Likert scores were used to evaluate student feedback collated from self-administered questionnaires.

**Summary of results:** Of 128 completed student responses, 83.6% (n=107) found the session useful for OSCE revision (mean Likert score 4.08/5.00 SD ±0.81). 78 students (60.9%) found the session helpful for preparing for the OSCE whilst only 32.0% (n=41) were less worried about the OSCE.

**Conclusions:** Despite largely positive feedback on the “Ask the Panel” session did not demonstrate a substantial measurable reduction in anxiety or an improvement in students’ perceptions of OSCE preparation as first hypothesised.

**Take-home messages:** More work is required to determine how an open discussion with near-to-peer tutors can be used to reduce student anxiety towards the OSCE.

**8Y6** The Analysis of Modified OSCE for Occupational Therapy Students

**Background:** We have created several scenarios and carried out modified OSCE for our students to improve their interviewing skills before clinical training.

**Summary of work:** An occupational therapy student will take charge of a patient. The OT student should interview the patient according to the guideline of modified OSCE. We recorded the students’ performance and later noted which questions he failed to ask and which manners he should have avoided. The subjects were five occupational therapy students, who had already finished core curriculums. They were about to begin their clinical practice. All participants agreed to do this study.

**Summary of results:** This research has clarified each student’s abilities through this study. We hope the instruction based on the qualitative and quantitative data can improve the communication skills of the students. We should reevaluate the costs and human resources to adopt this approach in our programs.

**8Y7** Post-encounter note is necessary to evaluate information gathering ability in clinical performance examination

**Background:** Information gathering ability had been evaluated only by checklists in clinical performance examinations (CPX) in Korea. This study addressed the necessity of introducing post-encounter note (PN) to evaluate the ability in CPX.

**Summary of work:** The students were instructed to write the findings in PN after patient encounters that they considered key information in approaching the patient’s problems. The PNs were scored using keys selected from checklist items, which were considered to be recorded in PN by CPX experts.

**Summary of results:** The PNs of six CPX cases from fifty-four students were analyzed. Correlation coefficients between the key-checklist scores and PN scores of six cases were moderate to high (0.52 to 0.79). However, the students frequently neglected some cardinal features of chief complaints, pertinent findings of past/social history and physical examinations, and pertinent negative findings of associated symptoms in PNs, which were checked as ‘done’ in the keys of checklists.
Conclusions: It is necessary to introduce PN in CPX to evaluate the students’ ability of synthesis and integration of patient information.

Take-home messages: By analyzing PN, it is possible to explore how students prioritize the important information they have obtained from the patients and to give feedback to the students how to record the information.

8Y8 A consistency analysis of checklists and global rating forms for assessing resident performance in clinical skills

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Background: We wanted to study whether checklists were superior to global forms for observation of more technically oriented clinical tasks with respect to rater’s acceptability and consistency on pass/fail decisions.

Summary of work: Two different 5-point scoring forms were elaborated for assessing the three different clinical tasks in videotapes. A task-specific checklist with 6 items and a global survey with 5 general aspects of competence were included. All orthopaedic staff assessed resident performance in the videotape at three different time points. Comparisons between groups were made.

Summary of results: High Cronbach’s $\alpha$ for the entire 11-item scale in all three scenarios confirmed construct validity. Test-retest consistency showed insignificant difference. Both Kendall’s coefficient and KR-20 showed poor general concordance regarding fail/pass decisions between different assessors while slightly better consistency was noted in the general performance scoring than in the checklists.

Conclusions: Consistency of pass/fail decisions was equally poor for checklists compared with global scoring forms. Owing to problems of reliability in performance-based assessment, it is recommended to have several different assessors and several observations with the least amount of structure in the test formats.

Take-home messages: The results of this study point to the need for further study on how an in-training assessment program works in clinical practice.

8Y9 Evaluation of Clinical Competencies on a MD Program

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Background: This study reports a four-year experience evaluating clinical competencies of the 5th- and 6th-year undergraduate students of a MD program, in Brazil.

Summary of work: An evaluation of clinical competences in a MD program is applied to the 5th- and 6th-year undergraduate students, since 2007, using as reference the OSCE instruments. In this evaluation each student passes through 5 stations: Surgery, Medicine, Pediatrics, Ob-Gyn and Community Medicine, doing the proposed tasks in front of an evaluator. This evaluator, using a checklist, observes the knowledge, skills and behavior, and gives feedback.

Summary of results: The academic performance (AP) of 367 students was compared with the clinical competences performance (CCP). The AP mean scores is 8.09 (SD 0.43), CCP is 6.41 (SD 0.58) and the Pearson correlation between AP and CCP is 0.179 ($p=0.001$).

Conclusions: This practice evaluation identified competences that other instruments did not identify. The success of this evaluation system made the methodology part of the admission exam to the Medical Residency Program.

Take-home messages: The evaluation of medical competence is an important tool and a quality indicator of the MD program. The results should be analysed at discussions of the medical curriculum.

8Y10 Objective structured assessment of technical skills in vacuum extraction – development and validation of a procedure-specific rating scale

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Background: Today, the public demands transparency in quality measurements of the provided healthcare. Doctors are increasingly being scrutinized for their performance. Consequently, there is an increasing demand for reliable and validated assessment methods.

The aim of this study was to develop a valid assessment scale for vacuum extraction. Vacuum extraction is the most frequently used method for assisted vaginal delivery (8-13% of all deliveries in the industrialized countries).

Summary of work: Inspired by the OSATS scale we developed an objective structured assessment scale (OSAVE) for technical skills in vacuum extraction. This was based on a national developed procedure specific checklist and on a global rating part. Ten experts and nine novices were videotaped in a simulated vacuum
extraction case. Two obstetrical experts rated the performances using the OSAVE scale. The raters were blinded to the proficiency level of the participants.

Summary of results: The OSAVE scale was able to differentiate between level of performance for experts and novices both for the total score (p< 0.04), the global part (p< 0.006) and the procedure specific part (p<0.01) of the scale. Interrater-reliability based on Cronbach’s alpha on total score was 0.937.

Conclusions: The OSAVE scale is able to differentiate between different competence levels in a simulated vacuum situation.

Take-home messages: The new OSAVE scale possessed sufficient reliability and validity when applied to assessment of clinical skills performance in vacuum extraction in a simulated setting.

8Y11 Qualitative vs quantitative grading in clinical skills assessment

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Background: In our faculty, clinical skills are formally trained in a separate program that runs along classes in hospitals and primary care facilities. Until recently, students were graded as very good, good, average or poor (100, 75, 50 or 0 points). For some years, tutors and students showed that, from their perspectives, that grading system was not enough.

Summary of work: Meetings between tutors and between students and tutors were organized to study the change from a qualitative to a quantitative/mixed grading system of clinical skills level of performance.

Summary of results: Both students and tutors considered this change important. From the tutors perspective it didn’t seem fair to grade two students with the exactly same mark given they hadn’t performed equally. From the students perspective, “good” and “not so good” students didn’t get their marks accordingly which also didn’t seem to be right.

Conclusions: A grading system with a continuous scale seems better than a 3 level of accomplishment system because it increases students thrive to try being better, differentiates them from each other and allows tutors to “stick to the protocol”.

Take-home messages: Profound changes in the evaluation process are usually hard to achieve because fear from future uncertainties uses to overcome known errors of the present.

8Y12 Development and validation of a self-efficacy scale for clinical decision-making in general pediatrics

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Background: Self-efficacy influences performance in clinical practice. We present the validation of a new scale to evaluate self-efficacy in clinical decision-making in general pediatrics (GPedsSE).

Summary of work: The GPedsSE is based on the previously-validated New General Self-Efficacy (NGSE) scale. Similar to the NGSE, the GPedsSE contains statements rated on a 5-point Likert scale. For this study, 36 first- to fifth-year pediatrics residents completed both these scales.

Summary of results: NGSE average score was 31.48 +/- 3.32 (out of 40), comparable to population norms. Average score on the GPedsSE was 18.6 +/- 2.6 (out of 25). Scores on the GPedsSE correlated with scores on the NGSE (r(29) = 0.54 , p < .005). On planned comparison, scores on the GPedsSE increased with training year (F(1, 3) = 6.62, p < .001), while scores on the NGSE did not (F(1, 3) = 0.37, p = .77), indicating that only pediatrics-specific self-efficacy increased with training.

Conclusions: This new GPedsSE scale appears to be a valid measure of self-efficacy in clinical decision-making in general pediatrics.

Take-home messages: This scale will be useful when evaluating trainees, in addition to monitoring possible changes in self-efficacy resulting from educational interventions aimed at enhancing clinical decision-making in general pediatrics.

8Y13 Using TOSCE In Second National Medical Sciences Olympiad In Shiraz, Iran

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Background: Second National Medical Sciences Olympiad was done in Shiraz in Aug 2010 with aim of indentifying scientifically talented individuals and orienting extra curricular activities. Olympiad was done in 3 areas, basic sciences, clinical sciences and management. In clinical sciences we used TOSCE (Team objective structured clinical examination). In this article we report the details of this exam and participants’ satisfaction.

Summary of work: This Olympiad in Clinical Medical was conducted in 2 stages: Individual and team. In team stage of Olympiad 9 teams from 9 universities participated. We used TOSCE for measuring clinical competency of those teams. Each team consists of 3
students. We designed 12 stations based on emergency medicine in medical & Surgical fields. The time considered for each station was 15 minutes. After doing this exam the view of faculty and students was measured using a valid & reliable questionnaire.

Summary of results: Most of the students believed that TOSCE was a useful examination for measuring competency. More than 50% of students reported that success in this exam needs competency, team work and problem solving ability. 49.3% of students believed that 15 minutes is not enough for each station and they need more time. All of the faculty believed that this exam is a creative method that can measure students’ clinical abilities.

Conclusions: The results of this study showed that this kind of exam is useful for measuring clinical competency from students & faculty viewpoint.

Take-home messages: TOSCE can measure team work and competency.

8Y14 A study to analyse the relative value of practical examinations during clinical years at medical school, versus written examinations

S O'Reilly (School of Medicine, University College Dublin, Belfield Campus, Dublin 4, Ireland)

Background: Limited data is available on which examination formats used during clinical training are the best assessments of medical students’ skills. Our objective was to examine the effectiveness of examination formats currently in use, with particular comparisons between written and practical exams.

Summary of work: A 10-question online survey was answered by 114 medical students from two different Dublin medical schools. These questions included the type of examination that resulted in better scores, the level of discrepancy between their written and practical results, and why they felt this was.

Summary of results: 85.9% felt they had been best prepared for their clinical exams, with 56.3% reporting better results in this type, whereas 32.1% did better in written. 50% reported a >10% difference in their practical exam grades over their written. Poor preparation, the limited nature of multiple choice questions, negative marking and difficulty interpreting questions were cited as reasons why results in written exams were poorer.

Conclusions: The marked discrepancy between clinical and written examination results indicate that clinical teaching has better prepared students for their practical exams, despite written papers accounting for up to 50% of the overall subject grade in some cases.

Take-home messages: Although a more in-depth study needs to be conducted, these results indicate that practical examinations may better reflect the true ability of the student in becoming a competent physician in the future.

8Y15 A confident and competent workforce: What do our students think?

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Background: The aim of the ALPS (Assessment and Learning in Practice Settings) CETL (Centre of Excellence for Teaching and Learning) programme was to improve the competence and confidence of students on graduation. As part of the baseline and ongoing measurement for the success of the programme a tool was developed to ascertain the perceived measurement of competence of our students. (paper under review).

Summary of work: Following an initial pilot in order to calibrate this tool, students from the Faculty of Medicine and Health at the University of Leeds were asked to complete this on-line tool, on or around graduation. The results were analysed for quantitative and qualitative significance.

Summary of results: 208 students responded to the on-line questionnaire representing 7 health and social care programmes at the University. Two questions with lower confidence results were; the student’s ability to deal with cultural issues and dealing with conflict.

Conclusions: The responses showed differing results across professions and across the questions. Providing useful information for future curriculum development.

Take-home messages: This unique tool can be used for a variety of health and social care professions and can ascertain confidence and competence of students on graduation. It has potential for influencing future curriculum and for the first year of graduate employee experience.

8Y16 Placement based assessment as a viable alternative to undergraduate specialties OSCEs

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Background: OSCEs are reliable and valid tests of clinical competence in simulation. However, for some specialties the OSCE is an unsatisfactory format of assessment as real patients cannot be used for ethical reasons.

Summary of work: We aimed to replace the 4th year specialties OSCE with Placement-based-Assessment (PBA). This was piloted over one year at the end of which the OSCE took place. Assessment reliabilities were estimated (Cronbach’s alpha; Varcomp analysis: SPSS16). Quantitative and qualitative evaluation data was collected systematically through questionnaires and focus groups. Transcripts were analysed thematically.
Summary of results: Nine PbA items and 10 equivalent interactive OSCE stations were compared. Cronbach’s alpha was 0.65 for the PbA and 0.53 for the OSCE stations. Whilst reliabilities generated from Varcomp analysis for PbA might vary between 0.38 and 0.46 this compared to 0.32 for the OSCE. Students raised major concerns about standardisation but also acknowledged that PbA gave a good opportunity to display skills.

Conclusions: Despite limitations of the PbA the reliability never fell below that of the OSCE. To improve reliability students should see a different examiner for each test and this might improve student acceptability of the assessment.

Take-home messages: Undergraduate PbA can be used summatively and has a greater reliability than expected.

8Y17 Performance of Medical Students on the Surgical Clinical Competences
L A Passeri*, F H Menezes, SMRR Passeri, G P Fraga, I C Toro (State University of Campinas, Faculty of Medical Sciences, Campinas, Brazil)

Background: This study reports the performance of MD students on the Surgical Clinical Competences evaluation compared with their academic performance during the course.

Summary of work: The academic performance of MD students was evaluated by written and oral tests and professional behavior. An evaluation of clinical competences was initiated in 2007, using as reference the OSCE instruments. In this evaluation each student pass through 5 stations, including Surgery, and doing the proposed tasks in front of an evaluator. This evaluator, using a checklist, observes the knowledge, skills and behavior, and gives feedback.

Summary of results: The academic performance (AP) of 367 students was compared with the clinical competences performance (CCP). The AP mean scores were 8.09 (SD 0.43), CCP is 6.67 (SD 0.93) and the Pearson correlation between AP and CCP were 0.132 (p=0.011).

Conclusions: The difference between AP and CCP identified competences that other instruments did not identify. The success of this evaluation system made the methodology an important tool to evaluate the surgery teaching.

Take-home messages: The clinical competences evaluation may help the discussion about surgical medical curriculum.

8Y18 Current status of student assessment during clinical training in Japanese medical schools: results from a national survey
S Ishii*, Y Abe, M Akagi, K Uemura, S Ueno, Y Terashima, H Akita, M Hirakata (Clinical Competence Committee, Japan Society for Medical Education)

Background: Few data have been available about the details of student assessment during clinical training among the 80 Japanese medical schools.

Summary of work: A national survey was conducted to analyze the current status of student assessment during undergraduate clinical training in Japan.

Summary of results: Response rate was 100%. During the 6-year medical education, Japanese medical schools allocated 46.1 (34-66) weeks for clinical training. Students worked in the wards for 37.8 weeks in the 5th-year, while only 6.9 weeks in the 6th-year. Curriculum of the 6th-year commonly placed more emphasis on lectures than bedside teaching. As the means to assess students’ clinical competence, observational assessment, objective-structured clinical examinations, written case reports, oral examinations, and portfolios were used by 45, 43, 18, 16 and 8 medical schools, respectively. Twenty-four medical schools set time for feedback to individual students, while 46 medical schools had no clear rules of feedback during bedside teaching.

Conclusions: In general, Japanese medical schools lack sufficient time for bedside teaching and appropriate assessment of students during clinical education.

Take-home messages: More weeks should be allocated to bedside teaching and more systematical assessment should be conducted during undergraduate clinical education in Japan.

8Z Posters: Postgraduate Training and Training for General Practice/Family Medicine

8Z1 A handbook for GP trainees - resources available for continuing professional development and enhancing patient care
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Background: The registrar year of GP training is daunting. Registrars can struggle to identify sources of help for: 1) Their education and professional development; 2) Accessing patient community services; 3) Sourcing patient information and education regarding their own health.

Summary of work: GP trainees’ views were sought regarding the need and/or usefulness of a scheme to collate information into a guide for GP trainees, and the format of the resulting “handbook”.

Summary of results: There was varying opinion amongst GP trainees on the amount of information available to them. Unmet needs were identified, including “difficulty finding information to give to
Summary of results: The survey of graduating students with recent graduates (10) and potential tutors (10). Survey of final year students (148) and focus groups qualitative data were collected through a questionnaire. Graduates and potential tutors. Quantitative and study design targeted final year students, recent Croatia?

Conclusions: How does the course for trainers reflect curriculum planning. International models and provide helpful guidance for students, graduates and potential tutors comply with and collated this in an easy-reference guide.

8Z2 Is there a need for an undergraduate family medicine course in Albania?
E Turkeshi (University of Tirana, Faculty of Medicine, Tirana, Albania)

Background: Albania has identified the family medicine primary care model as the best approach to its healthcare needs. The Faculty of Medicine, University of Tirana runs the family medicine postgraduate training program, but offers no exposure to primary care during its undergraduate curricula. This study assessed the need for undergraduate family medicine at the University of Tirana, the major public provider of medical education in Albania.

Summary of work: A multi-method cross sectional study design targeted final year students, recent graduates and potential tutors. Quantitative and qualitative data were collected through a questionnaire survey of final year students (148) and focus groups with recent graduates (10) and potential tutors (10).

Summary of results: The survey of graduating students (82% response rate) revealed lack of appropriate teaching on common adult and pediatric primary care conditions during the undergraduate studies. Students expressed very high interest in an undergraduate family medicine course (85%), but very low interest in a career in family medicine (3%). The potential family medicine tutors are interested in teaching students.

Conclusions: The results of this study confirm the need for undergraduate family medicine at the Faculty of Medicine, University of Tirana. The suggestions of students, graduates and potential tutors comply with international models and provide helpful guidance for curriculum planning.

8Z3 How does the course for trainers reflect specialty training programme for family medicine in Croatia?
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Background: The creation of the new competency-based specialty training programme for family medicine in Croatia entails the involvement of teachers, academic staff, trainers and trainees in the preparing the course for the trainers.

Summary of work: After defining learning outcomes, level of generic and specific competencies, programme duration and plan, number of procedures and logbook, the teachers, academic staff, trainers and trainees worked together and prepared a course for the trainers.

Summary of results: The course will be organized over two days. During the first day, the structure of the specialty training programme as well as principles of continuous development follow-up and assessment of competencies will be presented. Activities in the second day will enable trainers for work based assessment (CbD, DOPS, Mini-CEX) and for mentoring the trainees in preparing the portfolio as a self-reflective tool. The course will also enable trainers in preparing trainees for the written test, OSCE and basics in writing a research paper.

Conclusions: Course for the trainers reflects development of the new competency-based specialty training programme in family medicine in Croatia.

Take-home messages: Strong and enabled trainer’s network is important for specialty training programme implementation.

8Z4 The changing role of General Practitioners: Exploring implications for selection and development
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Background: The role of general practice in the UK is changing. The increasing demands and expectations of patients, taxpayers, and government are driving efforts to redefine the role of GPs for contemporary society.

Summary of work: This study reports on a stakeholder analysis of the future role of GPs. The findings offer insight into GPs’ extended role and the subsequent implications for GP selection criteria and training programmes in sufficiently equipping trainees with the relevant knowledge, skills and abilities required for modern day practice.

Summary of results: 28 interviews were carried out with key stakeholder groups (including NHS Senior Managers, Medical Directors, Deans, GPs and Patient Representatives) along with a structured focus group with 16 GP trainees. Template Analysis of the data indicated that stakeholder expectations are that capabilities required for GPs of the future must go...
beyond the ‘helping model’ including a more corporate focus and developing areas such as clinical leadership, negotiation, influencing change and multi-disciplinary team-working.

**Conclusions:** Implications for selection and training in accommodating these extra role requirements will be discussed.

**Take-home messages:** GP selection and training needs to take account of a broader range of skills in order to strengthen the future role of GPs and their impact upon the wider healthcare system.

**825 Changing attitudes to reflective practice in GP trainees; the impact of a reflective writing workshop**

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**Background:** Reflective practice is an established component of GP training, both before and after completion of MRCGP. Attitudes to the value of reflective practice on personal development are very mixed. Specifically, many GP trainees do not adequately engage with the process of reflective practice, resulting in trainer’s concerns as to the depth and quality of trainees’ reflective writing. This project aims to explore attitudes to reflective practice before and after two brief workshops focussing on clinical reflective writing.

**Summary of work:** A focus group interview with a small cohort of GP ST1 trainees will explore attitudes to reflective practice. The trainees will then attend two workshops, a month apart, aiming to develop their reflective writing. The trainees will then complete a questionnaire exploring any change in their attitudes to reflective practice after the workshop intervention.

**Summary of results:** Focus group and workshops scheduled for March and April. Results to be presented at conference.

**Take-home message:** I expect to find a significant change in attitude to reflective writing after two short workshops. I hope this will translate into an improvement in the quality and depth of reflective writing by the trainees concerned.

**826 A study into how GP-trainees self-regulate their learning**

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**Background:** The importance of self-regulation is increasing in medical education, certainly in postgraduate training. We were interested in how GP-trainees regulate their learning and in facilitators and barriers hereby.

**Summary of work:** We performed a phenomenological qualitative study by interviewing 21 GP-trainees from The Netherlands. Transcripts were analyzed using iterative ongoing discussion by the research team.

**Summary of results:** GP-trainees have a short and a long loop of self-regulated learning. The short loop is primarily aimed at instantly solving clinical problems, the long loop at learning that needs more time and effort. External regulation only takes place in the long loop enforced by official training activities, especially assessments revealing shortcomings GP-trainees did not discover themselves. Personal characteristics, relations with others and contextual characteristics facilitate or impede self-regulation.

**Conclusions:** GP-trainees regulate their learning. However, they rarely ask feedback to check self-assessed shortcomings, learning goals and activities. External regulation occurs by training activities but marginally influences learning in the short loop.

**Take-home messages:** External regulation identifies important learning goals and should be optimized. We should find out what kind of external regulation is necessary to optimize GP-trainees’ learning in the short and long loop.

**827 Generation Y and E-learning: Exploring the views of members of Generation Y about the role of electronic learning in General Practice training**

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**Background:** Understanding the challenges of Generation Y is becoming increasingly important in medical education. This generation (born during or after 1980) form a growing proportion of trainees, and have been found to have different learning styles when compared to previous generations. Although members of Generation Y are viewed as technologically proficient their use of technology for social networking is not always translated into educational use. Further, confusion exists regarding what ‘e-learning’ is, with it typically being viewed in a narrow sense. This project set out to identify the learning preferences and behaviours of Gen Y trainees and to explore the potential of E-learning to support training for general practice.

**Summary of work:** A survey was undertaken of ST1-3 Generation Y GP trainees in Southampton and Portsmouth. The survey was intended to: 1. determine what Generation Y GP trainees identify as e-learning; 2. describe their current use of e-learning, and identify barriers to use; 3. describe features of e-learning.
which would increase use and engagement; 4. make recommendations to guide future use of e-learning for GP trainees from Generation Y.

Summary of results: The communication will report the findings of the project within the context of the wider literature.

Conclusions: The research will consider how to harness the potential of e-learning for GP trainees.

8Z8 Developing effective leadership in GP commissioners
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Background: The role of General Practitioners (GP) in the UK has recently undergone significant change since acquiring responsibility for commissioning healthcare services. Leadership has been recognised by the Seven Pillars of GP commissioning as essential for GPs to guide the operation of their consortia and make efficient use of NHS resources. GPs therefore need support to develop effective leadership behaviours.

Summary of work: This project describes a job analysis including a comprehensive literature review and stakeholder interviews (N=20) aimed at developing a leadership competency model for GP commissioners with positive and negative behavioural indicators.

Summary of results: Evidence to date identifies practical leadership skills inherent in this role including big picture thinking; negotiation and influencing and emotional intelligence which will inform the design of a development centre (DC) to support GPs to enhance their leadership skills required for effective commissioning.

Conclusions: Results from the literature review and interviews will be presented in full with initial outcome data from the GP development centres aiming to demonstrate effective behavioural change and acquisition of practical leadership skills.

Take-home messages: Practical support needs to be provided to GPs to ensure commissioning of healthcare services is led effectively. Evidence-based interventions can offer this support; focusing on the behaviours underpinning competencies identified through job analysis.

8Z9 Implementation of the practice of primary care medicine in the course of the Federal University of Paraná: aspects psychosocial and educational
Ricardo Carlini*, Maria de Fatima Quintal de Freitas (Federal University of Paraná, Brazil)

Background: This work is a study on the perception that medical students have about the meanings of participation in the subject of primary health care. It seeks to understand through those perceptions which contributions this modality brings to the profile of the graduated physician, indicated by the national curriculum guidelines.

Summary of work: For the accomplishment of such a study, we collected data from students who are taking or have taken this subject, as well as observing their social profile and their impressions about the Medicine College.

Summary of results: The qualitative and quantitative analysis of the data show as results that the students value the possibility of being inserted in the basic attention starting a professional practice, as well to accompany a family connected to a health unit, where they can get to know the reality in which those people live, identifying their health necessities and proposing possible intervention strategies. Although they recognized this subject as an important formative value, they do not see in it a preparation for their future labor market, considering that practically half of the students show an option for specialized areas of Medicine.

8Z10 Using a learning coach to develop self-directed learning skills among residents
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Background: To prepare for practice in the context of rapidly expanding knowledge and continuous change in healthcare, physicians-in-training must develop self-directed learning (SDL) skills. They must be able to identify learning needs, set goals, and reflect on learning, as well as access current medical knowledge to answer clinical questions in practice.

Summary of work: We developed an intervention to promote SDL in a 3-year family medicine residency. One faculty physician serves as a learning coach, whose role is based on Collins’ cognitive apprenticeship model. The coach meets monthly one-on-one with second-year residents, coaching them in generating goals, reflecting on learning experiences, and practicing point-of-care evidence-based medicine (EBM). Residents record goals and reflections in an electronic portfolio containing their formative assessments, procedure logs, and projects. A mixed-methods program evaluation included surveys and interviews with residents and faculty to assess changes in residents’ SDL skills.

Summary of results: Pre- and post-surveys and interviews with residents and faculty documented significant improvements in residents’ goal setting, reflective ability, and use of EBM. These effects persisted 12 months after participation in the intervention.
Conclusions: Through individual meetings with residents using an electronic portfolio, a learning coach facilitated development of SDL skills.
Take-home messages: A one-on-one coaching intervention can promote residents’ SDL skills.

8Z11 An intervention for reducing interruptions at resident doctor morning report
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Background: Most residency programs offer morning educational conferences. However, resident participation is frequently interrupted by calls and pages. We created an intervention to eliminate interruptions from pages at morning report.
Summary of work: In 2008, the chief medical residents (CMRs) at the Mayo Clinic internal medicine residency program answered all incoming pages, which allowed residents-in-training to focus on morning report. Non-urgent issues were communicated to residents following conference; only urgent pages were handled immediately. All pages were recorded and categorized according to the caller (e.g., nurse, pharmacy, other physician) and urgency (yes/no).
Summary of results: Of 884 pages that were recorded over the first six months, 495 (56%) came from nursing and 743 (84.1%) were non-urgent, thus preventing an average of 4.2 interruptions per morning report. After six months, there was a decrease in the total number of pages compared with baseline (p=0.05). Since 2008, the number of non-urgent pages has remained steady at 4.1 per morning report.
Conclusions: This simple intervention prevented unnecessary interruptions during morning report. Furthermore, we suspect that the decrease in pages over time may be due to improved awareness among nurses and other medical staff.
Take-home messages: Our simple intervention decreased interruptions during morning report, which allowed residents-in-training to participate in an important educational activity.

8Z12 Pharmaceutical industry interactions and gifts: exposure and perception of in-training physicians
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Background: Evidence from developed countries has shown that prescribing behavior is affected by informal interactions between the pharmaceutical industry and physicians. The magnitude of such interaction has not been explored in Thailand.
Summary of work: We aimed to measure interactions between pharmaceutical industry representatives and residents in Thailand, to assess physicians’ attitudes toward these interactions and factors determining their frequency. We elicited information by sending questionnaires to 970 resident physicians at a university hospital in Thailand.
Summary of results: Three-quarters of trainees had weekly conversations with pharmaceutical representatives. Nearly 90% of physicians received at least one gift per month. Residents in one of the specialties with the highest prescribing costs were most likely to have such interactions; with an adjusted OR of 7.91 (4.61-13.58) for having conversations and 5.18 (3.28-8.17) for receiving non-educational gifts. Those residents who perceived that it is impolite to decline gifts were more likely to accept non-educational gifts: adjusted OR of 1.68 (1.04-2.71).
Conclusions: Residents in Thailand have frequent interactions with pharmaceutical representatives. Guidance on managing conflict-of-interest from those interactions should be included in residency training program in order to mitigate the effects of such interactions.
Take-home messages: Residency training institutes should restrict Interaction between pharmaceutical representatives and residents.

8Z13 Can We Predict Final Outcome of Internal Medicine Residents from In-training Evaluation?
Nitipatana Chierakul*, Sutep Pongprasobchai, Kanokwan Boonyapisit, Yingyong Chinthamnit, Manop Pithukpakorn, Adisak Maneesai, Apiradee Srivijitkatol, Pornpan Koomanachai, Ajchara Koolvisoot (Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand)

Background: To assess the predictive value of in-training evaluation for determining future success in the internal medicine board certifying examination.
Summary of work: Ninety-seven internal medicine residents from Faculty of Medicine Siriraj Hospital who undertook the Thai Board examination during the academic years 2006-2008 were enrolled. Correlation between the scores during internal medicine rotation and final scores in board examination were then examined.
Summary of results: Significant positive linear correlation was found between scores from both written and clinical parts of board certifying examination and scores from the first-year summative written and clinical examinations and also the second-year formative written examination (r = 0.43 - 0.68, p < 0.001). Monthly evaluation by attending staffs was less
well correlated ($r = 0.29 - 0.36$), and the evaluation by nurses or medical students demonstrated inverse relationship ($r = -0.2$, $p = 0.27$ and $r = -0.13$, $p = 0.48$).

**Conclusions:** Some methods of in-training evaluation can predict successful outcome of board certifying examination.

**Take-home messages:** Multisource assessments for professional competences and qualities of internal medicine residents should be further developed.

8Z14 Innovations and trends in Post Graduate Medical Education in the European Union

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**Background:** The study includes a review of developments and innovations in and around Post Graduate Medical Education (PGME) in the European Union (EU).

**Summary of work:** We present a conceptual model that assumes that there is a mutual influence and coherence between policy, PGME and medical care. “Policy” can be defined in various ways. We apply it here at macro system level.

**Summary of results:** The idea is to gather information by obtaining a partially structured interview with experts in the participating countries. Finally the result is the mapping of innovations and trends on which policy makers in the field of PGME and healthcare will make decisions on harmonisation at EU level.

**Conclusions:**
1. What are the considerations and trends for a policy concerning PGME in (the various countries) in the EU? 2. What initiatives in some EU-countries are taken to modernize PGME? 3. What aspects of the innovations and trends in PGME have relevant impact for medical care?

**Take-home messages:** It is important to put innovations and trends in PGME in a context of policy at macro-level concerning quality of medical care.

8Z15 A systematic approach to quality improvement in postgraduate medical education (dOORkijk).

J Martens*, E Overeem*, H Mulder*, M Wijnen-Meijer*, E ter Braak* on behalf of the regional projectteam dOORkijk (University Medical Center Utrecht, the Netherlands; Gelre ziekenhuizen (Gelre hospitals), the Netherlands)

**Background:** The Utrecht region is continually pursuing a higher-quality of patient care and education. As the quality of health care is influenced substantially by the quality of medical education, the importance of quality assurance (QA) and quality improvement (QI) in medical education is widely recognized (e.g. WFME standards). For postgraduate medical education standards as well as evaluation, tools are available. The challenge, however, is to implement them in an effective and deliberate way that takes into account culture, possibilities and constraints of the own educational context.

**Summary of work:** dOORkijk is the first region-wide quality assurance-program focused on postgraduate medical education in The Netherlands. This initiative is a collaboration between the University Medical Center Utrecht and its partner hospitals. Through a systematic series of specific questionnaires and interviews, a quality-report is generated. An important aspect of this program is the meeting and discussion between supervisors and residents.

**Summary of results:** Since 2009, 15 postgraduate training programs have participated in dOORkijk. Following the Plan-Do-Check-Act-cycle, some of these groups are now in the process of developing a Plan of Action.

**Conclusions:** dOORkijk provides a comprehensive qualitative evaluation of postgraduate education and training in the Utrecht region.

**Take-home messages:** Meeting and discussion between supervisors and residents is fundamental to improve postgraduate medical education.

8Z16 Training Pre-registration Nurses in Primary Care Placements - a pilot scheme

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**Background:** Concerns exist about future recruitment, retention and education of practice nurses. 2009 Census data shows a 3.6% reduction in practice nurses, with 43% intending to retire in 10 years.

**Summary of work:** This pilot programme placed student nurses into GP practices for 5-week blocks. Practice nurses attended a Supervisor Course and provided support and mentorship. The scheme promoted practice nursing as a career, highlighted the role of practice nurses and enhanced the content of pre-registration curriculum.

**Summary of results:** Quantitative and qualitative data was collected using a mixture of pre and post placement questionnaires and focus groups to students and practice nurses. Experience of practice nursing in the pre-registration programme, improved the perceptions of the requirements, career progression and status of the role.

**Conclusions:** Practice nurses play a key role in the future of primary care. Workforce redesign and planning must optimise skill mix, to assure quality care and value for money within general practice. This pilot in part addressed national concerns about recruitment and retention, highlighting an effective way at approaching this problem.
Take-home messages: Targeting and training of pre-registration student nurses is essential for recruitment and retention of practice nurses in the evolving health care systems.

8Z17 The development of an emergency medicine certificate for non-specialist doctors
A Killen (Australasian College for Emergency Medicine, 34 Jeffcott Street, West Melbourne, Victoria 3003, Australia)

Background: The increasing demand on the emergency medicine workforce in Australia and New Zealand has led to the development of a qualification for non-specialist doctors working in emergency medicine.

Summary of work: During the past two years, the Australasian College for Emergency Medicine (ACEM) have been developing non-specialist qualifications for doctors working in emergency medicine. The Emergency Medicine Certificate provides candidates with an opportunity to enhance and develop skills in emergency medicine supported by online learning resources designed to be interactive, engaging and learner-centred.

The program is a competency-based qualification which incorporates workplace-based assessment and reflective learning as part of the methodology. Currently being piloted, the program has recently received substantial government funding which will see the certificate introduced widely across Australia in 2011. The Emergency Medicine Certificate will enable non-specialists in regional and rural Australia to gain valuable skills and a recognised qualification in emergency medicine.

Summary of results: Currently being piloted, the Emergency Medicine Certificate is receiving positive feedback and results from those involved in the program.

Conclusions: Doctors wishing to gain postgraduate qualifications in emergency medicine now have more options and greater flexibility.

Take-home messages: ACEM have developed a competency-based emergency medicine certificate incorporating workplace-based assessment and reflective learning for non-specialist doctors.

8AA Posters: Student Characteristics

8AA1 Learning focused on motivation
Mario A Secchi*, William Daros, Walter Bordino, Lisandro Quadrelli, Nicolás Rodriguez Leon (Medical School - Instituto Universitario Italiano de Rosario (IUNIR) Argentina)

Background: Academic progress is severely impaired by students’ lack of motivation. At the Instituto Universitario Italiano de Rosario (IUNIR, Argentina), we addressed this problem by building educational motivation focused on competence acquisition.

Summary of work: We developed a Learning Theory focused on motivation using a teaching tool called Basic and Experimental Surgery, aimed at training students in acquiring clinical competences across their five-year curriculum. Quali-quantitative action research studies were performed from 2002 to 2009, using methodological triangulation and triangulation of data. Quantitative surveys and class observation (quali-quantitative: students-teachers-directors-graduates) addressed the following: 1. pertinence evaluation of Basic and Experimental Surgery in the curriculum, 2. demonstration of its motivation-focused teaching approach and elaboration as motivational integration tool, 3. application of acquired competences in the first two groups of medical graduates benefiting from it (clinical practice competences, items 10-11 Argentine Ministerial Resolution 1314/07).

Summary of results: All students (n=250), professors and directors considered that inclusion of Basic and Experimental Surgery was pertinent and its teaching methodology appropriate: it motivates and facilitates learning, leading to enhanced academic performances as correlated by Levene’s Test.

Conclusions: Medical graduates were able to apply competences safely and autonomously during the first six months after graduation.

Take-home messages: The motivation-focused teaching tool meets the proposed objectives.

8AA2 Can Emotional Intelligence in Medical Students be Improved through a Self-Reflection Programme?
Anupong Suthamnirand*, Sirinadda Panyapas, Tudsanee Chermtong (Chonburi Medical Education Centre, Chonburi, Thailand)

Background: Emotional intelligence (EI) is a social intelligence that involves the ability to monitor one’s own and others emotions. EI has related to medical professionalism in interpersonal and communication skills. Dr.Goleman (1995) defined the component of EI were “simple, yet powerful enough to effect change”. Can the self-reflection process be progressed EI in medical students?

Summary of work: The twenty eight fifth-year medical students, academic year 2010, in four weeks at psychiatric clerkship, were matched by prior EI scores and sex into two groups. The first group was enrolled in one-hour four sessions of self-reflection programme, included self-emotion-awareness, self-control, empathy, and interpersonal relationships. The second group was the normal activity. The Thai EI
questionnaire derived by the Department of Mental Health was scored by both groups before and after programme.

**Summary of results:** Both groups were the EI scores in the standard of Thai people. The scores were significantly improved ($p<0.05$) in motivation goal, decision making, and self-regard in the intervention group. However, there were no statistically significant increased of empathy and interpersonal relationships scores.

**Conclusions:** The self-reflection was partially worked in improving EI scores. The activity and student recruitment should be reviewed.

**Take-home messages:** Finding a programme to develop EI in the students should be done and added in curriculum.

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**8AA3 A cluster analysis of medical student characteristics and practice intentions**

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**Background:** The Medical Schools Outcomes Database (MSOD), established in 2005, is the first nationally coordinated project for tracking students through medical school and into future training. All 18 Australian medical schools are involved. We used a novel analytic approach to demonstrate MSOD utility for curriculum development, workforce planning, and research.

**Summary of work:** Cluster analysis was used to identify sub-groups of medical students based on demographic characteristics and career interests to assist targeted intervention. Commencement data from 2005/2006 and graduation data from 2008/2009 were used.

**Summary of results:** Students were classified into 5 groups: Overseas students interested in teaching/research (18.2%); Domestic students interested in teaching/research (26.5%); Rural bonded students (13.0%); Female domestic students undecided about specialty (23.1%); Domestic overseas-born students undecided about specialty, interested in teaching/research (19.2%).

**Conclusions:** The results can be used to identify students with interests in areas such as teaching and research or rural practice, so that student educational experiences are tailored to enhance the likelihood of pursuing such career options.

**Take-home messages:** Using MSOD, medical students can be reliably and validly classified into ‘clusters’ based on demographics and career intentions, in order to develop targeted education programs and to assist in achievement of medical workforce needs.

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**8AA4 The predominance of Integrative Tests over Discrete Point Tests in evaluating the medical students' general English knowledge**

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**Background:** Multiple choice tests are the most common tests used in evaluating the students’ English knowledge in most medical universities. However, their efficacy is not examined precisely. Integrative and discrete point tests were compared and examined as measures of medical students’ English language knowledge.

**Summary of work:** Three tests were given to 60 undergraduate physiotherapy and Audiology students in their second year of study. They were divided into 2 groups. The first test for both groups was an integrative test, writing. The second was a multiple choice test of preposition for group one and a multiple choice test of tenses for group two. The same items most frequently used wrongly in test one were used in the second test. A third test, TOEFL, was administered to estimate the correlation between this test and tests 1 and 2.

**Summary of results:** The students performed better in discrete point than integrative tests. The results showed that there isn’t a significant difference between composition, a productive test & TOEFL ($P>0.05$). But statistical analysis revealed a significant difference between multiple choice tests & TOEFL ($P<0.001$). The same grammatical mistakes in composition were used correctly in multiple choice tests.

**Conclusions:** Students perform better in nonproductive than productive tests. Since being a competent English language user is an expected outcome of university language courses, it seems warranted to switch to integrative tests as a measure of English language competency.

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**8AA5 The effect of personality traits on academic achievement**

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**Background:** Although medical students are the excellent group in keen competition of an entrance examination, some of them underachieve and drop out. We investigated the effect of personality traits on the achievement.

**Summary of work:** The subjects were 265 1st and 2nd-year medical students. The students answered a questionnaire (9 descriptive scales for the personality traits, 5 clinical scales for the psychopathological
tendency, and 1 validity scale), which was standardized test by Chung-ang aptitude publishing, Korea.  

**Summary of results:** There was a high proportion of students in the upper ranks of percentile scores for the each personality trait and especially female students who had low masculinity were significantly less than male ones. The personality traits of underachieved students were not different from those of achievers. However, in the 1st year, the students with high anxiety in the lowest academic group were significantly more than that of the highest group. In the 2nd year, the level of academic record was correlated with the sociability (r = -0.20, p <0.05) and depression tendency (r = -0.25, p <0.01).

**Conclusions:** The personality traits did not affect the dropout directly, but the depression and anxiety tendency could interrupt academic performance.

**Take-home messages:** We should help medical students to promote their excellent personality traits and support students who have negative psychopathological tendency.

**8AA6 How 3rd year pre-clinical medical students spend their leisure in self-study and recreational activities. A study in the biggest pre-clinical medicine teaching center in Thailand**  
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2Ministry of Public Health, Bureau of Epidemiology, Department of Disease Control, Nonthaburi, Thailand)

**Background:** Nowadays, the presence of many recreational activities may make the students spend less time in self-study. The aim of this study is to explore how medical students spend their leisure.

**Summary of work:** Copies of a questionnaire were distributed to 367 3rd year medical students studying in Faculty of science, Mahidol University, Thailand. 170 copies were returned, and the data were analyzed through Kirix Strata™.

**Summary of results:** The average time students spend in self-study is 48 min/day, but during preparing for a test, the time they spend for studying increases to 5.8 h/day. On average, the students spend 5 h/day in recreational activities on weekdays. Their most popular activities are viewing Facebook (85%) which takes 2.4 h/day. The students who do self-study for more than 3 days/week are more likely to get higher GPA significantly (OR 6.52, p-value 0.005).

**Conclusions:** The time our medical students spend in self-study is lower than expected. However, tests are good stimuli to encourage students to do more self-study. Medical students who do their self-study habitually are more likely to be successful in study.

**Take-home messages:** Many recreational activities at present distract medical students from self-studying. Lecturers may have to implement activities that effectively encourage students to do self-study.

**8AA7 Tutoring scientific subject matter in students’ mother tongue**  
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**Background:** At Stellenbosch University (South Africa) both English and Afrikaans are used as academic languages. Chemistry for entry level students was only offered in English in 2010. A tutor group intervention was instituted for Afrikaans speaking students. The primary purpose was to create a safe space for students to learn about chemistry in their mother tongue.

**Summary of work:** A mixed method research approach was used to generate data in an effort to determine the effectiveness of the intervention. Focus groups and individual interviews with students and tutors were used for qualitative data collection. Data from a questionnaire and the summative results of the module were also collected and analysed.

**Summary of results:** Approximately 50% of the non-English speakers attended the mother tongue tutor groups with a resulting 92% pass rate for this group. More benefits other than discussions in their mother tongue e.g. the development of essential generic skills like group work, effective communication and peer learning, occur.

**Conclusions:** Providing space where students can communicate in their mother tongue about scientific subject matter, contributed towards learning of that subject, as well as enhancing the development of critical generic skills students need to function optimally at university.

**Take-home messages:** Students who learn scientific subject matter in their mother tongue, benefit more than in one way.

**8AA8 Medical students’ conceptions about the role of medical education in supporting professional identity**  
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2University of Turku, Faculty of Medicine, Medical Education Research and Development Centre, Turku, Finland)

**Background:** Professional identity of the medical students grows progressively during their undergraduate education. It is known that learning environment and practical exercise in work places promote this development. In this study, the role of...
several factors associated with professional identity formation in medical education were evaluated.

**Summary of work:** Fourteen 6th year medical students, half of them selected through a graduate entry programme and the other half via entrance examination directly after high school, were individually interviewed for experiences of factors affecting their professional identity formation. The data was qualitatively analyzed.

**Summary of results:** Nearly all students felt that their professional identity had enhanced throughout their undergraduate studies. This growth was mainly supported by theoretical and practical university teaching, followed by personal and work-based factors. Students additionally considered that their education had given them capacities for working with other issues than patients only to some extent. There were only minimal differences between the two student groups.

**Conclusions:** Undergraduate medical education seems to promote growth of professional identity of the students, independently of the students' educational background at admission. Although the basic university teaching appears to be a central contributing factor, also personal factors and practical exercise in work places are considered important.

**8AA9** Self evaluation on emotional intelligence (EI) in medical students attending enneagram workshop

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**Background:** Enneagram is a tool of self discovery and also one of the methods to help EI development by using nine different personality orientations. EI is the essential basis for development of moral, ethical and self-evaluation in medical professionalism.

**Summary of work:** This study compared the EI in 4th year medical students using EI screening questionnaire before and after attending a three-day enneagram workshop. This workshop referenced by Helen Palmer and consisted of various activities such as lecture, self observation, meditation and panel interview.

**Summary of results:** Twenty-six 4th medical students using EI screening questionnaire before and after attending a three-day enneagram workshop. This workshop referenced by Helen Palmer and consisted of various activities such as lecture, self observation, meditation and panel interview.

**Take-home messages:** Enneagram is one useful method for EI development.

**8AA10** Resilience: Its Place in the Student Journey

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**Background:** Completing a medical degree presents a high level of challenge both in terms of education performance and personal qualities. This leads to the question as to whether students are sufficiently resilient to withstand the pressures and demands placed upon them. Resilience can be defined as the ability to thrive in adversity. To date there are few studies which have investigated the role resilience plays in enabling students to complete their degrees successfully. Some senior doctors and medical educationalists would argue that resilience can be enhanced through focused training.

**Summary of work:** Questionnaires, focus groups and semi structured interviews were carried out with undergraduates and staff to determine their views on the nature of resilience, its role in student success and the requirements for resilience training.

**Summary of results:** Thematic qualitative analysis will be undertaken and presented illuminating both staff and student perspectives. Commonalities and differences between staff and students will be noted and implications for resilience training will be developed.

**Conclusions:** Resilience is an important professional attribute that remains under investigated but is key to student success and for the doctors of tomorrow. IA and SM contributed equally to this work.

**8AA11** Attitude Toward Homosexual Persons in Health Sciences Students

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**Background:** Although homosexuality is a normal variant of human sexuality, sexual prejudice among health care professionals is still documented. It precludes the establishment of a trustful relationship and may adversely affect the health of non-heterosexual persons.

**Summary of work:** We studied a sample of 356 health sciences students to assess their attitude toward homosexual persons applying Herek’s Attitudes Toward Lesbians and Gay Men Scale (ATLG) and a new Homophobia scale (EHF) developed and validated in Mexico. ATLG’s internal consistency, factor structure and validity were determined.

**Summary of results:** The 20 items of ATLG were consistent (α = .94). Three attitude factors were defined: one toward lesbians (0.91) and two toward gays, one of open rejection (.85) and another of subtle
Conclusions: Sample’s global tendency toward homosexuality was one of indifference. Men showed higher ATLG global scores and higher scores on the open and subtle rejection factors toward male homosexuality; the average scores toward were equivalent.

Take-home messages: An attitude of indifference is not optimal and cannot be accepted as a standard for the future generations of health care professionals. More educational and correcting interventions are required. The use of ATLG is recommended.

8AA12 Comparing gender awareness in Swedish first- and last-term medical students - results from a questionnaire
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Background: In order to make more doctors aware of gender bias in health care, we need to have a gender perspective in medical education. Research suggests that an understanding of medical students attitudes is important in gender implementation.

Summary of work: We wanted to compare gender awareness between male and female, first- and last-term students. The aim was to explore how medical education might influence the students’ generalized ideas about men and women in health care. The comparison was made by use of a validated scale, the Nijmegen Gender Awareness Scale.

Summary of results: Last-term students were less willing to agree to patient and doctor stereotypes compared to those at first term. More last-term students than first-term students were sensitive to gender differences. Men were more likely to express patient and doctor stereotypes than women.

Conclusions: Our results indicate that putting gender in the medical curricula bear fruit. Therefore, we need to continue having a gender perspective in medical education.

Take-home messages: Gender implementation is needed throughout medical education in order to impede unmotivated gender bias in health care.

8AA13 First clinical experiences of medical students: the influence of age, gender, former experiences, personality and coping on situational behavior and learning outcomes
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Background: Entering medical practice for the first time is highly impressive for students. This study addresses medical students’ behaviour directly following impressive experiences during a first-year nursing attachment, their learning outcomes and associations with place of attachment, gender, age, former experiences, personality and coping style.

Summary of work: Directly after a compulsory nursing attachment in hospitals and nursing homes, all first-year medical students received validated questionnaires for personality and coping, and questions about demographics, impressive experiences, situational behaviour and learning outcomes.

Summary of results: Following an impressive experience, students (53%), especially women, mostly talked with others about what had happened. Students frequently mentioned feeling content (35%) or enjoying the situation (20%) as main reactions, predominantly in nursing homes. Some students reported they actively tried to change (19%) or reframe (15%) stressful situations. Learning outcomes were collaborating in a team, acquiring competencies and developing empathy and self-reflective abilities.

Conclusions: There are significant gender differences in the way students react to impressive experiences. The nursing home seems to be a particularly positive learning environment. When confronted with potentially stressful circumstances, students in general have active and engaged attitudes.

Take-home messages: We should consider developing gender-specific learning environments. It might be better to offer students their first clinical experiences in a nursing home.

8AA14 A Systematic Educational Program to Promote the Spirit of Study
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Background: Tohoku University declares "Research first". Based on it, we developed a systematic program to provide the students with 1) a sense of mission, 2) minds to search for truth, and 3) the ability to find out and solve the problem.

Summary of work: The program consists of the introductory (IS, 1st year), expansive (ES, 2nd year), and practical (PS, 3rd year) stages. IS promotes motivation. Students initially learn the confidentiality of information, communication skill, and basic medical
techniques. Then, discussions with bereaved family and leaders in various medical fields are held on ethics and competence of medical practitioner. The experience in hospitals is also executed. ES is characterized by Advanced Science Course (ASC) and Workshop for Tackling Question (WTQ). In ASC, students learn the topics or important themes in medical fields, and then find out questions in small groups. In WTQ, they discuss the significance of them, collect references, and present how to solve them and hypothetic results. In PS, students participate in actual research for 4 months, and present achievements at the academic meeting held by students. All curricula are evaluated by students.

**Summary of results:** In the evaluation, more than 80% of students selected "highly effective" or "effective" in getting a sense of mission, more than 75% in getting minds to search for truth, and ability to find out and solve the problem.

**Conclusions:** Our new program was quite effective to promote the spirit of study in medical students.

**Take-home messages:** Our new program will be useful in promoting the spirit of study.

### 8AA15 Nursing Students' Experiences of Nursing Profession

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**Background:** The experiences of the nursing students about their profession provide a chance to evaluate the effects of the nursing education and its merits and demerits. The main objective of the study was to assess the nursing students' experiences about their career.

**Summary of work:** It was a descriptive phenomenological study and 12 nursing students of Isfahan university of Medical Sciences (Faculty of Nursing and Midwifery) participated. Data gathering tool was in-depth unstructured interview and to analyze the data Collizi method was used.

**Summary of results:** Two main categories and 12 sub categories were presented from the data, including professional dimensions (major and minor roles and duties, job characteristics, achievements, and accepting) and professional conflicts as internal (unpleasant feelings and evading the profession) and external involving social (organizational and cultural structures and professional relations) and educational (Theoretical and clinical) were considered as their experiences.

**Conclusions:** In addition to learning job skills, the students can gain various experiences during their education. Positive experiences lead to job acceptance and satisfaction and negative experiences confront with conflicts in adaptation with their major. Therefore, it is obvious that a problematic clinical education produces incompetent and inefficient students, so renewed concerns about the problems of the clinical education system is essential. And the reforms of the clinical education system should answer to the real needs of the nursing students in clinical environment.

### 8AA16 Students' attitude toward teacher-student relationship in the College of Medicine, Erbil, Iraq

*AM Saleh (Hawler Medical University, College of Medicine, Erbil, Iraq)*

**Background:** The aim of our study is to examine the attitudes of students toward teacher-student relationship in the College of Medicine and to identify factors that affect this relationship.

**Summary of work:** This descriptive study was conducted in the College of Medicine/Hawler Medical University in Erbil, Iraq. Fifty students from each stage were selected to be included in this study by simple random sampling. The first year students were because of their limited experience in this subject. A questionnaire was designed including 15 questions about the teacher-student relationship in general, the relationship during lectures and the factors affecting such relationship.

**Summary of results:** The students had concerns about teachers and some dissatisfaction with issues related to poor sharing of personal information, unequal treatment of students, not assisting students with community and outside activities, not encouraging friendly relationships and poor feedback. They agreed that friendly teacher-student relationship can enhance understanding and about the influence of teacher’s academic title and age, information technology, culture the education system on this relation.

**Conclusions:** It can be concluded that the general student-teacher relationship in the college of medicine is poor and more in-depth understanding of the reasons leading to this poor relationships needs to be explored.

**Take-home messages:** There is a poor student-teacher relationship and research should try to identify its reasons.

### 8AA17 Roles of Speech Therapy Teachers – Opinions of Students

*MTH Fukuda\(^*\), RCS Kuroishi, CE Piccinato, MLV Rodrigues (Medical School of Ribeirao Preto, Curso de Fonoaudiologia, University of Sao Paulo, Ribeirao Preto, SP, Brazil)*

**Background:** Considering the importance of the professor as a mediator of the teaching-learning process, the objective was to search students’ opinions about the importance of the roles of Speech Therapy teachers.
Summary of work: A self-administered questionnaire, about the roles of university teachers, was applied to Speech Therapy students: Group 1 – n=27 (2006 – implantation of the course); Group 2 – n=58 (2011 - consolidated course). The replies were scored from 1 to 5, according to the importance attributed to each item. Statistical analysis was performed using Mann-Whitney Test (p<0.05).

Summary of results: The highest scores were attributed, by both groups, to the role of “researcher” – ability emphasized in the pedagogic project. Following, Group 1 considered most important the roles of “active member of the University” (p=0.0004) and “model of attitudes and values” (p=0.0019) and by Group 2 were: “course evaluator” (p=0.04), “course planner” (p=0.001), “institutional administrator” (p=0.0183) and “expertise professional” (p=0.0319).

Conclusions: Consolidation of the Speech Therapy Course modified students’ opinions about the roles of good teachers. Despite this, the role of “researcher” was pointed out as the most important, irrespective of the period.

Take-home messages: The importance attributed by students to research is in agreement with the objectives of the Speech Therapy course.

8AA18 The influence of assessment in the learning priorities among medical students
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Background: During medical school, students are subjected to various evaluations in order to verify the progressive acquisition of knowledge and skills. However, the impact of such assessments on students' behavior and their prioritization of learning activities is not known.

Summary of work: We conducted a qualitative study based on focused groups with students from first to fourth year at medical school. The interviews were conducted in order to identify students' perceptions regarding the evaluation process as a first step. Then we tried to identify the influence of assessments in their daily activities.

Summary of results: Although most disciplines during this stage of medical school work with theoretical and practical activities, the prevailing view among students is that assessments are directed mainly to the theoretical aspects. And the method used to assess competencies by professors is always considered by students to plan their activities and prioritize their dedication.

Conclusions: Observed by the students' point of view, the evaluation process during medical school has a major impact on learning. Taking into account this information in the curriculum planning can be very valuable to improve the training of future physicians.

Take-home messages: The assessment process should always be viewed as a tool to enhance learning.

8BB1 Tutor perception and learning transfer in clinical practice after a training course
L Garrino*, V Recchia, S Gregorino, M G Teriaca, P Massariello, V Dimonte (V Locuratolo Undergraduate Nursing Courses, University of Turin, Italy)

Background: Tutor training programs contribute to developing competencies as regards communication with students and improve clinical experiences.

Summary of work: The aim of the study is to analyse tutor perception and the learning transfer in clinical practice, six months-one year after the Tutor Course “Improving Communication Skills and Relationship with students” at the Undergraduate Nursing School of Turin University. Data collection was achieved by an email survey sent to the nurse tutors who participated in the training course in 2010. In the questionnaire there is a demographic section and seven open-ended questions. Qualitative content analysis was used to identify categories and themes arising from open-ended questions.

Summary of results: Of the thirty surveys sent, twenty-three were returned (76%). Ninety-one percent of the tutors stated they learned new subjects; 87% of tutors also asserted that their relationship with students changed related to feelings/emotion, experience, behaviour and knowledge. Forty-four percent of nurse tutors can talk about an event in which he or she thinks of having behaved in a different way after the training course. Four main themes emerged from the data: communicative strategies, error based learning, student conflict management and learning process.

Conclusions: Tutors’ perception six months-one year after the training course is considered positive. They declare having changed their relationship with students according to the subjects taught.

Take-home messages: The evaluation of long-term perception can be helpful to improve participant awareness and to redesign training process.

8BB2 Teaching dialogues across professional boundaries for improved quality of clinical education
M Forsberg Larm*, E Ehrenborg, M Silvestri, A Wernerson, A Kiessling (Karolinska Institutet, Centre for Clinical Education, Stockholm Sweden)

Background: The Centre for Clinical Education (CCE) created in 2008 a five weeks course in teaching and
learning in higher education for health care professionals. The aim was to support and develop the quality of workplace learning. The syllabus focuses on prerequisites and frameworks for higher education; student learning; the professional teacher; an elective advanced component and an examination.

**Summary of work:** The course is run twice a year in four different parts of Stockholm County. The course is conducted as a "blended course" and attendants represent 12 different professions. Participants meet both physically and on a web-based learning platform. Participating health care professionals supervise students from Karolinska Institutet or the regional University Colleges.

**Summary of results:** The participants have emphasized the importance of meeting across professional and disciplinary boundaries as pedagogical difficulties in workplace learning are similar regardless of profession and learning environment. Critical incident analysis as a theoretical model for the examination has created a readiness to act and a mental model for pedagogical work.

**Conclusions:** Interprofessional teacher training in a health care context encourages dialogue for learning and is feasible in a large scale. Gradually former participants now build up learning networks and a common view on learning across the health care in the county.

**Take-home messages:** Interprofessional dialogues highlight the needs of learning networks.

**8BB3 Evaluation of a unique modular faculty development workshop methodology that meets diverse learner needs: A case study from ACT**

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**Background:** Diverse groups of faculty, whether of different disciplines, specialties, subspecialties, and whether in community or academic based practice, will have different needs. A workshop methodology in a flexible modular format has been developed in the area of Ambulatory Care Teaching (ACT) to meet these varying needs.

**Summary of work:** After an initial needs assessment on ACT was conducted, a series of faculty development instructional modules were created. These modules vary in length, depth of content, format, use of instructional methodology, and techniques of interactivity. A series of workshops constructed from these modules were presented. A mixed methodology evaluation analysis included pre and post-workshop tests to assess knowledge transfer (Kirkpatrick level 3).

**Summary of results:** Preliminary results show an increase in knowledge: mean pre-workshop score of 56% vs. 75% post-workshop, p< 0.01, paired T-test. Final results and qualitative interview data will be presented.

**Conclusions:** A flexible modular format can be an effective tool to present faculty development workshops to diverse audiences.

**Take-home messages:** Faculty development initiatives can be enhanced if they have a flexibility of format and content that meets the needs of the audience at hand.

**8BB4 De Galan model: a simple and effective tool for faculty development**

A Lugthart*, B Nuijens, A van Langen, E van der Maat, JM Wagter (Medical Centre Alkmaar, Foreest Medical School, Alkmaar, The Netherlands)

**Background:** Many doctors and nurses at teaching hospital Medical Centre Alkmaar (MCA) are involved in education. Most of them are excellent in their field of expertise. However, often their teaching skills are underdeveloped. We sought for a simple, motivating and effective way to improve their competences in educational designing and teaching.

**Summary of work:** Two group sessions with teaching healthcare professionals revealed their specific needs for deciding on content, structuring educational programs, using learning strategies, and dealing with resistance. We selected the educational model of ‘De Galan’ to design three interactive workshops and to teach the participants. This model was originally designed for (business) professionals without teaching background. Each workshop was evaluated.

**Summary of results:** Workshops were fully booked (N=40) and highly appreciated by participants. Participants reported; feeling more competent in teaching and in discussions on educational design; experiencing the model themselves made its benefits understandable; applying the model themselves gave immediate results for daily practice.

**Conclusions:** ‘De Galan’s’ model for educational design can be of major help for professionals with no teaching background. By applying the model for both workshop design and use in workshops, participants experience effects themselves and can transfer it to their own teaching.

**Take-home messages:** Practice what you preach: teaching healthcare professionals an existing, simple educational model, improves faculty development.

**8BB5 Improving faculty development program in Iran: An action research on changing the policy in a medical science university**
Background: Faculty development programs, as workshops, have been held for more than 10 years in Tabriz University of medical sciences(TUMS), the second established university in Iran. The program was optional and it was not systematic and time bounded and there was no formal policy for that.

Summary of work: The new approach to faculty development in TUMS was introduced at 2009 and it was based on a need assessment program. Three levels of faculty development were organized in TUMS as follows: 1) Master of science in Medical Education for training faculty members to be educational specialists; 2) Academic skills fellowship course in order to train faculties to be Educational leaders; 3) Core workshops on medical education in order to train faculties to be Educational practitioners. Based on a policy in the university all new faculty should pass the fellowship course before beginning their career as a faculty membersy and all faculty should pass the core workshops as one of their academic promotion requirements.

Summary of results: In two years more than 50% of faculty passed the workshops and courses. The satisfaction rate of the workshop was around 70% . More than 65% of educational research projects and 75% of scholarship in education programs have been designed by the faculty members who had completed one or two of the above mentioned courses.

Conclusions: Integrating faculty development as requirements for recruitment and promotion is effective in improving their knowledge, attitude and skills in medical education.

8BB6 EduMedUEM: Blog as a Channel for Discussion on Medical Education
R Z Esteves (Universidade Estadual de Maringá, Departamento de Medicina, Maringá, Brazil)

Background: Teachers and students of Medicine of Universidade Estadual de Maringá (UEM) have little involvement with the topics of Medical Education. Thus, the coordination of the course decided to create a space for discussing issues of Medical Education and related areas.

Summary of work: A blog (edumeduem.blogspot.com) was created in May 2008, using the tool Blogger (http://www.blogger.com/). The space reproduces texts selected of written and electronic information media and related to themes of interest of readers. The posts allow attaching links, images, videos and animations. Readers can sign to receive each new matter by e-mail and use an embedded search engine to find past messages.

Summary of results: Until March 2011, 268 news items were posted, distributed as follows: 37 in 2008, 94 in 2009, 116 in 2010 and 21 in 2011. The more frequent themes were: revalidation of foreign diplomas, Evaluation and Universal Health System (SUS). Most messages are read but few readers send comments; the most talked about issue is revalidation of foreign diplomas. Besides the readers of UEM, the blog has been accessed by other readers interested in Medical Education.

Conclusions: The blog EduMedUEM has fulfilled its original aim and served as a channel for dissemination and discussion of matters relating to medical education.

8BB7 Successful training of professors in the Instituto Mexicano del Seguro Social

Background: The Instituto Mexicano del Seguro Social (IMSS) is the biggest social security institution of Mexico. In addition to the main goal in health services, it provides and develops educational processes in the training of specialist physicians and related. It has trained until now 62,816 medical specialists. Moreover, this institution interacts with high level educational institutions in the country. Today, a teaching career is established to improve professors’ qualifications.

Summary of work: Trained professors develop academic programs which are directed to health personnel with teaching activities. Nowadays, a competences model is used, that employs new communication and information technologies (ITCs). Professors trained in this way can be qualified as career professors.

Summary of results: To date, 2123 professors have been trained, 283 of whom were qualified professors and a major coverage of teaching professionalization has been reached as well as the usage of ITCs.

Conclusions: Professors have been trained and qualified, both with theoretical foundation and methodologically accurate skills to influence favourably the teaching-learning process.

Take-home messages: This program recognizes educational labour linked to teaching process and promotes professional outstanding practices in a health assistance institution whose major purpose is not educational.

8BB8 Quality improvement of MUMS assessment system through CE programmes
Background: Examinations are formidable even to the best prepared, for the greatest fool may ask more than the wisest man can answer. This classic statement by George E. Miller encapsulates in a single phrase the central role of assessment in any form of education. Traditionally, assessment is viewed as a “necessary evil” in the curriculum, an act that we carry out because we have to.

Summary of work: Expert need assessment was performed over a 3-day workshop. They include 6 EDO managers and 18 staffs on student assessment. The output was running a workshop entitled “Design of the test step by step”, which was held in all schools of MUMS. A pre-test and post-test were carried out before and after the workshop which was run for 120 faculty members. Then e-learning content was also prepared for electronic education for the first time on this topic for Faculty members.

Summary of results: Based on findings, there was a significant difference between knowledge before and after the educational workshop.

Conclusions: As evaluation is one of the most important phases in teaching-learning cycle, educational and refreshment courses for faculty members are crucial.

Take-home messages: Due to time limitation of Faculty members, it is recommended to run electronic courses rather than traditional workshops. Comparison between these approaches needs further studies.

8BB9 An Accredited Learning Programme for Postgraduate Multiprofessional Family Care Tutors

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Background: Postgraduate Family Care Training Units include both Medicine and Nursing specialist training in a Primary Care context. There is evidence that clinical tutors show deficiencies in teaching skills. Accreditation of learning guarantees quality levels both in the process and the outcomes of learning.

Summary of work: Postgraduate Multiprofessional Family Care Training Unit of Cádiz (Andalusia, Spain) developed a learning programme on teaching competences for Medicine and Nursing tutors. Programme consisted of three courses: one related with Individual Learning Plans teaching competency-based, other with planning out learning pathways for postgraduate students and the last one regarding bibliographic searching. This programme was accredited by the Andalusian Agency for Healthcare Quality.

Summary of results: Twenty-five tutors attended the Learning Programme. Each one achieved their own Individual Plan on teaching skills, an individualised learning pathway (learning objectives included) for their students and they improved their skills in bibliographic searching. Finally they obtained a diploma that certified they have fulfilled an accredited learning programme. Accreditation process involved quality standards as learning objectives, pedagogical techniques and assessment.

Conclusions: Accredited Learning Programmes can be useful to improve teaching competences. Accreditation implies fulfilment of quality standards and can be included as a recognition for the Tutor Professional Career.

Take-home messages: “Learning to teach helps teaching to learn.”

8BB10 One year outcomes of a mentoring scheme for female academics: A pilot study at the Institute of Psychiatry, King’s College London

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Background: The professional development of under-represented faculty may be enhanced by mentorship, but we understand little about the mechanisms by which mentoring brings about change.

Summary of work: Female academic mentees were matched 1:1 or 2:1 with more senior academic mentors. Online surveys were conducted to compare health-related and attitudinal measures and expectations of mentoring at baseline with outcomes at 6 months and 1 year.

Summary of results: N=46 mentoring pairs, 44 (96%) mentees completed the pre-mentoring survey, 37 (80%) at 6 months and 30 (65%) at 1 year. Job-related well-being (anxiety-contentment), self-esteem and self-efficacy all improved significantly and work-family conflict diminished at 1 year compared to baseline. For mentees, expectations at baseline were higher than perceived achievements at 6 months or 1 year follow-up. For mentors (N=39), 36 (92%) completed the pre-mentoring survey, 32 (82%) at 6 months and 28 (72%) at 1 year. Mentor reported gains at 6 months and 1 year exceeded pre-mentoring expectations.

Conclusions: This uncontrolled pilot study suggests that mentoring can improve aspects of job-related well-being, self-esteem and self-efficacy over 6 months, with further improvements seen after 1 year for female academics. Work-family conflict can also diminish.

Take-home messages: Under-represented faculty may benefit from mentoring to support their personal and professional development. Mentoring is likely to be an
important component of effective faculty development programs.

8BB11 Strategic action program for the creation of faculty development at Universidade Federal Fluminense, Brazil
C Barreto*, G Teixeira* (Universidade Federal Fluminense, Departamento de Immunobiologia, Niteroi, Brasil)

Background: Professors are still dominated by cultural values historically fostered by public policies for scientific development in which publishing scientific papers and pertaining to graduate programs are valued at the expense of teaching professionalization.

Summary of work: The creation of a program of faculty development and pedagogical support for undergraduate courses in Life Sciences is the goal of the project "Evaluation of teaching and learning and their interrelations: a diagnosis for change", supported by the Department of Immunobiology, the Graduate Program in Pathology and the Foundation for Advancement of International Medical Education and Research FAIMER Brazil.

Summary of results: After a series of meetings in which an average of 20 professors attended, needs related to faculty, curriculum and administration were identified. The main points are Faculty Training, Integration of basic and clinical sciences to give meaning to learning, Integration of Teaching, Research, Extension, vocational training, Support for course coordinators and professors that deal with students with psychological-psychiatric problems.

Conclusions: The strategy used was effective both in raising awareness on the necessity of continued education and their immediate application in teaching practice among participants.

Take-home messages: University professors should be endowed with knowledge, skills and competencies related to teaching for successfully performing their social function.

8BB12 Teaching postgraduate students in-room or on-line: How do the two modes compare?
Phillip Evans (School of Medicine, University of Glasgow, Glasgow, UK)

Background: The University of Glasgow offers a Masters / Doctorate programme in Health-professions Education, delivered through two real-time modes, ’in-room’ and ‘on-line’. How do these modes compare?

Summary of work: Evidence from 20 postgraduate students and 4 members of staff, together with an analysis of cost-effectiveness is described.

Summary of results: The results show different, but favourable characteristics for each mode, and these vary according to the circumstances of the student.

Conclusions: Both modes of teaching are valid and effective, providing students are fully informed when they select the mode.

Take-home messages: Universities should continue to offer traditional ‘in-room’ teaching, and should also develop strategies for ‘on-line’ teaching.

8BB13 The journey from Quality Assurance to Quality Enhancement
Alyson Quinn (Warwick Dentistry, University of Warwick, Coventry, UK)

Background: New dental tutors at the University of Warwick are required to participate in a tutor development programme which monitors the quality of their teaching and teaching-related activities.

Summary of work: These tutors were initially very resistant to participating in the programme and were particularly concerned about having their teaching observed. The tutor development facilitators used a range of innovative teaching methodologies to engage the new tutors.

Summary of results: The results, charted over a year with 30 different tutors, describe how the tutors became engaged with their professional development as teachers and began to move away from a position of resistance to one of excitement and discovery.

Conclusions: Quality assurance of teaching can be challenging for all those involved in the process. These results show that carefully selected teaching methodologies can engage even resistant participants and enable them to enjoy exploring areas of professional development.

Take-home messages: Quality assurance of teaching can become quality enhancement of teaching if approached in the right way.

8BB14 Microteaching for bedside lessons: A new training method for clinical teachers
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Background: Microteaching is an opportunity to present a sample “snapshot” of what/how we teach and to get some feedback from colleagues about how it was received. We developed a new microteaching method to apply for clinical teachers. In this paper, the application of the methodology for the training of clinicians to teach residents on the ward is described and assessed.

Summary of work: 46 clinical teachers (21 university hospital, 25 affiliated hospital) who attend the faculty development for resident trainers in our university. Each attendee was asked to prepare a five-minute competed lesson of “teaching during round” (teaching
at the bedside or in the conference room). This micro lesson was videotaped for self-reflection and discussed with colleagues with constructive feedback. Questionnaire on the session is completed before and after the FD.

**Summary of results:** Teaching topics of micro lessons depend on the specialties of attendee. Teaching methods and element varies widely: PC slides, white board, regimen, or using simple apparatus. Comparison before and after the microteaching session, self-evaluation of teaching skills (p<0.1) and assessing micro lessons of other colleagues (p<0.05) are significantly improved after the microteaching session (Wilcoxon’s Rank Sum Test).

**Conclusions:** The built-in feedback mechanism in microteaching acquaints clinical teachers with the success of their performance and enables them to evaluated and to improve their teaching behavior.

**Take-home messages:** Microteaching is a powerful tool for reflecting own teaching skills at bedside.

**8BB15 Faculty development programme: perceptions of FAIMER’s participants**

**Background:** The changes of Brazilian health education are in progress. In order to stimulate these changes, Ministry of Health of Brazil supports FAIMER to improve the acquisition of knowledge of new methodologies in teaching and assessment in health professions education, in a faculty development programme.

**Summary of work:** This paper aims to analyse the profile of participants and their perceptions of FAIMER, period of 2008 - 2010. A semi-structured questionnaire was used to collect data and 89.2% answered it.

**Summary of results:** The profile was that most of them were male, young (30-49 years old), occupied a leading position and came from public institutions. The reasons to do FAIMER were improvement of knowledge and critical reflections of health education. At the end of programme they evaluated that it was an excellent course and their perception was that they were prepared to stimulate and support changes in their institutions, as well as being part of a network of health educators.

**Conclusions:** As a conclusion, supporting FAIMER by Ministry of Health was important to stimulate changes in Brazilian health education.

**Take-home messages:** The importance of faculty development to change and sustain curricula.

**8BB16 10 years’ Competence Network Teaching in Medicine Baden-Wuerttemberg. Success in medical teaching through concentration, cooperation, and coordination**

**Background:** The main objective of the Competence Network “Teaching in Medicine Baden-Wuerttemberg” is to ensure and improve the quality of teaching and assessment in medicine by developing obligatory guidelines and standards and furthering research projects. Expertise and resources are used collaboratively by the faculties.

**Summary of work:** Teaching in medicine, evaluation, examinations, e-learning, and the final-year internship respectively are the specific research topics of the five Competence Centres. Each Centre is part of one of the Medical Faculties of Baden-Wuerttemberg. The Competence Network’s main office, currently located in Tuebingen, coordinates and presents the Network’s projects.

**Summary of results:** The Competence Network has developed and successfully implemented a series of projects to assure continuous improvement of the process, structure and outcome of teaching and assessment: (1) A standardized qualification in university teaching in medicine (MQ I/ MQ II); (2) Examination guidelines for examiners and curriculum developers; (3) A certified training course for M2 examiners; (4) A consistent selection procedure for the qualifying examination (TMS); (5) A statewide graduates survey; (6) Research in medical education.

**Conclusions:** Both the universities and students profit from the synergy effects of the Network, from mandatory guidelines and the implementation of standards in teaching and assessment.

**8BB17 A developmental process for Training Programme Directors (TPDs) - the Postgraduate Deanery for Kent, Surrey and Sussex (KSS) experience**

**Background:** Since the advent of Phase II of Modernising Medical Careers (MMC) in 2007, the role of the TPD had altered. Their remit is described in ‘A Reference Guide for Postgraduate Speciality Training in the UK’ (the ‘Gold Guide’). We outline our approach to the development of the TPD.

**Summary of work:** We describe the method of delivering training and development for the TPD role. This includes recruitment, negotiation, interview skills
and interview training, programme design, curriculum mapping, Out of Programme (OOP) experience management, Inter-Deanery Transfers (IDTs), trainees in difficulty, Annual Review of Competence Progression (ARCP), Less Than Full time Training (LTFTT) applications, business plan development, leadership and TPD communication skills.

Summary of results: The KSS TPD development programme has now had five events, all of which have been evaluated, and a sixth event is planned for June 2011. The focus has moved from didactic delivery of topics to a workshop format, designed and managed by the participants who have attended previous events. Follow-up information relating to workshop outputs is electronically sent to attendees after the event.

Conclusions: We describe the evolution of each ‘development day’ and the changes to the programme which ensued.

Take-home messages: TPDs for Specialty have on-going development needs, and can plan its delivery.

8BB18 Translation Excellence - Best Practices of the Medical Council of Canada

R Lee*, AP Boulais, T Rivard, R Wassef (Medical Council of Canada, Ottawa, Ontario, Canada)

Background: Many countries have 2 or more national languages resulting in the need for content to be identically available in multiple languages. Content is often developed in one language and then translated to others and can be a significant source of error and confusion for learners/test takers. High quality translation practices to minimize this error are necessary.

Summary of work: Following heightened concerns regarding the quality of content translation on the Medical Council of Canada (MCC) national licensing examinations; MCC undertook a collaborative review of its translation practices including national engagement of 20+ experts in the field. This included review of thousands of older items that had gone through less rigorous translation quality assurance.

Summary of results: A “best practice” process for content translation and quality control was confirmed and will be shared including outcomes from the content review activities, lessons learned and potential pitfalls to avoid.

Conclusions: Translating content is an area often overlooked and yet of critical importance. It can be labour and time intensive but is essential to confirm fair education/assessment across languages and populations. Widespread recruiting of translators is necessary to ensure regional language differences are addressed.

Take-home messages: Best practices exist and can aid in enhancing translation excellence.

8BB19 Vertical Integration of teaching and learning in General Practice

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Background: The shortage of General Practitioners (GPs), increasing numbers of medical students and the shift of medical education into the community places greater educational demands on busy GPs. The VITAL project provides a model in which the teaching and learning roles are shared across all learner stages – GP supervisors, trainees and students.

Summary of work: 20 general practices in Queensland participated in this shared teaching model trial. A half-day teaching skills workshop was provided to participating supervisors and trainees.

Summary of results: Positive effects for students were the variation of teaching styles and patient loads resulted in broader learning, and better engagement with trainees balanced the experienced teaching of GP supervisors.

GP supervisors and trainees reported improved teaching skills and high satisfaction with the project. Thematic analysis of qualitative data identified advantages, including sharing of the teaching load, and the opportunity to enhance teaching skills.

Conclusions: The VITAL model eased the teaching load for GP supervisors; provided teaching skills and experience to GP trainees; and enhanced the learning experience for students.

Take-home messages: VITAL holds great promise to reduce the teaching workload for busy GPs and ease some of the educational workforce concerns. Also to provide educational benefits for all involved in the teaching - learning process.

8BB20 The role of the School of Paediatrics: building a community of practice

J Ross*, F Cunningham (Specialty School of Paediatrics, London Deanery, Stewart House, 32 Russell Square, London, UK)

Background: Since its inception in 2008 the London School of Paediatrics has implemented a number of programmes to support paediatric training locally through the development of faculty and the creation of a community of practice. Initiatives include regional meetings, a road show, mapping the paediatric curriculum to local and regional training and the creation of two education fellowships.

Summary of work: A programme was constructed to identify the impact of these strategies, gain an understanding of current standards and engage the
hospitals in the School’s vision of a shared community of practice. To achieve this local educational leads and trainees from a cross-section of hospitals took part in a number of structured interviews.

**Summary of results:** Each hospital was able to engage in an open exchange of ideas: voicing their concerns and demonstrating their innovative practices. Out of this dialogue four main themes emerged: innovations, challenges, faculty development needs and requested resources.

**Conclusions:** This personal representation reinforced the link with the School enhancing engagement and training with support for specific initiatives, such as School Forums, designed to bring faculty together.

**Take-home messages:** In striving to achieve excellence Specialty Schools must forge strong links with their local communities of practice to ensure advances are shared and embedded across the sector.

8BB21 Are German contributions to AMEE increasing over time?

*M Fischer*, F Schöppe, M Zupanic (Witten/Herdecke University, Faculty of Health, Institute for Teaching and Educational Research in Health Sciences, Witten, Germany)

**Background:** Pushed by a new legislation, Germany’s 36 medical faculties have undergone major curricular reform since 2004. These efforts are going along with professionalized medical education structures and educational research. Is this development mirrored by AMEE contributions from German authors?

**Summary of work:** We analyzed all abstracts from AMEE conferences 2005 to 2010 with German authors and categorized them.

**Summary of results:** The number of contributions varied between 76 in 2005 and 44 in 2010 (337 total; average 56). Assessment (between 32 and 52%), curriculum (between 25 and 37%), and management (between 14 and 38%) were major categories. Subcategories were identified and will be displayed.

**Conclusions:** German contributions to AMEE conferences have not increased between 2005 and 2010. Reasons for this need to be identified.

**Take-home messages:** The active representation of Germany at AMEE conferences between 2005 and 2010 does not reflect the rising impact of medical education in the country.

8CC Posters: Curriculum Transition/Topics in the Curriculum

8CC1 Final Year Medical Students’ Confidence of Transition from Student to Doctor

*Meijinee Densriwiwat*, Kosa Sudhorm (Pediatric Department, Buddhachinaraj Medical Education Center, Faculty of Medicine, Naresuan University, Phitsanulok, Thailand)

**Background:** Confidence is important in medical practice especially in new doctors. This study was aimed to study confidence in medical education for final year medical students.

**Summary of work:** We conducted a cross-sectional study in the academic year 2010 at the last month of the courses. All 6th year medical students were enrolled to answer the questionnaire that asked in practice confidence in every subjects and then focused into pediatrics in common diseases, important procedures and factors affecting to the confidence of the students. Rating score of the confidence in each subject from minimum 1 to maximum 11.

**Summary of results:** The response rate was 78.6%. The overall confidence score was 6.40 (range 3.69-9.15). When analysis in each subject, we found the maximum confidence score in surgery (7.25) while minimum confidence score in ophthalmology (5.68). The confidence score in other major subjects were 7.05 in medicine, 6.70 in obstetric-gynecology and 6.16 in pediatrics. In pediatrics, the students rated themselves as more confident to treat acute gastroenteritis, upper and lower respiratory tract infection while emergency condition was acute asthmatic attack. The confidence score in procedures was maximum in endotracheal intubation and minimum in intraosseous insertion. Sex and GPA did not affect confidence.

**Conclusions:** Our students’ confidence in medical practice in overall subjects were in average ranges while scores in pediatrics was less than score of overall subjects. Sex and GPA did not affect confidence.

**Take-home messages:** A new doctor’s confidence is important in medical practice. Improvement of confidence can also bring better medical practice.

8CC2 The correlation of academic performance of medical students on the period from undergraduate year (UGY) to postgraduate year (PGY)

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**Background:** The correlation of academic performance for the same medical students between undergraduate year (UGY) and postgraduate year (PGY) is interesting but rarely reported.

**Summary of work:** A retrospective review of our PGY students was done. The PGY students were included for the full UGY training course. Exclusion criteria include incomplete course of the UGY or PGY or the UGY course done in other hospital. We got 5 performance
grades in UGY and 6 grades in PGY. The average grades for the 5 UGY and 6 PGY grades are regarded as the academic performance of the same students in UGY and PGY respectively. The statistical analysis is done with Linear Regression method.

**Summary of results:** From July 2009 to June 2010, there were 106 PGY students in our hospital. 58 PGY students included in this study with 48 excluded. The average performance grade of the UGY was 87.28±2.63 (79.00-92.60 ), and PGY, 86.79±2.42 (80.17-92.00 ). The correlation of the performance grade between the UGY and the PGY is significant (P = 0.01), but R Sq Linear = 0.171.

**Conclusions:** The academic performance of the UGY period has significant correlation of the one of the PGY period for the same medical students with weak strength.

**Take-home messages:** The higher grade of academic performance the medical students had in the UGY period, the better performance the same ones would have in the PGY period, but the strength of correlation is not strong.

**8CC3** Do Student Assistantships Help Prepare Final Year Medical Students to Manage Acute Patients? Sarbpreet Sihota*, David Blaney, Andrew Brown (Hull York Medical School, Hull and York, UK)

**Background:** Tomorrow’s Doctors 2009 recommends Student Assistantships (SAs) where students can manage acute patients.

**Summary of work:** Final year students’ acute patient experience - during Medicine, Surgery and General Practice SAs – is being explored. Questionnaires are enquiring about estimated frequency, and self-rating of competency in assessment and management, of specific acute presentations/events. Ongoing research.

**Summary of results:** At baseline least experience (median=0) is in critically-ill presentations (cardiac arrest, shock) and most (median=10) in common presentations - fever, chest pain. Competence self-rating correlates with estimated frequency: for fever 40% and 18% self-rate themselves competent to assess and manage without supervision respectively. For shock, 6% and 1% respectively. Post-first SA, most experienced presentations/events are specialty related: abdominal pain in Surgery; fever in General Practice; chest pain in Medicine. Despite this, competence self-rating improves across all presentations/events irrespective of whether experienced.

**Conclusions:** At final year commencement experience of many acute presentations/events is limited. Self-rating of competency in assessing and managing these is, unsurprisingly, lower. Acute experience in SAs is specialty related, but self-rating of competence improves in assessing and managing all events/presentations.

**Take-home messages:** SA acute experience is specialty related but may improve competence self-rating in all acute events management. Possibly ‘acting-up’ in SAs increases students’ self-rating and acute patient management encourages transferable skills development.

**8CC4** To what extent are medical school & postgraduate curricula vertically aligned in the area of ECG interpretation? J Williams*1, V Brazil1, J Schafer2 (1Department of Emergency Medicine, Royal Brisbane and Women’s Hospital, Brisbane, Australia; 2School of Medicine, University of Queensland, Brisbane, Australia)

**Background:** Electrocardiograph (ECG) interpretation is a skill used across almost every clinical medicine specialty, and is essential for safe medical practice (Salerno et al.). Curriculum mapping has been shown to be an effective method by which students and teachers alike can identify where, what, and how specific skills are taught and assessed.

**Summary of work:** Teaching, learning & assessment components of curricula in the area of ECG interpretation will be mapped in order to investigate the degree to which vertical and horizontal integration exists from medical student, through prevocational trainee, to vocational trainee. Curricula from the University of Queensland School of Medicine, Australian Curriculum Framework for Junior Doctors, and three specialist training colleges will be interrogated. This research will provide a snapshot of duplication, gaps and lost opportunities for complementary education approaches across the learning continuum, and may also provide a template for a similar mapping process in other areas of knowledge and skill, or in other domains of practice.

**Summary of results:** Some vertical integration through curricula exists. Areas of duplication and opportunity gaps can be identified.

**Take-home messages:** Curriculum mapping aids learning efficiency. Vertical integration allows for complementary education approaches.

**8CC5** The lasting effects of a short course to bridge the gap between medical school and medical practice C Matheson*, D Matheson1 (1Faculty of Education, Open University, Milton Keynes, UK; 2University of Nottingham, Medical Education Unit, Nottingham, UK)

**Background:** The views of doctors in their first year of medical practice of a course they undertook as final year medical students were sought.

**Summary of work:** We examined the extent to which the lecture/seminar course and shadowing period
smoothed the transition from life as a medical student to work as a new doctor; and evaluated and compared perceptions of the importance of various forms of knowledge in easing the transition between medical student and new doctor. Graduates from Nottingham Medical School were randomly selected and then emailed a link to a short, online survey of quantitative and qualitative questions, analysed using SPSS 16.0 and the constant comparative method.

Summary of results: Full results and discussion will be available at the time of the AMEE conference.

Conclusions: Our 2009 study showed that new doctors retrospectively value most knowledge transferable to the workplace and value least material which seems to repeat material from their final exams. We expect our second study to follow a similar pattern.

Take-home messages: Bridging courses should emphasise knowledge transferable to the workplace, and not 'exam knowledge.'

8CC6 Multidisciplinary Occupational Health Services Administration (MOHSA) Training Program: From task to competency

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Background: The Universidad Nacional Autónoma de México (UNAM) and Petroleos Mexicanos (PEMEX) assembled a multidisciplinary team of experts in administration, medical education and, occupational health, medicine and psychology to develop the academic training program of MOHSA, a newly created profile.

Summary of work: The taskforce analyzed and adjusted Multidisciplinary Occupational Health Services’ (MOHS) structure and organization and MOHSA’s professional profile, functions and tasks. Functions and tasks were then grouped in categories to identify competencies. Finally, educational and didactic elements were developed to implement the training.

Summary of results: The instrument SPICES was used and modified to our context for the evaluation. Said instrument identifies the main kind of teaching strategies with a Likert scale, which makes it possible to evaluate the differences.

Summary of work: Through a chi-square with a confidence level of 95%, statistically significant differences were found in three out of the four criteria studied. The tendency was towards the student-centered approach.

Conclusions: The reason for this phenomenon is the transition the School is going through. Over the last four years, we have been working on a change of curriculum from a traditional curriculum to a student-focused curriculum. The workshops and sessions to support this change are reflected in the answers given in the questionnaire.

Take-home messages: A follow-up of the next generations is proposed after the implementation of the new curriculum.

8CC7 Main Teaching Strategies for Sophomore Students in The School of Medicine: Comparative Study of Three Generations

W Reyes*, J Tapia, JL Jiménez, C Peça (University National Autónoma of México, School of Medicine, Surgery Department, Mexico)

Background: There are changes in the curriculum of the School of Medicine. Before the changes, there must be an assessment of how much these reforms have been achieved. The evolution of the predominant teaching strategy in the learning process of three generations of sophomore students is unknown. It is not known if it is focused on the student or the teacher.

Summary of work: The instrument SPICES was used and modified to our context for the evaluation. Said instrument identifies the main kind of teaching strategies with a Likert scale, which makes it possible to evaluate the differences.

Summary of results: Through a chi-square with a confidence level of 95%, statistically significant differences were found in three out of the four criteria studied. The tendency was towards the student-centered approach.

Conclusions: The reason for this phenomenon is the transition the School is going through. Over the last four years, we have been working on a change of curriculum from a traditional curriculum to a student-focused curriculum. The workshops and sessions to support this change are reflected in the answers given in the questionnaire.

Take-home messages: A follow-up of the next generations is proposed after the implementation of the new curriculum.

8CC8 Reduced Time Does Not Always Decrease Pediatric Knowledge Achievement

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Background: The current medical curriculum has been implemented at our institute since 2003. Problem-based learning is introduced in pre-clinical clerkship and adjustment of clinical rotations is reduced from 6-weeks to 5-weeks. Whether the change in medical curriculum would have an impact on the student knowledge achievement has been evaluated.

Summary of work: Using the same test, the score of the pediatric summative evaluation was compared between 2 groups of medical students. Group 1 was the students who studied under the former curriculum
who spent 6 week in pediatrics while group 2 was the students in the current curriculum with 5-week pediatric clerkship.

**Summary of results:** A total of 212 student pediatric scores from the summative evaluation were evaluated (86 students in group 1 vs 126 students in group 2). The score of students in group 2 was significantly higher than of group 1 (62+9.13 VS 67+7.59, p<0.001) even though the classroom learning for group 2 was lower.

**Conclusions:** Medical students studying in the current curriculum were able to achieve their pediatric knowledge despite shorten period of the clinical clerkship. This finding could result possibly from the implementation of the problem-based learning as well as increased accessibility and availability of electronic learning resources in the later years.

**8CC9** The effectiveness of a 1-week camp an experiential and supplemental curriculum in medical education in Taiwan

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**Background:** There was considerable evidence that the current curriculum design for the teaching and learning in professionalism and humanism was far from satisfactory in Taiwan.

**Summary of work:** "Good doctors camp" is an experimental service-learning program organized by a non-profit medico-educational foundation in Taiwan. The program is carried out in a community, church-run hospital located in the rural area of eastern Taiwan. The camp is 1-week in duration which is composed of community service, home health and hospice care, hospital medical and paramedical work participation, elderly accompanying, role-model sharing for health profession.

**Summary of results:** From 2004 to 2010, over 150 medical students from all the 11 medical schools in Taiwan have participated in the camp. The overall rating of the activities in this camp ranked good to excellent in all the items, no matter the domains of attitude and humanistic characters of a health professionals.

**Conclusions:** The present camp organized by a non-medical school foundation is found to be feasible and applicable to be a experiential and supplemental curriculum in medical education in Taiwan. A comparision to most service-learning courses in most medical schools in Taiwan and the long-term impact need further study.

**Take-home messages:** Medical curriculum run by non-profit organization dedicated for medical education is feasible.

**8CC10 Teaching pediatrics to non-physicians:**
Lessons from designing a pediatric curriculum for dental students in Singapore

CWT Lim⁺¹, YBY Mok², K Foong², SH Quak¹, DYT Goh³, DD Samarasekera (¹National University of Singapore, Yong Loo Lin School of Medicine, Department of Paediatrics, Singapore; ²National University of Singapore, Faculty of Dentistry, Singapore; ³National University of Singapore, Yong Loo Lin School of Medicine)

**Background:** Non physicians in medically related fields such as dentistry and nursing require a foundational knowledge of child health to practice effectively. The pediatricians who are tasked to provide such instruction are often only familiar with instructing medical trainees and find it challenging to meet the needs of other trainees in developing suitable teaching-learning content and educational strategies. In addition, the non-physician end users themselves are often unclear about the exact boundaries of the required curriculum and the best teaching and assessment strategies.

**Summary of work:** We describe the strategies used in effectively managing these challenges based on our experience in developing a practice centered pediatric module for dental undergraduates in Singapore. We discuss the processes involved in creating robust teaching-learning methods aligned to relevant assessment and future practice.

**Summary of results:** A lecture based subspecialty-centric pediatric module for penultimate year dental undergraduates was revised to incorporate extensive practice and patient based elements following a needs analysis with the main stakeholders. Assessments were aligned to content and educational outcomes were formally evaluated. Faculty was trained to deliver content.

**Conclusions:** The development of a practice centered educational module for non-physicians by specialty physicians is best engineered with the active collaboration of all the main stakeholders and training of instructors.

**8CC11 Surveying Educational Needs for a Palliative Care Medicine Course in Family Medicine Diploma at the Post Graduate Training Center of Family Medicine in Ministry of Health (MOH), Saudi Arabia**

Sami Ayed Alshammary*, Pippa Hawley, Fyles Gillian (Palliative Care, UBC, Vancouver, BC, Canada)

**Background:** Palliative Care (PC) related problems constitute a growing public health concern in Saudi
Arabia (SA) where is it not taught in medical schools in the formal curriculum.

Summary of work: To understand the comfort level of FM Residents in managing PC cases. Assess the need for formal training in (PC) skills during FM residency. All FM residents at the center were asked to complete a survey. The response was 48 from 52 surveys.

Summary of results: 86% felt that the majority of patients with cancer pain were under medication, while only 20% believed that symptoms management control in their own practice setting was good or very good. Poor PC assessment was rated by 85%. Only 10% had prior training in delivering bad news; 20% in pain control and symptom management. 86% were uncomfortable discussing patient serious illness or impending death; 86% were uncomfortable discussing end of life care. 100% agreed that PC training is an important part of FM residency.

Conclusions: Professional PC education needs to focus (1) on the proper assessment of PC patients, (2) on the management of pain and other symptoms, and (3) on the use of proper medications.

Take-home messages: FPs have minimal training in palliative care skills. They identify PC formal education as a vital part of their training.

8CC12 Impact of a 2-hour Multi-Approach-Palliative Care Class on Knowledge, Attitudes and Behavior in Fifth-Year Medical Students in Ramathibodi Hospital

W Taburee, D Jaturapatpom, S Ratanasiri (Department of Family Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; Section for Clinical Epidemiology and Biostatistics, Research Centre, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand)

Background: Medical students have traditionally received no education in palliative care. However, in 2002, as part of a revised medical curriculum, Year 5 undergraduates at Ramathibodi Hospital, Mahidol University, Bangkok, Thailand participated in a 2-hour class in palliative care.

Summary of work: 35 medical students (100%) completed the pre and post self-evaluation form and written exam. Stuat Maxwell Analysis was performed to test statistic significance of the improvement.

Summary of results: After the 2-hour class, all students rated the highest scale for their interest in palliative care, compared to 62.5% prior to the class. For knowledge, the score in written exam was increased by 50%. Attitudes toward palliative care tended to be improved by increasing the number of people who rated ‘highest’ for attitude domain from 5.71% to 74.29%. As for the confidence to practice in their real life, there was a shift from 92% who rated their confidence up to average to be 92% who had high and highest confidence after the class.

Conclusions: This 2-hour lecture has significantly raised 5th year medical students’ understanding of Palliative Medicine.

Take-home messages: A short-structured palliative care class can be effective in increasing students’ knowledge, attitudes and confidence in practicing palliative medicine.

8CC13 Teaching of substance misuse in the undergraduate medical curriculum

A Chaytor, C Goodair (School of Medicine and Health, Durham University, Queens Campus, University Boulevard, Thornaby, Stockton-on-Tees TS17 6BH UK; ICDP, St George’s Hospital, University of London, Cranmer Terrace, London SW17 ORE, UK)

Background: The misuse of alcohol, tobacco and both licit and illicit drugs is a major problem as it impacts on not just the health of the individual but the lives of their families, colleagues and wider society. Those that misuse substances will inevitably be seen at some stage by doctors. It is therefore important that medical schools equip their students with the necessary knowledge and skills to handle substance misuse when they see it. A recent survey of students found that they felt unprepared to tackle substance misuse problems and that the curriculum was lacking sufficient teaching in this area.

Summary of work: The International Centre for Drug Policy based at St George’s, University of London is leading a project whereby each medical school in England is reviewing the teaching of substance misuse in the curriculum.

Summary of results: This project is ongoing and the use of a ‘toolkit’ is being employed to identify areas where teaching of substance misuse may be lacking.

Conclusions: The project will involve evaluation of baseline data gathering by appointed curriculum coordinators in each medical school as well as that of the contextual/implementation elements of the project.

Take-home messages: To enhance teaching to better equip graduates to tackle the issues of substance misuse.

8CC14 Developing a Hypertension Management Course for Residents

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Background: Chronic disease (hypertension, diabetes mellitus, etc.) management is one of the challenging issues in the contemporary medicine. A successful communication with the patient is yet an unattempted method for the adherence to the treatment of hypertension. The aim of the project is to develop a
course for hypertension management at the graduate medical education level.

**Summary of work:** A course program was developed: Presentations and case discussions for the goals of course in knowledge domain, and standardized patient encounters and debriefing sessions in skill and attitude domains. A rubric for hypertension management was developed.

**Summary of results:** Content validity of the rubric was evaluated by the experts, and generalizability coefficient was calculated as 0.86 for interrater reliability. The expectations of the participants were well-matched by the goals, and in their feedback, they mentioned that all were met at the end of the course. There was a significant difference between the initial and final performances of the participants in the encounters.

**Conclusions:** The goals of the hypertension management course were achieved in terms of training and assessment.

**Take-home messages:** Hypertension management courses using standardized patient encounters can be implemented to the graduate medical curricula. New specific program contents can also be designed for other chronic diseases.

### 8CC15 Does an Undergraduate Anaesthetic Attachment Achieve Anything? A UK Perspective

**M O'Connor*, DJA Vaughan, NM Sabir (Harrow, Middlesex, UK)**

**Background:** Anaesthesia is the largest UK hospital speciality and the number of anaesthetic trainees continues to increase. Core anaesthetic skills are crucial for medical trainees but undergraduates receive minimal exposure.

**Summary of work:** We surveyed 22 male and 18 female medical students at our hospital following their two week anaesthetic attachment. We assessed their confidence in basic clinical skills and their attitudes to anaesthetics on a five point scale.

**Summary of results:** Data presented as % (median, IQR). 86% students had no previous exposure to anaesthetics. The students self-rated confidence at basic practical skills showed improvement in: looking after the unconscious patient 89%(4;4-5), basic airway manoeuvres 76%(4;4-4.25), bag valve mask ventilation 63%(4;2-4), cannulation 53%(4;3-4), oxygen delivery 66%(4;3-4.5) and fluid management 71%(4;3-4). The students attitudes changed positively over their attachment with 63%(4;3-4) more likely to consider a career in the speciality and 79%(5;4-5) finding a positive role model in the speciality. The majority felt they would find anaesthetics intellectually stimulating, exciting, and friendly.

**Conclusions:** Our short placement leads to a positive effect on student’s clinical skills and attitudes towards anaesthetics.

**Take-home messages:** Given the beneficial effect of even a short anesthetic attachment and the central role anaesthesia plays in hospital medicine, the speciality should play a larger role in undergraduate education.

### 8CC16 Development of a Patient Decision Aid For Women 70 Years and Older With Stage I, Hormonally Sensitive, Breast Cancer Considering Adjuvant Treatment Post-Lumpectomy

**Jennifer Wong, Laura D’Alimonte*, Jan Angus, Larry Paszat, Kelly Metcalfe, Tim Whelan, Hilary Llewellyn-Thomas (Department of Radiation Oncology, Odette Cancer Centre, Sunnybrook Health Sciences Centre, University of Toronto, Toronto, Ontario, Canada)**

**Background:** To develop a patient decision aid (DA) for older women with stage I, ER/PR positive breast cancer considering adjuvant treatment post-lumpectomy and to examine its impact on helping patients cope with treatment decision-making.

**Summary of work:** A DA was developed and evaluated in three steps following the Ottawa Decision Aid Framework: 1) Needs assessment (N=16); 2) Pilot I, to examine the DA’s acceptability (N=12); and 3) Pilot II, a pre-test post-test (N=38) with older women with ER/PR responsive breast cancer post-lumpectomy who were receiving adjuvant RT. Measures included questionnaires to assess patient’s satisfaction with the DA, patients’ self-reported decisional conflict (DC), level of distress, treatment-related knowledge, and choice predisposition.

**Summary of results:** Based on qualitative comments and satisfaction ratings, all women felt the DA was helpful and informative. Compared with baseline scores, patients had a statistically significant (p < .05) reduction in DC (adjusted mean difference [AMD], -7.18; 95% confidence interval [CI], -13.50 to 12.59); increased clarity of the treatment benefits and risks (AMD, -10.86, CI, -20.33 to 21.49); and improved general treatment knowledge (AMD, 8.99, CI, 2.88 to 10.28) after using the DA. General trends were also reported in patient’s choice predisposition scores suggesting potential differences in treatment decision after DA use.

**Conclusions:** This study provides evidence that this DA may be a helpful educational tool for this group of women.

**Take-home messages:** The quality of care for older breast cancer patients may be enhanced by using a tailored DA to help the patient be informed of their treatment options and to prepare for decision-making.
8CC17 Effectiveness of an educational intervention with multimedia support to the heart failure patient at hospital discharge: an RCT

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Background: The education of patients with heart failure is strongly recommended to improve self-care, but few experimental studies have shown its effectiveness when provided at hospital discharge. The objective of the study is to assess the effectiveness of an educational intervention, administered at discharge, on improving the patient self-care behaviour at home.

Summary of work: A two arm RCT design was chosen. The treatment arm received the educational intervention with multimedia support, in addition to the standard care provided to both groups. The evaluation was performed by blind evaluators with a telephone interview, using the "European Heart Failure Self-Care Behaviour" scale (EHFScBS), one month after discharge. An evaluation is foreseen also at 3, 6 months and 1 year.

Summary of results: Eighty-three patients joined the study: 40 in the treatment group and 43 in the control group. The performance difference that has been observed between the two groups turns out to be in average 12.1 points in favor of the group that received the educational intervention with a multimedia support (CI95% -11.21, -12.99, P <0.0001).

Conclusions: The RCT suggests that an educational intervention before discharge may represent an important opportunity to improve the self-care behavior of patients with heart failure at home. Nevertheless it will be very important to check whether same performances will be maintained over time.

Take-home messages: Educational interventions before discharge may represent an important opportunity to improve the self-care behavior of patients with heart failure at home.

8CC18 Evaluating ‘REACT’: a pilot patient safety and human factors training course

C Hawe*, R Corry, M Morrow (Northern Ireland Clinical Simulation Centre, Craigavon Area Hospital, Northern Ireland, UK)

Background: The importance of non-technical skills (NTS) is increasingly appreciated within healthcare. The Royal College of Anaesthetists highlights participation in “human factors and patient safety training” as an essential training competency. However, no regional training initiative was identified.

Summary of work: Following a literature review and observation of an established course, a one-day course for anaesthetic trainees was devised. The programme offered interactive discussions, video demonstrations and participation in high-fidelity simulations, which referenced the ‘Anaesthetists’ Non-Technical Skills’ taxonomy. Materials were reviewed by patient safety experts to confirm face validity. The pilot courses ran during August and December 2010; funded by the deanery. Fifteen candidates voluntarily enrolled. Pre and post course surveys were used to evaluate the course.

Summary of results: All candidates agreed/ strongly agreed that the course had improved their understanding of patient safety, human factors and NTS, and enthused them to teach others. Fourteen of 15 candidates felt the course had provided them with useful strategies to use within the workplace and should be mandatory.

Conclusions: Pre-course surveys identified sup-optimal awareness of patient safety and human factors. Evaluation of the pilots demonstrated increasing understanding of these issues.

Take-home messages: This study demonstrates that the development of a regional NTS course tailored to local initiatives is an achievable goal.

8CC19 Study of knowledge, skills and attitudes of medical students and practitioners about Mind and Body Medicine

Abdollah Omidi*, Seyed Gholam Abbas Moosavi, Zahra Saedi, Reihane Ostad Zadeh (Kashan University of Medical Sciences, Faculty of Medicine, Kashan, Iran)

Background: Mind & Body medicine encompasses a wide variety of concepts and therapies not generally taught in allopathic medical schools but of apparent interest to medical trainees. Aim of this study was investigation of knowledge about that topic in medical students, residents, general practitioners and medical specialists.

Summary of work: A cross-sectional study with simple randomized sampling was applied and 232 subjects from the Kashan, Tehran and Iran Medical University, were invited to participate in a voluntary questionnaire to assess Mind and Body medicine knowledge, skills, attitudes as well as their desired learning methods.

Summary of results: Medical students (n =75) and resident-physicians (n =78) and attendings (n =79) generally hold favorable attitudes toward Mind and Body medicine but have not adequate knowledge and skills to counsel and manage their patients. There was significant difference between subjects according to knowledge. Most participants indicate their preferred pedagogy and learning about Mind and Body medicine.
Conclusions: In our sample, learner-driven Mind and Body medicine education at undergraduate and graduate levels is indeed necessary and wanted. In constructing Mind and Body medicine education interventions, attitudes, perceived knowledge deficits, and preferred learning strategies should be considered for the trainees.

Take-home messages: A good physician has a holistic attendance to his/her patients.

8CC20 Delivering as Promised in an Outcome-based curriculum
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Background: The Nervous System integrates knowledge acquired over the five semesters and prepares students for the clinical years. It is therefore crucial that it delivers as promised.

Summary of work: Learning outcomes were check-listed against the 8 IMU outcomes and the curriculum map. The standard IMU Course Evaluation was administered after an in-course assessment for M1/07 and electronically for M2/07 and M2/08*. This consists of 37 questions in six areas (course overall, reference materials, PBL, clinical skills, hospital visits, medical museum sessions) using a Likert scale (1 to 6).

Summary of results: All outcomes are adequately addressed. The response rates for course evaluation were 98/165, 11/198 and 68/216. Scores in the six areas were comparable between the three groups, with the same pattern of some questions scoring very low (time to examine simulated patients, online learning) and others scoring almost 5 and above (Medical Museum Sessions, Mock OSCEs, PBL). The integrated medical seminars were viewed as a positive addition.

Conclusions: The Nervous System Course is delivering as promised, but more time should be allocated for Clinical Skills sessions and online learning strengthened.

Take-home messages: Quality assurance can be achieved through check-listing against curriculum maps and course evaluation.

8DD Secrets of Success 6

8DD1 Sharing resources in contemporary Medical Education: Challenges and solutions from the mEducator project
P D Bamidis\textsuperscript{1}, M Nikolaidou\textsuperscript{1}, C Bratsas\textsuperscript{2}, E Mitsopoulou\textsuperscript{2}, C Balasubramaniam\textsuperscript{7}, S Dietze\textsuperscript{3}, A Salva\textsuperscript{4}, D Giordano, T Poulton\textsuperscript{5}\textsuperscript{*} (\textsuperscript{1}Aristotle University of Thessaloniki, Medical School, Thessaloniki, Greece; \textsuperscript{2}University of London, St George’s Medical School, \textsuperscript{3}eLearning Unit; \textsuperscript{4}The Open University, KMI, Milton Keynes, UK; \textsuperscript{5}MEDTING LTD, Mallorca, Spain)

Short description of innovation: Medical Education has been experiencing an increasing use of electronic resources and Web involvement. Many of these resources are however hidden or it is not easy to discover and retrieve, due to lack of standardized content sharing mechanisms. The mEducator project (www.meduator.net), is an EU funded initiative of 14 organisations that faces this lack by attempting to establish “best practice” towards the repurposing and sharing of medical educational multi-type content.

What will be demonstrated: This paper presents on overview of recent achievements of the mEducator consortium towards the creation of a mEducator metadata (scheme), and the development of two technological platforms, one based on Web2.0 and mash-up technologies, and one based on the semantic web and Linked Open Services.

What is particularly interesting about the innovation/How it could be implemented: The created model for framing the representation and treatment of information gathered from the reuse and repurposing of learning resources from distributed repositories is presented as an ontology. Two prototype solutions are built to facilitate the above model. Solution 1, forms a brokerage mechanism based on mashup and other Web2.0 technologies. Solution 2, practically aims to allow for federated access to eLearning repositories across the Web using “Linked Services” technologies.

Why participants should come to the demonstration: Collaboration and content sharing in medical education will inevitably alter the overall process of developing and preparing educational resources. The mEducator project are now preparing for the first testing in the provision of the aforementioned solutions/prototypes.

8DD2 The virtual masterclass: an online, collaborative approach to specialist training in haematology
J Strivens*, CH Toh (The University of Liverpool, Centre for Lifelong Learning, 128 Mt Pleasant, Liverpool L69 3GW, UK)

Short description of innovation: An online ‘Masterclass’ for trainee haematologists across Europe was designed, implemented and evaluated as part of a European-funded project “Harmonisation of Haematology Training across Europe” (H-Net). 25 trainees took part, divided into 5 mixed groups (no two group members shared the same nationality) each with an experienced haematologist as ‘mentor’.

What will be demonstrated: The demonstration will show how three tools were used in an integrated way;
a social networking site (NING) for the main learning and discussion; a conferencing tool (Elluminate) for feedback; and a portfolio/content management tool (Confolio) to store study materials, background literature and group reports. It will also demonstrate the curriculum design of collaborative, mentored learning using real, complex cases.

**What is particularly interesting about the innovation/How it could be implemented:** The Masterclass was based on collaborative/peer learning. This group of participants had relatively little experience of either online or collaborative approaches. Evaluation, based on data gathered on three key aspects (the quality of learning; the experience of the learners; and the cost in time and resources of preparing materials and mentoring groups) will be presented.

**Why participants should come to the demonstration:**
Evaluation suggests this model of international, online, collaborative learning is a sustainable model of continuing professional development for young medical professionals. The session will consider what range of specialities this would be appropriate for.

**8DD3 Using interactive characters (avatars) to create social intelligence on online learning environments**
K Jurd* (Toowoomba Hospital, Medical Education Unit, 2 Pechey Street, Toowoomba, 4350, Queensland, Australia)

**Short description of innovation:** The medical education unit at Toowoomba Hospital Queensland is currently utilising online interactive characters in the development of junior doctor training modules. The online character guides the doctor through the content, providing clinical perspective, encouraging active and reflective learning.

**What will be demonstrated:** The online module with the inclusion of the avatar presenting the material plus a demonstration of the software used to create these interactions.

**What is particularly interesting about the innovation/How it could be implemented:** Avatars can significantly increase the impact of your online materials by creating social presence in the online environment and establishing a connection between the user and the content. In this environment, the avatar can take on various roles. They can represent the knowledge expert (for example senior surgeon or physician, the instructor (plastering technician) or guide and mentor. The effective use of this role ensures social engagement between avatar and the learner and the development of an online relationship or connection that can enhance the learning process. These characters can simulate interactions, express ideas and provoke reflection. They can be incorporated into medical education resources such as procedural skills demonstration, communication interactions: taking a patient history or examination.

**Why participants should come to the demonstration:**
To keep abreast of innovative ways to support medical education and engage learners.

**8DD4 Community Precepting On Demand (CPod): Integrating mobile learning into a faculty development infrastructure**
P Spanos*, D Carter-O’Gorman, M Singh (Case Western Reserve University School of Medicine, Foundations of Clinical Medicine, 2109 Adelbert Road, Room TG1, Cleveland, OH 44106, USA)

**Short description of innovation:** We have created a series of enhanced podcasts (combining audio, images, links, video) for our community preceptors to use on-the-go and receive continuing medical education (CME) credit.

**What will be demonstrated:** We will display the framework of our faculty development online module, “Preceptor Hub”, and demonstrate the creation of an enhanced faculty development podcast.

**What is particularly interesting about the innovation/How it could be implemented:** With increasing community-based learning sites in health professions education, faculty development to geographically dispersed preceptors remains challenging. Time constraints, distance to main campus, and academic isolation are a few of the barriers to full faculty engagement. Creating a faculty development infrastructure that combines current technologies - podcasts and online modules - with in-person seminars or workshops can increase preceptor satisfaction and retention. Making available multiple modalities and Continuing Medical Education credit allows the preceptor to select a format that suits their personal learning needs and style.

**Why participants should come to the demonstration:**
Participants will learn the design particulars of enhanced podcasts as a mobile learning platform for physician continuing education.
SESSION 9: SIMULTANEOUS SESSIONS

9A  Symposium: Delivering the Curriculum of the Future

Co-chairs: Trudie Roberts (University of Leeds, UK); Cees van der Vleuten (Maastricht University, Netherlands)

This symposium will look at how present curricula can be inspired by more radical ideas and innovations in the delivery of the curriculum. Both learning in school and learning in the workplace are professionalizing and changing. Active learning, self-directed learning, contextual learning and motivation are essential concepts in all these innovations, but with exciting developments in technology enhanced learning maybe all medical training could be delivered in Second Life. We will invite some speakers from various parts of the world and very different backgrounds to inspire us with radical proposals and implementations for making a next step in the delivery of the curriculum. The pros and cons of these illustrations will be discussed with a forum of these speakers and with the audience.

9B  Symposium: Gender in Medical Education: An international perspective on what, why and how

Chair: Susan Phillips (Queen’s University, Kingston, Canada); Panel: Joke Haafkens (University of Amsterdam, Netherlands); Katarina Hamberg (Umeå University, Sweden); Antoine Lagro-Janssen (Radboud University, Nijmegen, Netherlands); Patrick Dielissen (Radboud University, Nijmegen, Netherlands)

Throughout the developed world medical educators define competent trainees as medical experts who acknowledge the contexts of patients’ lives, and demonstrate this via patient-centred care, communication skills, and advocacy for individual patients and populations. Implicit in the expert role is a knowledge of and willingness to incorporate evidence into practice. However medical research and education remain almost exclusively focused on biological facts while contextual attributes such as wealth, gender, or connectedness are eliminated through randomization. Does this disconnect between generalizable evidence and patient individuality matter for health? In this symposium we will present research linking sex, gender equity, gender bias, masculinity and femininity to health and disease to demonstrate why gender awareness in medical education improves health. Panelists, all international leaders in gender, medical education, and health, will describe successes and challenges in integrating gender into medical education, considering questions such as: why do we need to integrate gender perspectives; how can this be done; what obstacles are there; is gender in medicine a women’s issue only; what about men and gender effects; how do attitudes and norms concerning men and women affect our work? There will be ample opportunity for discussion and debate amongst all symposium attendees.

9C  Short Communications: Curriculum Management and Change

9C1  The role of EDUs in the process of curriculum transformation

M Kayyal*, T Gibbs (1Damascus University, Head of Centre for Quality Assurance, Damascus, Syria; 2WHO / AMEE Consultant in Medical Education, Dundee, UK)

Background: Accreditation in undergraduate medical education curricula expects that Medical Schools establish and operate a Centre for the management of the curriculum. These Centres are often referred to as Educational Development Units (EDUs).

Summary of work: At the present time, there is very little written about these Units and how they operate. An EDU is required to have a Head and several appropriate staff, usually those taking lead positions within the curriculum. As any other Department, an EDU is also expected to maintain a high academic profile, with conference attendance, publication and research, and to play a central role in the curriculum process. However, an EDU’s role may become simply fashionable when it fails to contribute to the successful achievement of an effective curriculum (a modern curriculum that meets the needs and expectations of society).

Summary of results: In Damascus University, as part of the curriculum transformation process an EDU is in the process of being established.

Conclusions: This paper will use this development to demonstrate the essential qualities of an effective EDU and how this Unit becomes key in the development of an effective and modern medical curriculum.

Take-home messages: EDUs have a crucial role to play in curriculum transformation.

9C2  A Preliminary Report from the Medical Council of Canada Assessment Task Force

O Casiro, T Theman, M I Bowmer (Faculty of Medicine, University of British Columbia, Victoria, Canada; College of Physicians and Surgeons of Alberta, Canada)
Edmonton, Canada; 3Medical Council of Canada, Ottawa, Canada)

**Background:** The Medical Council of Canada (MCC) was established to provide a national qualification acceptable to Canada’s medical regulatory authorities (MRAs). With published reports on the future direction of medical education, it is appropriate that the MCC review its future role(s) in the assessment of physicians.

**Summary of work:** The Task Force held national symposia, membership workshops and medical school focus groups with four common themes emerging:

**Summary of results:**

**Purpose:** The need for a national qualification of minimal competency to enter unsupervised practice using the common core competencies of the Can MedsRCPSC roles was affirmed. There is a recognized need to expand the assessments beyond medical knowledge, professionalism and communication roles. The MCC examinations are also used as an accreditation outcome measure, a change agent in curriculum development and as a Canadian benchmark by MRAs.

**Flexibility of timing:** More schools could utilize the MCC Part I examination as a component of their graduation requirements. Collaboration with national specialty organizations: Increased testing windows and possibly a reduction in testing periods during the education cycle.

**Development:** MRAs are requesting further development of self assessment tools and summative assessment methods of the physician along the practice continuum.

**Conclusions:**

**Plan:** Report and specific recommendations presented to the MCC’s annual general meeting.

**9C3** Planning the implementation of competence-based medical education in Indonesia: a nation-wide reform

Titi Savitri Prihatiningisih Damardjati (Department of Medical Education, Faculty of Medicine, Universitas Gadjah Mada, Sekip Utara, Yogyakarta 55281/ MONEV Coordinator of Health Professional Education Quality Project, Directorate General of Higher Education, Ministry of National Education, Indonesia)

**Background:** Indonesia has complex health problems. With 237 million occupying 7000 islands, Indonesia has diverse health indicators, big disparities between urban areas, where 70% of medical doctors are concentrated, and rural areas. 72 medical schools are reforming their curriculum to comply with Standards of Competence issued by Indonesian Medical Council.

**Summary of work:** To facilitate this process, a Health Profession Education Quality Project was launched in 2010 where 30 medical schools have been given a grant in total of 50 million US dollars by the Government. A three year collaborative grant scheme between strong and weak medical schools is introduced. Ten strong medical schools are given responsibilities to coach 20 weak medical schools. Six workshops were conducted for 10 groups, each of which consists of one strong and two weak medical schools, working together to prepare implementation plan and budgeting. Observational data and qualitative interviews with six subjects were gathered, triangulated with document analysis. Qualitative analysis was conducted

**Summary of results:** Implementation and budgeting plan were produced covering developmental areas of curriculum, assessment, teaching learning, quality assurance, management and learning media. Five categories emerged, namely trust, concern, sharing, leadership, openness.

**Conclusions:** Mutual trust is an essential ingredient for collaboration between strong and weak medical schools. Genuine concern and willingness to share is needed from the strong medical schools, whilst openness and leadership are needed from the weak medical schools.

**Take-home messages:** The coaching of strong medical schools to weak medical schools can be done to improve the planning and budgeting capacity for competence-based curricular reform.

**9C4** Reasons for the increase in clinical simulation centers for medical student training in Central Europe

M Fandler1, HP Dimai2 (1Medical University of Graz, Clinical Skills Center, Graz, Austria; 2Medical University of Graz, Department of Internal Medicine, Graz, Austria)

**Background:** While the use of clinical simulation centers in medical education both for medical students and doctors have been researched quite prominently, the increase in resources devoted to establish new and expand existing centers have not been questioned in recent years. Especially the reasons for this increase have not been researched.

**Summary of work:** 46 universities in German-speaking central Europe were questioned using a questionnaire. Questions included basic information on the clinical simulation centers like budget, personnel and a special focus on recent and planned. The reasons for and against such expansion were asked for in detail.

**Summary of results:** Results showed a significant increase in clinical simulation centers especially in the last 5 years. The two main reasons to establish a simulation center are students’ demands (75%) and the goal to enhance clinical training (75%). Reasons that inhibit clinical simulation centers to be established are mainly budgetary constraints. Further expansion is planned in many centers, especially more space (67%).

**Conclusions:** The trend for medical simulation centers is continuing and picking up pace. Existing centers are
expanded and new ones are being established. Students’ demands and the goal to enhance education collide with budgetary constraints.

**Take-home messages:** Practical medical education and simulation is increasingly taken seriously. Funding problems can sometimes be overcome using creative methods (sponsoring etc.)

9C5 Huge increase of faculty - are they good?  
S Dube*, N Cairefon, R Gagnon, A Qazi, M Jolivet (CEPASS, Faculty of Medicine, University of Montreal, Canada)

**Background:** Due to a government decree, the number of medical undergraduate students increased by 15% in a six year span, to give a total of 280 first year students. The teaching staff was also increased by 13.7%. The AAMC-LCME was concerned that the quality of the new clinical teachers would not be at par with existing staff and recommended a faculty development basic teaching program.

**Summary of work:** Using evaluation data available via our databases and information from the LMCC, the cohorts of 2005 and 2010 were compared using three end points: 1) Evaluation of teachers, 2) Evaluation of teaching, 3) LMCC national exam results.

**Summary of results:** There is no significant difference (P=n.s) with the evaluation of teachers and of teaching. Rank in LMCC exam: 1st in 2005-2007; 11th in 2008-2009; 2nd in 2009-2010.

**Conclusions:** Despite an impressive increase in the number of clinical teachers, quality of teaching remained stable. The drop in the exam ranking (LMCC) coincided with two strikes declared by teachers. The settlement provided financial teaching stipend and recommended a faculty development basic teaching program.

**Take-home messages:** A strong faculty development program and financial incentives contribute to maintain high quality of clinical teachers.

9C6 To teach or not to teach? Factors that motivate Emergency Medicine Physicians to teach medical students  
E Cochran Ward*, L Klein, J Kwan*, J Bassett, K Garlan (The University of Sydney, Sydney Medical School - PO Box 542, Westmead, Sydney, NSW 2145, Australia; The University of Sydney, Sydney Medical School - Office of Medical Education, Sydney, Australia)

**Background:** The Emergency Department (ED) is a unique environment in which to learn and teach. Our descriptive study is one of the first to assess factors influencing Emergency Medicine Physicians (EMPs) to teach medical students.

**Summary of work:** An online questionnaire assessed personal and workplace factors that motivate EMPs to commence or increase participation in teaching. All 2,244 members of the Australasian College of Emergency Medicine (ACEM) were e-mailed the questionnaire.

**Summary of results:** A representative sample (28%) of ACEM members responded, a majority of whom were male and working in a tertiary or major urban hospital. 73% reported teaching medical students, but most for only 1–2 hours per week. Motivations included enjoying interaction with students, sharing their expertise and promoting emergency medicine as a specialty. Lack of protected teaching time and financial remuneration were rated as the main barriers to teaching, but qualitative analysis of comments revealed a greater complexity than shown by quantitative ratings alone.

**Conclusions:** EMPs are motivated to teach but there are significant professional and system barriers. Results will be used to more effectively recruit and retain EMPs as teachers for medical students.

**Take-home messages:** Barriers to teaching in the ED are complex and require informed solutions.

9C7 Academic leadership in Medical Universities: An Iranian approach  
Ali Bikmoradi*, Italo Masiello (Hamadan University of Medical Sciences, Medical Management Department, School of Nursing & Midwifery, Hamadan, Iran)

**Background:** Iranian academic leadership since 1985 expanded medical education from an elite to a mass education system very rapidly with a considerable number of schools and faculty. Because of its specific leadership and continuous improvement, it is a good case for exploring the academic leadership in a middle-east country.

**Summary of work:** To explore knowledge and views on academic leadership held by leaders in Iran’s medical education system. A modified nationwide survey using questionnaire was conducted by a stratified sample of academic leaders in all of the state medical universities and schools.

**Summary of results:** Academic leaders value most consensus about universities’ vision, goals and strategies; supporting scholarship; and appropriate climate to academic work. In contrast, they value least supportof modern teaching methods; evaluation and feedback regarding teaching processes; attempt to fame or accredit the university; workload of faculty; and law-abiding management.

**Conclusions:** Although Iranian academic leadership is characterized as supportive of scholarship, and appropriate climate to academic work, in contrast academic leadership is under pressure from inside and outside structures. However, the medical universities in Iran are teaching-based but their leadership does not value teaching and faculty’s workload enough.
Consequently, there is considerably low morale and motivation among academic managers and staff. Furthermore, professional, specialized, and NGOs associations were not supported enough by medical universities’ leadership.

**9D Short Communications: Junior Doctor as Teacher**

**9D1 Teaching activity of psychiatry trainees in Europe: is a national curriculum important?**

I Nwachukwu, M Casanova Dias*, N Masson, F Riese, S Jauhar* (Cavan General Hospital, Co Cavan, Ireland; South London and Maudsley NHS Foundation Trust, London, UK; Gartnavel Royal Hospital, Glasgow, UK; Psychiatric University Hospital, Zurich, Switzerland; Sackler Institute of Psychobiology)

**Background:** Trainees in all specialties have an important role in educating and teaching others. A harmonised European curriculum framework for trainees in psychiatry now exists. The aim of this study was to explore the teaching experiences of psychiatric trainees across Europe.

**Summary of work:** A questionnaire was given to the national trainee representatives of the 29 countries of the European Federation of Psychiatric Trainees (EFPT). The questionnaire included the following aspects of teaching: inclusion in national curriculum; formal training, protected time and supervision being given for teaching; usual frequency, methods, setting and audience for teaching.

**Summary of results:** The response rate was 27/29 (93%). The majority of countries did not have teaching included as part of the national curriculum and did not have teaching as a mandatory requirement of psychiatric training. There was a statistically significant relationship between teaching being in the curriculum and formal training, supervision and protected time being given for teaching.

**Conclusions:** Despite the harmonised curriculum framework for Europe, in the majority of countries teaching is not a mandatory requirement of training in Psychiatry and has not been included in their postgraduate curriculum.

**Take-home messages:** An important factor in improving trainee teaching skills is to encourage countries to include teaching in national curricula.

**9D2 Exploring the influence of a module in teaching and learning on family physician trainees**

Marietjie de Villiers*, Francois Cilliers, Nicoline Herman, Francois Coetzee, Klaus von Presentin, Martjie van Heusden (Faculty of Health Sciences, Tygerberg Campus, Tygerberg 7505, Cape Town, South Africa)

**Background:** Postgraduate studies in medical specialities prepare students to practice at an advanced level and to play leadership roles, but often not to teach. There is a twofold motivation to equipping registrars as teachers namely enhancing the quality of undergraduate teaching and better preparing them for their future role as teachers in their field.

**Summary of work:** To investigate the influence of a module on teaching and learning on family physician trainees, graduates’ perceptions of their role as medical specialist, attitudes towards teaching, and confidence with and participation in teaching activities. In this first stage evaluation in-depth interviews were conducted with thirteen graduates of the programme. Interviews were audio-recorded, transcribed and thematically analysed.

**Summary of results:** Respondents indicated that the module expanded their perception of their role as family physician from only clinician to also include teaching. They reported a positive change of attitude towards teaching. Respondents felt that the module empowered them to teach. They evidenced retention and use of knowledge and skills acquired during the module.

**Conclusions:** These preliminary results suggest that a module on teaching and learning during registrar training not only prepares trainees for teaching but also facilitates attitude change towards teaching and their role as specialist and consequently influences their engagement in teaching.

**9D3 How does a near-to-peer finals revision program for Objective Structured Clinical Examination (OSCE) affect students’ perceptions, expectations and worries?**

M S Rashid*, O Sobowale2, D Gore3 (Stockport NHS Foundation Trust, Stockport, UK; Salford Royal NHS Foundation Trust, Salford, UK; University Hospitals of Morecombe Bay NHS Foundation Trust, Lancaster, UK)

**Background:** Our aim was to demonstrate the effect of near-peer tutor cognitive congruence in a two-day near-to-peer revision program for the final OSCE on students’ confidence and expectations of their forthcoming examination.

**Summary of work:** Feedback was gathered from self-administered questionnaires completed by 135 students participating in a near-to-peer OSCE revision program led by junior doctors. Likert scores were used to establish a change in students’ perceptions, expectations and concerns following participation in the program.

**Summary of results:** Students’ mean Likert score regarding confidence about their forthcoming OSCE increased from 2.79/5.00 (SD 0.83) to 3.49/5.00 (SD 0.74, p<0.0005) after the revision course. Similarly, when asked about anxiety towards the OSCE, students’
mean Likert score was 3.79/5.00 (SD 0.80) with a reduction to 3.29/5.00 (SD 0.93, p<0.0005). Finally students’ ideas of how best to prepare for the OSCE improved from a mean Likert score of 3.10/5.00 (SD 0.82) to 3.82/5.00 (SD 0.69, p<0.0005).

Conclusions: Our near-peer teaching program provides an example of cognitive congruence in effect. Students’ feedback illustrated that lectures, seminars and workshops run by near-to-peer tutors increased student confidence, reduced anxiety and improved students’ expectations of OSCE preparation.

Take-home messages: Final year medical students’ perceptions of the OSCE improved favourably following participation in a near-to-peer led revision program.

9D4 A New Spin on Vertical Integration
Z Farah*, N Parviz* (Department of Undergraduate Medical Education, Imperial College London, Northwick Park Hospital, Watford Road, Harrow, Middlesex, HA1 3UI, UK)

Background: Over recent years, medical schools have incorporated Vertical Integration (VI) into their curricula. There is growing evidence that VI provides a more contextualised approach to learning, eases the transition to post-graduate training and facilitates earlier career choices. There is little research in the benefits of using VI within small-group teaching sessions and in evaluating the perceptions of medical students of this style of education.

Summary of work: For the first time at Northwick Park Hospital, we organised junior-doctor led interactive sessions for first-year clinical students. The sessions integrated biomedical science with real-life clinical cases relating to common topics encountered in daily practice.

Summary of results: 25 students with a mean age of 20.8 years (20-23) filled out a feedback questionnaire. They attended >6 sessions. 92% of the students would like to see more vertically integrated small-group teaching delivered by junior doctors in their medical curriculum. All 25 students prefer VI to either basic science or bedside teaching alone.

Conclusions: There is growing awareness of VI and its usefulness in medical training. This research demonstrates that interactive small-group sessions using multi-media learning resources is a preferred method of teaching.

Take-home messages: Creative practical arrangements can enable junior doctors to provide a reliable regular teaching session to medical students.

9D5 Utilising junior doctors as simulation facilitators for medical students
G Walker*, N Tan (Simulation Centre, Royal Free Hampstead NHS Trust, Pond Street, London NW3 2QG, UK)

Background: Medical simulation is an underused method of teaching medical students. It is particularly difficult to harness junior doctors as teachers for regular sessions due to heavy clinical commitments, shift patterns and restricted working hours.

Summary of work: We established a programme of Sim Man simulation training for 1st year clinical medical students. The weekly two hour sessions were run entirely by foundation and specialty trainee doctors. Each session enabled four 3rd year medical students to participate in acute medical simulated scenarios and learn basic assessment of unwell patients. A pool of junior doctor facilitators was established and an online meeting organiser was successfully used to coordinate the complex timetabling issues. Facilitation techniques were taught by peer teaching.

Summary of results: The weekly session was reliably staffed by 4 junior doctors. Each week a different combination of doctors facilitated, as per their availability. Feedback on the session has been consistently good – over 90% of students rated the experience as an invaluable educational experience.

Conclusions: We have successfully harnessed the enthusiasm of junior doctors for teaching by circumnavigating timetabling difficulties.

Take-home messages: Junior doctors can provide a reliable regular teaching session to medical students.

9D6 Improving confidence in teaching: a trainee-led teaching programme
Y Z Chiang*1, K T Tan2, A Robinson1, A Trehan1 (1Salford Royal NHS Foundation Trust, Manchester, UK; 2Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, UK)

Background: Competency in teaching and training is an essential element of good medical practice, and a requirement in the national curriculum for Core Medical Trainees (CMTs) in the UK.

Summary of work: We designed a structured teaching programme that was led by CMTs and evaluated the usefulness of the programme towards developing confidence in teaching.

Summary of results: A clinical skills teaching programme consisting of 16 sessions over a 2-week period was delivered by 15 of 17 CMTs (88% participation) within a hospital trust for 192 third year medical students. Trainees completed a questionnaire on the components which have helped to improve their confidence in teaching. These included overall teaching experience (100%), writing up teaching plans (87%), feedback from students (87%), feedback from the
consultant observer (73%), and writing reflections (67%). 93% felt more confident as a trainer after delivering the teaching experience and would like to deliver similar teaching again.

Conclusions: CMTs were able to improve their confidence in teaching through provision of experience delivering teaching, constructing teaching plans and receiving structured feedback.

Take-home messages: A teaching programme by CMTs with incorporation of structured planning, feedback and reflection can help to improve confidence in teaching.

9D7  Junior Physician Educators
Jeroen Steenmeijer*, Foppe Wiersma, Anke Risselada, Paulien Ellerbroek, Olle ten Cate (University Medical Center Utrecht, Netherlands)

Background: In 1999 Utrecht University introduced a new undergraduate medical curriculum. The amount of clinical training was increased and extended to earlier years of the curriculum. Clerkships are now in place across years 3 to 6, while in the previous curriculum they were limited to years 5 and 6. At the same time however, the pressure on clinical faculty to spend more time on patient care increased and solutions were sought to provide adequate clinical teaching to medical students.

Summary of work: To find a solution to create sufficient clinical teaching capacity. A new faculty position was created: that of Junior Physician Educator (JPE). Newly graduated medical doctors with interest in education were recruited to take temporary and rotating positions as junior medical educators.

Summary of results: Almost 10 years after its introduction, the JPE role has extended from help in third year surgery and medicine clerkships to serious functions in several other clinical disciplines as well. JPEs are in some cases linked to residency training. Results of an evaluation describing the various forms of this function and the satisfaction with it among program directors, current and former JPEs and students will be presented.

9E Short Communications: Assessment and the OSCE

9E1 The application of a unified validity framework to the development of a new high-stakes objective structured clinical examination (OSCE)
K Breithaupt*, T J Wood, M Roy (Medical Council of Canada, 2283 St Laurent Blvd, Ottawa, ON, Canada K1G-3H7)

Background: The Medical Council of Canada (MCC) is in the process of creating a national high-stakes OSCE that can be used to assist program directors with the selection of international medical graduate applicants into their individual post-graduate training programs. When creating a new examination, it is important to consider the validity of the results. In current test theory, validity refers to the types of evidence that is gathered to support or refute particular hypotheses about what the results of an examination means. The purpose of this presentation is to describe how current validity theory will be applied to the development of a new OCE.

Summary of work: As part of the development phase, MCC administered three OSCEs in 2010 to ensure validity evidence consistent with this perspective was possible to collect and report. The first administration of the OSCE will be in March 2011.

Summary of results: The types of data that can be collected includes but is not limited to: reliability, blueprint development, the degree the test matches the blueprint, scoring tools, standard setting, how raters and standardized patients are trained, and consequences of the results.

Conclusions: Investigators present this work as an example of how the development of a new examination should be influenced by the types of validity evidence that is collected.

9E2 Preparation for a large scale OSCE: Experience in Thailand
W Sumawongse¹, B Sathapatayavongs²*, S Kobwanthanakun², P Yamwong³ (¹Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; ²Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand)

Background: Since 2006, all graduates from every medical school have to be qualified by the Thai Center for Medical Accreditation (CMA) in order to obtain licenses. The basic and clinical science parts were evaluated by MCQ examinations. Clinical skills were evaluated by MEQ, long case examinations and OSCE.

Summary of work: Few years before initiated the first OSCE examination in 2008, 17 workshops were conducted and the CMA board members visited all medical school to evaluate their ability to be the examination sites. The evaluation lists included of the infrastructures, capability and capacity of instructors, supporting staffs, and SP. In addition, their comprehensive OSCE systems were audited.

Summary of results: Only 3 medical schools were capable to be the examination sites, all of them in Bangkok. Thus, the first OSCE for 1,245 medical graduates was conducted in 2 separated days in Bangkok. The year after, 4 more medical schools improved their system and 4 examinations for 2,172 graduates can be taken place in 3 more provinces all over the country.
Conclusions: Large scale OSCE can be conducted and benefit in improving teaching and the evaluation system in all medical schools.
Take-home messages: Preparation of examination item issuers, SP trainers, examiners, and administrative structures are crucial for a large scale OSCE.

9E3 Digital assessment of radiological skills with digital multi-dimensional images in medical education
C J Ravesloot*, M F van der Schaaf, K L Vincken, Th J ten Cate, JPI van Schaik (Radiology department, UMC Utrecht, The Netherlands; Educational sciences, University Utrecht, The Netherlands; Image Sciences Institute, UMC Utrecht, The Netherlands; Center for Research and Development of Education, UMC Utrecht, The Netherlands)

Background: Current radiology practice is based on the interpretation of multi-slice (multi-dimensional) images, but the assessment of radiological skills in undergraduate medical education is still based on two-dimensional images. Consequently, the assessment lacks authenticity, which negatively impacts validity. We hypothesize that the validity of assessing radiological skills can be increased using multi-dimensional images.

Summary of work: 282 medical students, trained with multi-dimensional images, took a digital radiology test on radiological skills containing two- and multi-dimensional images (CT-scan). Students filled out a questionnaire concerning authenticity of the assessment.

Summary of results: Reliability of the test was sufficient (multi-dimensional images, Cronbach’s alpha .80 and two-dimensional images, Cronbach’s alpha .64). Assessment based on multi-dimensional images was considered to be more authentic (t (270) = -10.82, p = .00), and to give a better 3D mental representation of the anatomical structures (t (265) = -3.21, p = .00), and to give a better 3D mental representation of the anatomical structures (t (265) = -3.21, p = .00). The assessment contributed to authenticity and validity.

Take-home messages: Radiological skills are preferably assessed by means of multi-dimensional images over two-dimensional images.

9E4 Educational Model for Remediation in the Clinical Skills Arena
L Frasca, F Rawlins, D Tookie-Rawlin* (Edward Via College of Osteopathic Medicine, Simulation and Technology Center, 2265 Kraft Dr, Blacksburg VA 24060, USA)

Background: The Edward Via College of Osteopathic Medicine (VCOM) has attained success in the Clinical Skills Standardized Patient (SP) program, obtaining a 99% pass rate on Comlex PE compared with a US national average failure rate of 5%.

Summary of work: Students who fail the humanistic domain complete a remediation sequence: 1) meet VCOM resident Psychologist to review the encounter video and receive suggestions; 2) view VCOM-TV stream “Humanism in Medicine”; 3) send an email to summarize effectiveness of the remediation. This process differentiates behavioral disorders from those unaware of the components of humanism in medicine. Students who fail the biomedical domain (clinical encounter and SOAP note): 1) review the encounter video and physician comments; 2) meet physician grader for discussion; 3) view the VCOM-TV streams; “The Perfect Soap Note”, “Time Management” and “The Focused History”; 4) send an email summarizing effectiveness of the remediation.

Summary of results: A physical diagnosis written test is correlated with encounter grade to determine time management versus medical knowledge deficit.

Conclusions: Using a unique educational methodology, students below 1.5 SD in the humanistic or biomedical domain receive remediation, typically 10% of the class.

Take-home messages: This methodology to identify student deficiencies and provide remediation prior to taking the national exam has direct application in other medical schools.

9E5 Developing an Integrative Basic Science OSCE for Second-Year Medical Students
Nancy Heine*, Jimmy Beck, Anissa LaCount, Hansel Fletcher, Loretta Johns, Leonard Werner (Clinical Skills Education Center, Loma Linda University School of Medicine, Loma Linda, CA, USA)

Background: Loma Linda University School of Medicine adopted a modified organ-based curriculum with an emphasis on contextual learning in 2005. A team of clinical and basic science faculty developed four OSCEs for second year students to promote professionalism and the integration of basic science knowledge in a clinical context.

Summary of work: Faculty met to develop cases, evaluation forms and teaching points. Clinical skills evaluated include history, physical exam, communication and professionalism. Following the standardized-patient encounters basic science and clinical faculty co-facilitated a small-group discussion highlighting basic science concepts key to developing a differential diagnosis and management plan. Students viewed their videotaped encounters and set learning goals. Faculty provided feedback on clinical skills and professionalism.

Summary of results: Evaluations and survey data demonstrated improvement in students’ clinical skills and a higher value placed on the importance of basic science knowledge in treating patients. The students
reported increased confidence as they transitioned to their clinical clerkships.

**Conclusions:** The OSCE facilitates development of clinical reasoning and application of knowledge in a clinical context, and enhances clinical skills and professionalism.

**Take-home messages:** The OSCE models the importance of basic science in clinical medicine, prepares students for clinical clerkships and has increased collaboration between basic and clinical science faculty.

**9E6 Preparing Objective Structured Clinical Examinations: lessons learnt for examiners**  
Asty Amalia (Medical Faculty Hasanuddin University, Medical Education Department, Komp. Hartaco Indah Blok 1 H No. 11 Makassar, Sulawesi Selatan, Indonesia, 90224)

**Background:** The objective structured clinical examination (OSCE) is a proven valid and reliable, formative and summative tool for assessing the clinical skills learned by health sciences students. OSCEs can assess students’ clinical competencies in a comprehensive, consistent and standardized manner. The Joint Committee of Indonesian Competency Examination had planned a National OSCE for medical doctors where our institution had become one of the centers. This report describes our preparation as the National OSCE center.

**Summary of work:** Our National OSCE preparations program is managed in two sessions where the first session is a class project and the second session is a practice session. After the practice session, the program is reviewed and their examiner skills were evaluated.

**Summary of results:** There are seven stations that were used as OSCE simulation. Six stations with simulated patients and one station as a procedural station. The stations were fully equipped. Fifty examiners were distributed to seven stations. They all became the examiner for seven students in each station.

**Conclusions:** There are lots of things that have to be well prepared in organizing OSCE test so the preparation has to be done several months before.

**Take-home messages:** OSCE examiners have to undergo several practices in order to have good skills in examining participants’ performance.

**9F Short Communications: Rural Education**

**9F1 Evaluating The Impact of Medical Education initiatives on Healthcare service in a small rural town**  
B Thomson *, P Knight, J N Hudson (Graduate School of Medicine, Uni of Wollongong, Northfield Ave, Wollongong, NSW, Australia)

**Background:** One small rural town, where medical practitioners provide primary care to the population, including emergency, anaesthetic and obstetric services, was an early adopter of an innovative year-long integrated (community and hospital) clinical placement designed to foster skill attainment, and a commitment to underserved rural communities. Vocational trainees, but not long-term medical undergraduates, had previously been trained in the region. This study sought perspectives on the transition from a service-provision focus to one where education was integrated within the service.

**Summary of work:** Themes arising from the transcripts of semi-structured interviews with a range of healthcare clinicians and managers were identified using Nvivo software.

**Summary of results:** Participants reported increased morale and enhanced teamwork in clinical care. Facing the challenge of simultaneously delivering undergraduate and post-graduate training, initial enthusiasm was tempered by the need to develop a sustainable model of engagement integrating learners into the service.

**Conclusions:** Early engagement and initial enthusiasm is not sufficient to sustain an increasing role for rural primary care in medical education. Reflection on the impact of increased medical teaching loads should help gauge sustainability and develop strategies to maintain capacity.

**Take-home messages:** There is significant clinical exposure, skill and teaching capacity in previously unrecognised rural placements. This needs careful management to enable the resource to be developed and sustained.

**9F2 Preparedness for Rural Practice: Does Rural Origin Matter?**  
O Szafrań *1, R Crutcher2, W Woloschuk3, D Myhre2, J Konkin1, J Fralick2 (1University of Alberta, Department of Family Medicine, Edmonton, Canada; 2University of Calgary, Department of Family Medicine, Calgary, Canada; 3University of Calgary, Undergraduate Medical Education, Calgary, Canada)

**Background:** We examined preparedness for practice of rural and urban origin family medicine graduates.

**Summary of work:** A retrospective, cross-sectional survey was conducted of 377 graduates who completed the Family Medicine Residency Program at the University of Alberta and University of Calgary, during 2001-2005. Graduates who were reared mainly in rural
Conclusions: plays over scenarios in emergency medicine. Last the group was divided into three, acting out role pairs of students as a quiz with targeted questions and large group, subsequently five cases were presented to asthenia and acute aggression) were debated in the large group. More rural origin graduates chose a rural practice location (31.7% vs 17.2%, p=0.04), felt prepared for the time demands of rural practice (95.1% vs 80.3%, p=0.025), understanding of rural culture (92.7% vs 71.5%, p=0.005), small community living (92.7% vs 70.8%, p=0.004), and being a community leader (63.4% vs 46.2%, p=0.05).

Conclusions: Rural origin is associated with rural practice location and preparedness for non-clinical aspects of rural practice.

Take-home messages: Rural origin helps beget rural practice location and preparedness for non-clinical aspects of rural practice. Ensuring that urban origin residents receive focused exposure to non-clinical aspects of rural practice may facilitate their comfort with rural medicine.

9F3 The importance of being out there: Teaching integrated clinical medicine in a rural prehospital observation unit

E H Ofstad¹, K G Skodvin², A K Forshe³, M Edvardsen⁴, N Bentzen⁵, I J Aaraas⁶, T Anvik⁵ (¹Nordlandssykehuset County Hospital, Bodø, Norway; ²Saltdal Health Centre, Rognan, Norway; ³Steigentunet Health & Nursing Centre, Leinesfjord, Norway; ⁴University of Tromsoe, Faculty of Health Sciences, Tromsoe, Norway; ⁵University of Tromsoe, Norway)

Background: With 6.2 inhabitants per square km Nordland county is dependent on rural medicine. The county teaching hospital and selected municipalities have in collaboration established pre-hospital observation units within local nursing homes.

Summary of work: As part of the sixth year medical students’ curriculum in clinical medicine we designed a new approach to teaching integrated clinical medicine in this setting. The teaching included one whole day’s visit to Steigentunet, 34 nautical miles north of the teaching hospital, with eight students and fourteen teachers from different specialties participating.

Summary of results: Three different teaching methods were applied; first two geriatric cases (presenting acute asthenia and acute aggression) were debated in the large group, subsequently five cases were presented to pairs of students as a quiz with targeted questions and last the group was divided into three, acting out role plays over scenarios in emergency medicine.

Conclusions: The students praised the integration of clinical and ethical aspects from a rural pre-hospital and a hospital specialist perspective. They said the journey itself was essential for the learning experience. In addition, a link was created between rural doctors and hospital specialists. The overall positive learning experience will have to be weighed against the use of resources.

9F4 Real community exposure enhances insight into being a rural doctor

S Pongudom*, S Raiyawa (Amphur Muang, Udonthani Province, Thailand)

Background: UDonthani H has recently joined the collaborative project to increase production of rural doctors. To produce good doctors with a sustainable stay in rural areas, the students should learn from exposure to real situations in the community and aware of their future responsibility.

Summary of work: Thirty 4th year medical students in 2010 of Udonthani medical education centre joined the program “community exposure” by visiting the 3 well-organized rural health centers. They were divided into 3 groups and spent one day in home visit, home care and joined health promotion activities. At the end, they shared their reflection via dialogue and presentation.

At the same time, feedback was received from family medicine doctors and nurses. The evaluation of the learning was performed by feedback, reflective writing and questionnaires.

Summary of results: Students have a deep learning about rural community, health care system, homecare, traditional medicine and local wisdom. They understand the patient’s context and are aware of the effective responsibility of the staff, volunteer and service mind. The most important, they have perceived a good attitude to live and work in the rural area happily, including team working, being a leader, being an adviser and empowerment.

Conclusions: Real community exposure is an important strategy to promote the applied knowledge and attitude of being rural doctors because they learned from patients and their families in real situations.

Take-home messages: Community exposure program is indeed a very effective teaching and learning method for rural doctor.

9G Short Communications: Outcome Based Education

9G1 Defining development paths of competencies in a new competency-based curriculum at Faculty of Medicine of Université de Montréal (UdeM)

L G Ste-Marie*, M Chaput, P Lebel, N Fernandez, B Cote, N Caire Fon, J Ayoub, B Bourdy, E Drouin, O Jamoulle, Y Lajeunesse, G L’Esperance, A Boucher (Université de Montréal, Faculty of Medicine, Centre de
pédagogie appliquée aux sciences de la santé (CPASS), Montreal, Canada)

Background: At UdeM, it was decided in 2005 to change the MD program to competency-based approach according to the CanMEDS framework.

Summary of work: One council per competency was formed. Each gathered a chair, teachers, other health professionals, experts of both competency and pedagogy and a student who met regularly from 2006 to 2010. The mandate was to redefine the competency according to our culture/context, including description, enabling capacities and manifestations and to describe the development path of the competency from admission to specialty certification. A central committee assembling the 7 chairs, education expert and vice-deans was responsible to review their proposals and ensure an “inside” validation and harmonization of the work.

Summary of results: Near-final documents were submitted for assessment to a group of program directors and clinicians involved in under- and post-graduate teaching. This iterative process of validation led to many changes in the original document. It resulted in the true UdeM adaptation of the 7 competencies, and their development path as really perceived by our Faculty.

Conclusions: Changing to a competency-based approach takes time and efforts from a dedicated number of teachers in an organized structure of work.

Take-home messages: Dialogue between Faculty direction and clinical teachers is essential before implementation of educative innovations.

9G2 Reinforcing and Making Learning Objectives Fun for Students
Nancy Bauer*, Janice Johnson*, Charles Seidel* (Ross University, P. O. Box F 60087, Freeport, Grand Bahama, The Bahamas)

Background: The use of learning objectives is an effective way to focus learning and identify performance expectations. Students tend to disregard learning objectives (LOs) which hampers their mastery of material. Therefore, we have taken measures to reinforce the application of learning objectives.

Summary of work: Learning objectives are written by faculty using Bloom’s Taxonomy of cognitive understanding and “action” words implying an expected performance. LOs are emphasized during lectures by dividing the material into corresponding modules. Using an audience response system (ARS), students are given questions directly linked to the LOs. Prior to each summative exam, a “Jeopardy” game is played using learning specific questions. Formative and summative questions are linked directly to specific LOs.

Summary of results: Correlating students’ formative and summative assessments by comparing response system answers to exam results will provide data on the effectiveness of using learning objectives as formative assessments. We are surveying students to determine if these steps increase the use of learning objectives.

Conclusions: The incorporation of learning objectives into lectures utilizing the audience response system, as well as “Jeopardy” games has increased student discussion, interaction and classroom participation.

Take-home messages: “When the fun goes out of play, most often so does the learning”. - Joanne E. Oppenheim

9G3 Implementing Competencies: Adoption of the CanMEDS competency framework in Canadian residency education 2001-2009
J R Frank*1, 2, C Abbott1, G Bourgeois1, S Hyde1, A C Lee1, 2 (1The Royal College of Physicians and Surgeons of Canada; 2Department of Emergency Medicine, University of Ottawa, Ottawa, Canada

Background: In 1996, the Royal College of Physicians and Surgeons of Canada adopted a new competency framework for specialist education in the CanMEDS Roles. This framework has come to be highly influential in medical education around the world, but little is known about its implementation in postgraduate programs in Canada over time.

Summary of work: We evaluated the implementation of CanMEDS in specialty programs in Canada, and compared these perceptions over time. We conducted a survey of all Canadian program directors in 2001 and 2009. Data were analyzed both qualitatively and quantitatively.

Summary of results: The response rate was 62.0% (n = 572) in 2001 and 45.7% (n=685) in 2009. 50.3% of program directors rated their understanding of the CanMEDS Framework positively in 2001, rising to 83.7% in 2009. Mean implementation scores for all CanMEDS Roles rose between 2001-2009 (p<0.05 for all).

Implementation of the 7 physician Roles stratified into 3 tiers: Medical Expert, Scholar, and Professional, followed by Communicator and Collaborator, and Manager and Health Advocate were the least (p<.05 for all). Barriers to adoption included: faculty time and workload, teacher engagement, resident workload, resident engagement, educational expertise, and lack of teaching materials. Respondents rated teaching materials, assessment tools, and funding as their priority areas for further support.

Conclusions: There has been significant progress in implementing the CanMEDS Framework in Canadian PGME.

Take-home messages: Medical educators worldwide can apply lessons from these findings to the
implementation of other educational innovations such as CBME.

9G4 Use of a competency framework to improve continuing veterinary education in low income countries
J D Harvey, J Subirana*, C E Reix (The Brooke, 30 Farringdon Street, London, EC4A 4HH, UK)

Background: The Brooke is an international Charity working to improve the welfare of working equids in low-income countries. Much of the work is strengthening healthcare provision: namely training local veterinary professionals. Training is to vets in the Brooke and in private or government practice. Historically, best practice was not always observed at field level despite technical training.

Summary of work: Training on adult learning and reflective practice skills was introduced. Vets were encouraged to identify and plan their own learning. Then a competency framework was developed, highlighting the roles that the Brooke is aiming to develop in veterinary professionals: veterinary expert; animal welfare advocate; communicator; professional in systems-based practice; life-long learner and teacher. Professional development activities are being linked to this framework.

Summary of results: Increased commitment and interest in life-long learning has been identified in learners, with increased openness to discussion of technical approaches that may differ from long-established personal practice. Clinical team-level strategies to monitor and improve standards have also been observed.

Conclusions: A modified Delphi technique is feasible to link competencies to task and activities.

Take-home messages: Preparedness for the CanMEDS roles can now be established examining every day practice.

9G5 Which competencies are most needed to perform a task? Linking CanMEDS roles to tasks and activities of medical specialists
P Remmelts*, H B Bakker1, I S Dijkstra1, J J A Mooij2, J Pols3 (1Wenckebach Institute, University Medical Center Groningen, University of Groningen, The Netherlands; 2Department of Neurosurgery, University Medical Center Groningen, University of Groningen, The Netherlands)

Background: Changes in Postgraduate Medical Education in The Netherlands comprise the introduction of competence-based education along with competencies based on the seven roles from the Canadian Medical Directives for Specialists (CanMEDS).

In order to be practically applicable abstract competencies have to be linked to concrete tasks and activities. We therefore established which competencies are most needed to perform each task of a valid inventory of 73 tasks and activities of medical specialists. This enables us to examine to what extent recently graduated medical specialists feel prepared for the seven CanMEDS roles and explore differences over time and between groups.

Summary of work: A modified Delphi procedure with three consecutive rounds. Fourteen participants filled out questionnaires and decided which one or two CanMEDS competencies were most relevant in performing individual tasks and activities. After each round the results of the previous round were fed back to the participants. Consensus was defined as 75% of the participants holding the same opinion.

Summary of results: For 59 tasks and activities consensus was reached on the most relevant competencies.

Conclusions: A modified Delphi technique is feasible to link competencies to task and activities.

Take-home messages: Identification of target competencies in continuing education can improve outcomes.

9G6 Delineating medical graduate competencies to better utilise clinical training placements
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Background: Increasing medical student numbers, necessary to meet workforce shortages, are placing pressure on health services to provide adequate clinical training placements. The Medical Deans Australia and New Zealand Competencies project aimed to assist clinical placement allocation by delineating competencies for Australian Medical Council (AMC) medical graduate attributes which are dependent on clinical placements.

Summary of work: The AMC mandates 40 attributes (related to knowledge [12], skills [13] and professional attitudes [15]) for graduates of Australian and New Zealand Medical Schools. These 40 attributes were ranked according to the extent to which their acquisition was dependent on a clinical placement. Student learning outcomes were derived for each attribute and competencies were developed for each student learning outcome.

Summary of results: Competencies (defined as observable sets of abilities) were delineated for 30 of the 40 attributes most dependent on clinical placements. They were then mapped against the 8 common clinical rotations occurring in the last 2 years
Qualities Dutch and German clinical educators find important before trusting medical graduates with critical activities

M Wijnen-Meijer¹, K Nillesen¹, M F van der Schaaf**, S Harendza³, Th J ten Cate¹ (¹Center for Research and Development of Education, University Medical Center Utrecht, The Netherlands; ²Department of Pedagogical and Educational Sciences, Utrecht University, The Netherlands; ³University Medical Center Hamburg-Eppendorf, Germany)

Background: The aim of this study was to determine which qualities medical graduates need to have to entrust them with critical activities, as judged by experienced clinical educators. To estimate the generality of these qualities, part of this study was executed in two different countries.

Summary of work: We carried out a Delphi study of three rounds among experienced clinical educators in the Netherlands (full study) and Germany (third round of the study). The goal of the first two rounds was to construct a list of 25 qualities of medical graduates. In the third round we asked the experts to score these qualities with the aim of assessing the relevance of these qualities on a scale from 1 to 5 points. We compared the 10 highest ranking qualities of both countries.

Summary of results: The Dutch experts reached consensus about 25 qualities. The top-10 qualities were ranked similar across both countries and included: a scientifically and empirically grounded method of working; Knowing and maintaining own personal boundaries; A habit of active professional development; Teamwork and collegiality and Active listening to patients.

Conclusions: Clinical educators seem to consider general qualities more important than medical qualities. Consensus across countries and cultures appeared surprisingly high.

Peer assessment for undergraduate medical students - introducing the concept in Problem Based Learning

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Background: Medical professionals need to be skilled in giving and receiving feedback. To develop these skills in medical students, we introduced on-line peer assessment in the Problem Based Learning (PBL) course at Imperial College, in Years 1 and 2.

Summary of work: We developed the peer assessment methodology within the E-portfolio students are required to develop. Peer students act as co-examiners, together with an academic examiner.

Conclusions: Students need further training in how to provide feedback.

Take-home messages: Given the level of agreement between student examiners and academic examiners, students can act as peer examiners in formative long cases.

Evaluation of Peer Assessment in Long Case Clinical Examinations

A Burgess*, K Black, C Roberts, R Chapman, C Mellis. (The University of Sydney, Central Clinical School RPAH, Sydney Medical School, Building 63, Royal Prince Alfred Hospital, Missenden Road, Camperdown, NSW 2050, Sydney, Australia)

Background: In stage 3 of the medical program, Sydney Medical School, students are required to sit a formative long case examination. Peer students act as co-examiners, together with an academic examiner.

Summary of work: To investigate the efficacy of students as examiners based on (1) Student perception of competence in their own long case examinations; (2) Agreement between student and academic examiner marking. Methods: Students (n=97) were randomly allocated to co-examine their peers. Data was collected as follows: Questionnaires were distributed to all student co-examiners (n=97); Four Focus groups were held (convenience sample, n=23); Marking sheets of academic and student examiners were compared to assess agreement.

Summary of results: Questionnaire response rate 95% (n=92); Focus groups (n=23); Marking sheets: 92% were analysed (n=89); Acting as a student co-examiner was useful in preparing students for their own long case examinations; Students had difficulty assessing and giving feedback to peers. Student examiners consistently marked higher than academics across all marking domains, however, these differences were not statistically significant.

Conclusions: Acting as a peer examiner is a useful learning activity for students. Students need further training in how to provide feedback.

Take-home messages: Given the level of agreement between student examiners and academic examiners, students can act as peer examiners in formative long cases.
value of receiving written feedback from peers and related to the specificity of comments that were anonymised by the support team. Some students struggled to use the E-portfolio.

Conclusions: This process improved the quality of the peer feedback.

Take-home messages: The innovation required significant input from E-portfolio experts in terms of adapting the software and answering student queries and raised challenges related to confidentiality and supporting students during a feedback process about their performance.

9H3 Evaluation of peer assessment as an alternative teaching method in rheumatological examination skills in the final medical year

M Morris*, H Dollahite, H Dolphin, L Kelly, J Noh, K O'Reilly (School of Medicine/Clinical Medicine, Chemistry Building, Trinity College, Dublin, Ireland)

Background: It is well documented that medical students’ self assessment of skills abilities has limitations. This study sought to investigate the feasibility of utilising peers to assess students’ abilities in performing a GALS on a simulated patient.

Summary of work: Final year students were randomised to ‘examiner’ or ‘peer assessor’. The examiner performed a GALS screening exam on a simulated patient under direct observation by a peer. The academic tutor also assessed as a control. The peer completed GALS tool. At the end of the exam the examining student self assessed.

Summary of results: COMPARING MEANS (unpaired)

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Conclusions: Peers awarded the highest grades to fellow students, tutors the lowest. The difference between means was of medium statistical significance p<0.05. The correlations were low-medium with peer-tutor levels of agreement proving lower than self assessment grades. The highest level of agreement is between student and peer.

Take-home messages: Peers over marked their fellow students’ abilities in GALS screening thus peer assessment has limitations as a teaching method.

9H4 Peer assessment: development of a framework to construct valid MCQs for formative assessment

J Burke, C Ditchfield*, M A Flynn (College of Medical, Veterinary & Life Sciences, Wolfson Medical School Building, University Avenue, University of Glasgow, Glasgow G12 8QQ, UK)

Background: Studies have shown that involving students in the development of tests can increase their motivation to learn, boost academic performance and reduce anxiety. The aim of this project was to support students in the generation of MCQs, evaluate the effectiveness of these questions and develop a framework for future peer generated assessment.

Summary of work: During two 5 week SSCs, 4 and 6 medical students; respectively, were provided with the opportunity to construct MCQs following an intense literature review and feedback from experts. Subsequently, the year group was invited to answer these questions. Main outcomes investigated included quality of test and feedback from peers using questionnaires and free text analysis.

Summary of results: A total of 99 students (29 and 70 respectively) volunteered to sit the test. Evaluation showed that the test was well constructed and that when tested on their peers was a valuable exercise which should be encouraged.

Conclusions: For most students, construction of exam questions as a learning strategy is a new experience. However with minimal staff involvement students can generate of high quality questions which are assessed positively and are useful for formative assessment.

Take-home messages: The challenge for medical schools is how best to use this initiative to the students’ advantage.

9H5 Peer assessment of competencies: Barriers to accuracy

R D Havery*, D A Reed (Mayo Clinic College of Medicine, 200 First Street SW, Rochester, MN 55905, USA)

Background: Observation-based peer assessment of teamwork, communication, professionalism and leadership among pre-clinical medical students is valuable but challenging.

Summary of work: Following implementation of a behavioral assessment system for peer and faculty feedback using a 5-point scale, we compared the first 2 years of peer and faculty scores of pre-clinical medical students. We then conducted a survey of students’ views of peer evaluation to explore score discrepancies.

Summary of results: We obtained 9, 256 observations (4204 faculty and 5052 peer) on 136 pre-clinical students. Students’ mean (SD) scores were: teamwork 4.41 (0.26), professionalism 4.36 (0.22), leadership 4.29 (0.48), and communication 4.32 (0.25). Scores from faculty were lower than peers in all four domains (all p<0.001). Of students surveyed (response rate 97%), only 68% of students agreed that peer assessments were accurate. Forty-three percent did not believe peer assessment was anonymous, 39% agreed that a
negative assessment would disrupt peer relationships, and only 40% recalled instruction on peer feedback. **Conclusions:** Peers may be less discriminating than faculty in their assessments. Lack of anonymity, concerns about adverse impact on peer relationships, and inadequate instruction may contribute to inaccuracy. **Take-home messages:** Exploration and correction of barriers to accurate peer assessment should occur.

**9H6** What your peers think: Faculty and student perspectives with incorporating peer assessments as part of the teaching and learning for simulation sessions of the clinical practicum course  
L Di Prospero*, K Dawson, M Peacock, M McGiffin, K Molinie  
(1) Odette Cancer Centre, Radiation Therapy, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Toronto, Ontario, Canada M4N3M;  
2) Department of Radiation Oncology, University of Toronto, Canada)  

**Background:** Clinical faculty observed that student professional behaviours were varied in motivation, initiative and teamwork. A peer assessment was introduced hypothesizing peer feedback would improve performance.  

**Summary of work:** Students (N=11) participated in nine small group simulation sessions. Students completed a peer assessment tool for each of their peers. A debrief session was held (N=8) to capture their perspectives of utilizing these assessments. Peer and faculty written observations from assessments were compared and concordance identified. Emergent themes from the transcript and facilitator notes were identified.  

**Summary of results:** Students rated each other at a score of 2 in 85% of instances. Peer comments matched the numerical rating in 6/11 students. Comments on the peer assessments were in concordance with observations extracted from previous faculty assessments for 80% of the students. Students expressed a favourable attitude toward the use of the peer assessment. They did not find the numerical grades useful; found the quality of the comments to be weak; would have appreciated earlier, more frequent assessment and training to use the tool.  

**Conclusions:** Peer assessments are beneficial, however should not be associated with a numerical grade to maximize their value to student learning.  
**Take-home messages:** Peer assessments are positive to clinical learning.

**91** Research Papers: Professionalism / The Teacher  

**911** Questioning the professional nursing care in Indonesia: A qualitative study  
Herkutanto*, AP Susilo**  
1) Department of Forensic Medicine, Faculty of Medicine University of Indonesia / Clinical Forensic Department, Jakarta, Indonesia;  
2) Graduate School of Clinical Pharmacy, Faculty of Pharmacy, University of Surabaya, Indonesia)  

**Introduction:** The professionalism of nurses is reflected in the quality of nursing care. The five stages of nursing care (review, diagnosis, planning, implementation, evaluation) require high professional competence, including critical thinking and mastery of nursing science. In Indonesia, nurses are absorbed to tasks less relevant to their profession such as curative tasks in community health centers or doctors’ delegation in hospitals. Implementation of professional nursing care is challenged in daily practice. We explored: (a) how do nurses perceive the nursing care they perform? (b) what are the barriers of nursing care implementation?  

**Methods:** We conducted a qualitative study in a 300-beds private hospital in Indonesia. Five Focus Group Discussions (FGD) were performed with different nursing groups (junior, intermediate, senior nurses, bachelor degree nurses, and heads of wards). Every group consisted of 10-12 nurses from various hospital units. Document review of regulations and hospital accreditation requirement was used to assess organizational factors those influence nursing practices. Themes were developed using grounded theory approach. Triangulation of results among FGDs and document review was conducted to assess trustworthiness.  

**Results:** FGDs showed that nurses were aware that nursing care frequently deviated from professional nursing standard. Choices of nursing diagnosis as written in patients’ records are often based on nurses’ confidence to solve the problem, not on sound assessment of patients’ condition. Barriers of implementation were time constraint, lack of capability, lack of motivation, lack of demand and control, and lack of supporting system. Nurses were more absorbed to accomplish tasks delegated by physicians than to perform professional nursing care. They perceived that physicians and hospital management expect them to keep these current roles. Document review showed less supportive policy for nurses to conduct professional task.  

**Discussion and conclusion:** This situation places nurses as subservient to doctors instead of as professional partners. Implementation of professional nursing care, that requires more independence, is challenged. The evolution of nursing professionalism in Indonesia should consider history, culture, and nurses’ relationship with doctors. Changes in nursing education are needed, including fostering inter-
Introduction: Papadakis and colleagues found that unprofessional behavior in medical school was associated with subsequent action by state medical boards. To address student academic progress, U. S. medical schools have progress and promotions committees (P&PCs) that are responsible for determining student promotion, remediation or dismissal. The objective of this study is to determine what academic and unprofessional behaviors trigger identification and action by P&PCs.

Methods: This was a mixed methods study using data from the P&PCs files from 1980 to 2000 and interviews with P&PC members at a single institution. The P&PCs made formal recommendations yearly to the executive faculty for promotion, remediation or other sanctions. Triggers for committee actions were categorized. The second source of data sought to better understand the identification triggers through intentional sampling of P&PC members including Deans, course directors and faculty. The nine interviews were conducted using a semi-structured interview protocol asking P&PC members about the key academic performance and professional behavioral issues of consequence for the committee. Qualitative analysis of interview transcriptions and P&PC notes was performed.

Results: During the 2 decades, the P&PCs made 172 formal recommendations to the executive faculty committee based on low academic performance or unacceptable professional behavior. The majority of actions were for academic difficulty; for the minority, professional behavior was problematic. Poor academic performance was noted for 92 students in the 1st year, 56 students in the 2nd year, 20 students in the 3rd year, and 4 students in the 4th year. Behavioral issues were the trigger for action less commonly; 14 students in the 1st year, 14 students in the 2nd year, 10 students in the 3rd year, and 4 students in the 4th year. Students with behavioral triggers usually had academic difficulty as well. Analysis of the P&PC notes and interviews yielded 7 triggers of unprofessional behavior: poor interpersonal skills, lack of commitment to medicine, norm violation, issues of health and wellness, substance abuse, lack of motivation and failure of ethical conduct.

Discussion and conclusion: For the period 1980 to 2000, the primary trigger for P&PC action for students brought to attention was academic difficulty and less commonly unprofessional behavior. The P&PC did identify and recommend action for unprofessional behaviors ranging from poor motivation to significant ethical and substance abuse issues.


912 Unprofessional Behavior Triggers for Progress and Promotions Committees Actions
S Santen*, E Petrusa*, R Hemphill1 (1Emory School of Medicine; 2Vanderbilt School of Medicine, USA)

Introduction: Papadakis and colleagues found that unprofessional behavior in medical school was associated with subsequent action by state medical boards. To address student academic progress, U. S. medical schools have progress and promotions committees (P&PCs) that are responsible for determining student promotion, remediation or dismissal. The objective of this study is to determine what academic and unprofessional behaviors trigger identification and action by P&PCs.

Methods: This was a mixed methods study using data from the P&PCs files from 1980 to 2000 and interviews with P&PC members at a single institution. The P&PCs made formal recommendations yearly to the executive faculty for promotion, remediation or other sanctions. Triggers for committee actions were categorized. The second source of data sought to better understand the identification triggers through intentional sampling of P&PC members including Deans, course directors and faculty. The nine interviews were conducted using a semi-structured interview protocol asking P&PC members about the key academic performance and professional behavioral issues of consequence for the committee. Qualitative analysis of interview transcriptions and P&PC notes was performed.

Results: During the 2 decades, the P&PCs made 172 formal recommendations to the executive faculty committee based on low academic performance or unacceptable professional behavior. The majority of actions were for academic difficulty; for the minority, professional behavior was problematic. Poor academic performance was noted for 92 students in the 1st year, 56 students in the 2nd year, 20 students in the 3rd year, and 4 students in the 4th year. Behavioral issues were the trigger for action less commonly; 14 students in the 1st year, 14 students in the 2nd year, 10 students in the 3rd year, and 4 students in the 4th year. Students with behavioral triggers usually had academic difficulty as well. Analysis of the P&PC notes and interviews yielded 7 triggers of unprofessional behavior: poor interpersonal skills, lack of commitment to medicine, norm violation, issues of health and wellness, substance abuse, lack of motivation and failure of ethical conduct.

Discussion and conclusion: For the period 1980 to 2000, the primary trigger for P&PC action for students brought to attention was academic difficulty and less commonly unprofessional behavior. The P&PC did identify and recommend action for unprofessional behaviors ranging from poor motivation to significant ethical and substance abuse issues.


913 Models for prospective identification of underprepared students
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Introduction: Weak medical students might start failing in first year courses and struggle along the degree to become weak doctors. A predictive model of “failure” can provide guidance for the prospective identification of students in need of remediation. This study looks for statistical models to predict failure in first year of medical degree using high school GPA, socio-demographic variables, “Big5” personality traits and performance on previous first year courses.

Methods: We essayed multiple logistic regression models with variables reported in the literature to predict failure in the first year course with the highest failing rates. We used academic, admission, socio-demographic and personality data from 288 students representing the 2007-2009 entering classes in one Portuguese medical school. Chi-square and Mann-Whitney-Wilcoxon tests were used to pre-select variables for the logistic regression. Nested models were compared by mean of likelihood ratio test. BIC was used to compare non-nested models. Models were analyzed in terms of odds ratios (OR), overall fit (Hosmer-Lemeshow goodness-of-fit test) and predictive ability (ROC curve, sensitivity, specificity).

Results: We present two models.

• Model 1: high school GPA (OR=0.9603, ZWald=-1.67 p<0.1), conscientiousness (OR=0.8957, ZWald=-3.96 p<0.001), anticipation of time management difficulties (OR=0.2922, ZWald=-3.06 p<0.01), failure on the first course of the program (OR=12.95, ZWald=4.17 p<0.001), leaving home (OR=2.03, ZWald=1.87 p<0.1) anticipation of difficulties in family relationships (OR=0.3071, ZWald=-1.95 p<0.1). Predictive ability: area under ROC curve = 0.82; sensitivity = 69.35%, specificity = 80.09%, total prediction accuracy = 77.78%. In Model 2, high school GPA was replaced by final
score on the second course of the program (MCscore).

- Model 2: MCscore (OR=0.2581, ZWald=-6.6 p<0.001), conscientiousness (OR=0.8967, ZWald=-3.37 p<0.001), anticipation of time management difficulties (OR=0.3072, ZWald=-2.18 p<0.05), failure on the first course of the program (OR=7.438, ZWald=2.86 p<0.005), leaving home (OR=2.2795, ZWald=2.09 p<0.05), anticipation of difficulties in family relationships (OR=0.1667, ZWald=-2.47 p<0.05). Predictive ability: area under ROC curve = 0.91, sensitivity = 74.19%, specificity = 87.17%, total prediction accuracy = 84.38%.

Discussion and conclusion: Previous academic achievements in the first and second courses, leaving home and conscientiousness are important predictors of future first year failures. Students who anticipate difficulties are, paradoxically, less likely to fail. The predictive power of failure in the very first courses offers interesting opportunities for very early identification and intervention on failure in medical schools.


9I4 Students’ excuses for not responding to unprofessional situations
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Introduction: In general, we teach medical students to value professional situations in terms of normative reasons: is their behaviour acceptable according to knowledge, norms and values, given the circumstances². From the perspective of accountability, being an important aspect of professionalism, we expect students to react to unprofessional situations. In practice, however, it appears they have difficulties to do so. Students’ excuses (motivating reasons) for not reacting to unprofessional situations depend on external circumstances which make excuses more or less valid². During clerkships these external circumstances are particularly influenced by the role of supervisors and peers. In this study we explored whether students recognize unprofessional situations, which excuses they have for not responding to such situations and the role of supervisors and peers in their excuses.

Methods: In this qualitative study we made use of online focus groups: a web-based interactive moderated discussion. Two groups of Master students (n=8 for each group) in their second clinical year participated. All participants had sufficient experience to recognize unprofessional situations. To stimulate online responses four vignettes describing unprofessional situations regarding supervisors/peers were used. The topics of the vignettes (disrespect, violation of patients’ privacy, transgressing behaviour, demonstrating a lack of responsibility) were based on experiences reported by former students. The students commented anonymously on the vignettes. The moderator asked questions when the responses diverted too much from the research question. A thematic analysis of the written contributions was conducted.

Results: All students (N=16) commented on the vignettes. Students recognized the unprofessional situations described and added their own experiences in similar situations. Excuses they mentioned for not reacting were: being dependent on the supervisor for feedback and assessment, not feeling safe, wanting to meet the expectations of others, feeling insecure about own cognitive abilities and not feeling responsible. Important themes students mentioned about their supervisors and peers, which fuel their excuses were: not being communicative, not having an open attitude, not creating space for discussion, behaving transgressive, not supporting the institutional culture and not maintaining good fellowship.

Discussion and conclusion: Students mentioned several excuses for not being responsive to unprofessional situations. The validity of these excuses seems to be dependent on the behaviour of supervisors and/or peers. When supervisors are open-minded and supportive the excuses are less valid. To teach students to be accountable for their professional behaviour, we advise to discuss unprofessional situations with a particular focus on the validity of excuses for not responding.


9I5 Faculty development in the context of educational change: The role of teacher communities
Thea van Lankveld* (Centre for Educational Training, Assessment and Research (CETAR), VU University Amsterdam, Amsterdam, the Netherlands)

Introduction: In this study we investigated teacher learning in the context of educational change in communities of teachers. Communities of teachers are groups of teachers who deepen their knowledge and expertise by interacting on an ongoing basis. Though
teacher communities are seen as highly promising environments for faculty development in medical education. Most publications do not include empirical research but are normative in nature. Therefore, in this study we investigated: What do teachers in medical education themselves perceive as the outcomes of teacher communities?

**Methods:** The study involves a qualitative explorative study of five communities of teachers at a Dutch university medical centre. The communities were aimed at teachers with the role of tutor in a recently implemented problem-based curriculum, a role completely new to most of them. The communities met once a month, participation was voluntary. For each meeting, one or two teachers choose a specific question or theme as focus. Central was the exchange of concrete suggestions and experiences. Semi-structured interviews were held with 21 of the 33 participants. The data were analysed and categorized in Atlas.ti in several rounds. Both checks by an external assessor and internal and external member checks were part of the procedure.

**Results:** The outcomes of teacher communities, as perceived by the teachers, are:

- **Learning results:** The teachers learn from each other how to enact the role of tutor in practice. Hearing stories from other teachers of how they would react in a given situation, helps the tutors to develop a frame of reference against which they gauge their own performance.
- **Emotional support:** The communities are a source of recognition and confirmation. When they learn that colleagues are struggling with similar questions, they can place their own doubts in perspective. This leads to a grown feeling of self-confidence. Also, the teachers report that they feel being taken seriously.
- **Sense of community:** The participants express that the sessions made them feel part of a bigger community of teachers.
- **Organizational learning:** As a fourth experienced outcome, the tutors mention that the meetings make a contribution to the collective creation of standards.

**Discussion and conclusion:** Outcomes as experienced by the members are both on a cognitive and an emotional level. These outcomes include both individual outcomes and outcomes for the organization as a whole.

**References:**


**Introduction:** Assumptions are made in medical education about the nature of physicians and how they should be studied. Current understandings appear natural and inevitable, rather than being acknowledged as phenomena which developed in response to particular societal forces. Identifying these as constructs and analysing them using theories from the social sciences can yield useful insights. For example, examination of specific periods through appropriate theoretical lenses can shed light on when, how and why specific notions of the physician developed. In our work we sought to: (a) identify the temporal context of a particular shift in the conceptualization of the nature of physicians and (b) to place this shift in its sociohistorical context within the larger field of medical education research.

**Methods:** We performed two separate but complementary textual analyses of Journal of Medical Education (now Academic Medicine) in the 1950s. One, a Foucauldian critical discourse analysis, focussed on shifting discourses about physicians. The other, a sociohistorical analysis drawing primarily on the work of Pierre Bourdieu, focussed on disciplines competing for legitimacy within medical education research. These findings were then integrated, with deliberate theoretical triangulation, to create a joint analysis of a discursive shift within the field of medical education research.

**Results:** A Foucauldian discourse analysis of texts from the 1950s demonstrates a discursive shift from holistic descriptions of physicians’ characters to physician characteristics as a compilation of measurable traits. A analysis using Bourdieu’s concept of ‘field’ shows that in this same era several disciplines competed for legitimacy within medical education research and that psychologists in particular fought to position themselves as indispensable. The use of psychometric methods and research interests, which were avidly taken up from psychologists by the physicians who controlled the field of medical education research, enabled the study of discrete, measurable physician characteristics.

**Discussion and conclusion:** A particular series of historical negotiations about the study of physicians was accompanied by a significant change in our idea of the nature of physicians. While these relationships are not causal, their intersection is illuminated through the triangulation of two theoretical approaches to the data. Other sociohistorical phenomena have subsequently emerged within medical education, as have further shifts in our conceptions of physicians (such as roles...
and competencies). Theoretical triangulation is a tool worthy of further exploration as a potentially powerful way to understand the historically contingent development of our current construct of the physician.

9J Short Communications: Simulation in Practice

9J1 Experiences with a simulated learning environment - the SimuScape®
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Background: Retrieval of knowledge and its application functions best if taught and practiced in a realistic and workplace-based context. So there is an actual demand to let the medical simulation take place in the realistic context of a genuine clinical or in an simulated learning environment.

Summary of work: A technique for recording and reproducing the projection of any learning environment as freeze images or video sequenzes was developed. A round training room was realised, which provides for the students by 270°-panoramic projections the feeling “to be right in the centre of the action”.

Summary of results: After collecting more than two years of experience, a total of 1,000 students have been taught in these curricular teaching units. The produced scenes can be steered individually by the teacher and so supplements the simulation used up to now with a realistic learning environment.

Conclusions: With the SimuScape© a learning environment was created which can be flexibly used, is changeable where necessary and can be integrated into curricular teaching. This enables to show the different aspects of the medical action beyond the ambulant and stationary context of a genuine clinical or in a simulated learning environment.

Take-home messages: The projection of learning environments seems to be a feasible new approach to medical simulation.

9J2 Multidisciplinary Trauma Call Simulation - a first in the UK
S Monkhouse, S Jonas, H Nagaswaren, C Rodd (Gloucestershire Royal Hospital, Bristol, UK) (Presenter: J Bennett)

Background: Trauma calls are a common scenario in major acute hospitals. These can be chaotic and occasionally disorganised with no clear structure. To address this we set up a multidisciplinary real time trauma simulation in a real environment involving multiple specialities to identify areas of concern and improve team working.

Summary of work: The trauma patient was a computerised simulator (SimMan) and had a pre-programmed trauma scenario. He was a 30-year-old man who had fallen from a height of thirty metres and sustained a chest injury. He was programmed to deteriorated significantly during initial assessment to test the specialities (A&E, anaesthetics and surgeons). The idea was not only clinical assessment but to teach non technical skills such as communication and teamwork.

Summary of results: The trauma call scenario worked well with positive feedback. All involved were suprised how real it felt and all were slightly stressed by the experience, a reflection of its real - time, realistic nature. Communication and team work were assessed using standardised assessment tools. Reflection and debrief were integral to this scenario.

Conclusions: This is a first for the UK to have a formalised real-time trauma scenario using a simulator in the resuscitation room, that involved multiple specialities. Non-technical and clinical skills were assessed. Positive feedback was received.

Take-home messages: Trauma simulation training should be incorporated into multidisciplinary training programmes and will improve outcomes.

9J3 From screen based simulation to Simman based simulation - does it improve systemic approach to critical incidents for new trainees in Anaesthesiology?
K Mukherjee*, M Shah* (Medway NHS Foundation Trust, Windmill Road, Department of Anaesthetics, Level 3, Green Zone, Gillingham, Kent, UK)

Background: Critical incidents (CI) training is an essential module in the new Anaesthetic Curriculum (2010) in UK. Screen based (SB) simulation was used to develop a systemic approach for diagnosis and management of CI, which was followed by simman based (SIM) simulation after 6 weeks.

Summary of work: Simman software was used for preparing the SB scenarios. 21 newly appointed anaesthetic trainees participated in SB simulation after one month in clinical practice. This was followed by SIM simulation 6 weeks later. Various scenarios were run in real time with trainees participating in diagnosis and management with debriefing after each scenario on both occasions.

Summary of results: The trainees demonstrated a more systemic approach to interpret, diagnose and manage various CI in a more confident manner on the second occasion. Specific areas were in knowledge retention and increased level of trainee confidence in
managing CI. This was corroborated by both written and verbal feedback from trainees and faculty.

Conclusions: As all critical incidents may not be encountered in clinical practice, it is important to encourage a systemic approach to their management.

Take-home messages: SB simulation helps trainees to adopt management plans, which can be used in clinical practice. This can be reinforced with SIM simulation.

9J4 Force Sensing Simulator for Arthroscopic Skill Testing in Orthopaedic Knee Surgery

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Background: The complexity of knee arthroscopy, combined with the need to use instruments within a confined 3D space while watching a 2D monitor, makes it risky to teach during real surgery. Simulation-based training is ideal for this complex procedure, but existing simulators are less than ideal.

Summary of work: To address the limitations of existing systems, a high-fidelity physical knee simulator providing skills assessment and feedback has been developed. The simulator allows the forces applied on the femur and on probing, grasping and shaving instruments to be measured. An experimental evaluation was conducted to determine which basic arthroscopy tasks could better differentiate between trainees' and expert surgeons' performance to be eventually incorporated within a simulation curriculum.

Summary of results: Fourteen tasks were defined and performed by five experts and ten novices. Of these tasks, only two showed significant differences: oscillating shaving of the lateral femoral condyle and oscillating shaving of the medial femoral condyle.

Conclusions: These initial results show that the developed simulator, together with well-chosen tasks, could be used to assess user performance, but future work focusing on the identification of tasks that can measure performance more effectively is necessary.

Take-home messages: Orthopaedic arthroscopy simulation, with well-defined tasks, can be used for skills assessment.

9J5 The variability of innate ability and skills of medical students during learning experience with a laparoscopic surgery simulator

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Background: Manual dexterity varies among medical students, and may affect their attitudes toward surgery, especially since they usually have few opportunities to practice in a surgical theatre. To investigate the variability of innate ability and skills, we introduced laparoscopic surgery simulation in a clinical clerkship.

Summary of work: Fifth-year medical students participated in three basic laparoscopic tasks; (1) grasping/clipping (Surgery I), (2) bimanual coordination (Surgery II) and (3) spatial recognition (Urology). After an hour of practice, their performance was examined by a supervisor. Students also evaluated themselves.

Summary of results: The time required to accomplish a task showed significant correlations between grasping/clipping and spatial recognition (r=0.40), and between bimanual-coordination and spatial recognition (r=0.34). Accuracy showed a weak correlation between spatial recognition and grasping/clipping. Many students had difficulties with spatial recognition. Simulator time strongly affected their confidence. Almost all of the students reported that simulator training was interesting and seemed realistic.

Conclusions: Time spent with a simulator strongly affected students' confidence of their innate ability and skills. Most students acknowledged the necessity of spatial recognition training. Mentors should encourage students to use simulator time to prevent or overcome negative feelings toward surgery.

Take-home messages: Clinical teachers need to consider significant individual differences among medical students in operating skills of virtual surgery simulator.

9K Short Communications: International Collaborations in Medical Education

9K1 Country-to-Country Variation in Item Difficulty on the 2010 English-Language Version of the International Foundations of Medicine (IFOM) Clinical Science Examination

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Background: This study was conducted in conjunction with the IFOM program. A collaborative effort among the NBME and schools in Europe, the Middle East, and the Americas, IFOM is intended to facilitate interchange of students and mobility of graduates.

Summary of work: 200 clinical science items from USMLE Step 2 were translated into international English, Italian, and Portuguese for use on the 2010 IFOM. Using students who had completed core clinical
rotations and took IFOM in English, regression analysis was used to predict item difficulties (p-values and logit-transformed p-values) for students from schools in Belgium, Lebanon, Norway, Poland, Qatar, Singapore, and Spain (student samples ranging from 44 to 323) from US difficulties. Residuals were analyzed by discipline and clinical task.

**Summary of results:** Correlations between item difficulties ranged from 0.35 to 0.71 (lowest between US/Norwegian students; highest between Polish/Spanish students). Mean regression residuals indicated performance on Psychiatry items was relatively lower (controlling on total scores) in all countries; performance on Surgery items was relatively higher. Patterns varied for items in Medicine, Ob/Gyn, and Pediatrics. Performance was relatively higher for Diagnosis items and lower for Management items; patterns for Mechanisms and Prevention items varied by country.

**Conclusions:** IFOM item difficulties correlated to some degree across examinee groups. Some variation in difficulty was systematically related to disciplines and clinical tasks, probably reflecting variation in curriculum emphasis/timing.

**Take-home messages:** IFOM item difficulties correlated to some degree across examinee groups. Some variation in difficulty was systematically related to disciplines and clinical tasks, probably reflecting variation in curriculum emphasis/timing.

**9K2 Using simulated clinical skills teaching as a catalyst for educational change: The Iraq-Kurdistan/Cardiff DelPHE project**

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**Background:** Clinical procedures such as venepuncture and cannulation are core skills in which the undergraduate medical student should become competent before qualifying. Cardiff University School of Medicine has enhanced the clinical skills simulation area for undergraduate students through development of a skills centre and e-learning modules to support clinical skills teaching. We recognise developing countries such as Iraq could benefit from collaborative partnerships with higher education establishments in the UK in order to support them in their goal to reach internationally recognised teaching standards.

**Summary of work:** A successful bid to the British Council DelPHE Iraq programme secured funding to establish a collaborative project with Hawler Medical University (HMU), Iraq.

**Key objectives:** Carry out a survey of 101 5th year students in HMU regarding current clinical skills teaching. Provide lectures and resources for teaching staff and students. Assist the HMU team set up a small clinical skills room. Run a programme of practical sessions in the skills room for teaching staff and students.

**Summary of results:** All project goals were successfully achieved and positively evaluated by HMU students and staff.

**Conclusions:** The collaboration team agree that goals from the first stage of the project have been achieved.

**Take-home messages:** Global collaborations can bring about positives changes in undergraduate clinical skills teaching.

**9K3 Creating a postgraduate Family Medicine program in Ethiopia: An international collaboration**

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**Background:** Ethiopia is in the midst of a dramatic expansion of medical education to increase the quantity, quality and retention of medical school graduates. The rationale and structure for initiating a new postgraduate training program in Family Medicine in Ethiopia will be reviewed.

**Summary of work:** This presentation will describe the evolution and design of the first postgraduate curriculum in Family Medicine for Ethiopia. The curriculum development is a joint international collaboration between faculty at Addis Ababa University, the University of Toronto and the University of Wisconsin.

**Summary of results:** Resources and principles for curriculum construction will be reported including information collected through a needs assessment survey of Ethiopian physicians and other key stakeholders, as well as a time-motion study of general practitioners. Data from the needs assessment survey and details of program planning will be presented.

**Conclusions:** The paper will refer to the process and principles that have been necessary for successful international collaboration and curriculum development. It will conclude with a commentary about the value-added educational benefits for all faculty and trainees that result from an academic partnership across borders.

**Take-home messages:** When academic physicians work across international borders to share challenges and innovations, new knowledge is created, educational programs are enhanced and everybody learns.

**9K4 Supporting medical education in Somaliland through an international partnership**

C Lander*, J Rees, A Leather (King’s College London School of Medicine, Global Health Offices, Weston...
**Summary of work:** In 2000 the Tropical Health and Education Trust and King’s College Health Partners linked with universities in Hargeisa and Amoud. British delegates visit regularly and resources, ideas and information are shared continuously, combining local expertise with UK experience and empowering Somaliland schools to serve the local health needs.

**Summary of results:** King’s staff have helped introduce an undergraduate curriculum and a two year internship programme. The first 53 medical students ever to graduate from Somaliland now work within a strengthened public health system. We will describe these developments and current work to redefine the appropriate competencies for a course in Somaliland, based on experiences of the first cohorts of graduates who are now themselves involved in the local faculty.

**Conclusions:** The successful graduation of medical students in Somaliland has provided benefits to the health system in Somaliland and the experience of UK volunteer students and staff.

**Take-home messages:** International medical education links can develop and improve medical education within fragile health systems.

**9K5 Supporting transformational change of Medical Education in Malawi**

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**Background:** Part of the University of Malawi College of Medicine’s (CoM) Comprehensive Strategic Plan 2005 – 2008, which emphasized the need to increase the intake of medical students to ~60 students annually and to reduce the drop-out rate, was to radically change and modernize the medical curriculum, promote student-centred pedagogies and introduce ICT.

**Summary of work:** Edinburgh University is leading major collaborative projects, funded by the Scottish Government International Development Fund to support CoM to realise these aims. To date, working with St Andrew’s University, there has been substantial progress in: developing a new undergraduate medical curriculum; significantly improving the IT infrastructure; developing and implementing a very basic electronic Curriculum Management System (CMS) accessed through an interface based on the students’ timetable; extensive provision of existing electronic resources from Edinburgh university linked to teaching events in the CMS and accessible to students; capacity building through train-the trainers workshops on how to create high-quality, interactive, digital course content.

**Summary of results:** This presentation will discuss the numerous challenges this project has faced including: implementing major change; building local capacity; planning for long-term sustainability; overcoming poor internet connectivity; promoting pedagogical development and ensuring contextualization of learning to the local health service provision and culture.

**9K6 Knowledge transfer on health care systems in an interprofessional curriculum based on real patient cases**

*D Tolks*, M Hofmann, M R Fischer (Institute for Teaching and Educational Research in Health Sciences, University Witten/Herdecke, 58448 Witten, Germany)

**Background:** Since 1999 the exchange programme US-EU-MEE (United States–European Union Medical Educational Exchange Program) runs between universities in Germany, the US, Denmark and Sweden. Medical students accompany a patient for several weeks within the health care system of the guest country, to gain more insight into the respective health system. At the end of the exchange every student formulates a case description with an appraisal of the respective health system including comparative aspects.

**Summary of work:** The US-EU-MEE cases were shortened and questions enhancing the learning process were formulated. Specific aspects of the respective health systems related to the cases could be worked out and were implemented in the curriculum. The curriculum consisted of group work phases and teacher-centered discussions. Students of the different subjects (medicine, dentistry, nursing sciences and economics) worked together during the winter and summer semester 2010/2011 applying the Case Method to answering the case- and system-related questions.

**Summary of results:** According to the preliminary analysis of evaluation data and direct student feedback the case-based curriculum offers a good access to the characteristics of the selected health systems.

**Conclusions:** A specific feature of our innovative course format is the representation of the health system from the patient’s perspective. The teaching concept additionally promotes the collaborative work
and understanding between different student and teacher disciplines. **Take-home messages:** The case based method is suitable for teaching international health care systems.

### 9L Short Communications: Selection for Medicine

#### 9L1 Effects of the introduction of a cognitive admission test on medical students performance

**H G Kraft,** C Lamina, C Wild, T Kluckner, N Mutz, W M Prodinger (*Medical University of Innsbruck, Department of Human Genetics, Innsbruck, Austria; Medical University of Innsbruck, Division for Information-Communication-Technology, Innsbruck, Austria; Medical University of Innsbruck, Division for Teaching, Austria*)

**Background:** In 2006 the Swiss medical school aptitude test (EMS-Austria) was implemented for admission testing at Innsbruck Medical University, Austria, as a consequence following EU-high court decisions. Until 2005 admission was unrestricted for Austrian applicants. In 2005, admission was restricted by application date.

**Summary of work:** We studied the effects of this selection process on study progress according to gender, nationality and cohort year. Three groups of students were compared: cohorts from 2002 – 2004 ("unselected"), 2005, and 2006 – 2009 ("selected").

**Summary of results:** Comparing "unselected" with "selected" students the fraction of female students declined from 59.2% to 46.5%, respectively. The drop-out rate was reduced for male/female students from 14.8%/19.7% to 5.8%/6.4%, respectively. Hence the drop-out ratio was reduced for male/female students from 66.0%/70.5%, respectively. "Selected" students passed the exam after year 1 (SIP1) in shorter time and using fewer trials.

**Conclusions:** The percentage of both male and female students who passed the exam after year 1 (SIP1) increased significantly from 55.5%/54.8% to 66.0%/70.5%, respectively. "Selected" students passed SIP1 in shorter time and using fewer trials.

**Take-home messages:** Good performance in medical school depends mainly on having high level of self discipline rather than being superiorly intelligent.

#### 9L2 Relationship between intelligence quotient (IQ) and academic performance in undergraduate male medical students

**Omar Al-Harbi,** Abdullah Al-Saleh, Omar Al-Othman*, Mohammad Al-Mohammadi, Mohammad Al-Mazroa, Abdulaziz Al-Kherajji, Faisal Shahwan, Feras Aljebreen, Abdullah Al-Enazi, Wael Al-Sakran (Al-Imam Mohammad bin Saud Road, P.O Box 85903, Riyadh, 11612, Saudi Arabia)

**Background:** Literature depicts some relationship between the intelligence quotient (IQ) and educational performance in term of the grade point average (GPA) in obligatory precollege levels. This relationship has not been investigated among undergraduate medical students. So, this study was developed to emphasize any significant relationship between the IQ and GPA of students in medical college.

**Summary of work:** Randomly selected 147 male medical students of King Saud University in Riyadh, Saudi Arabia were enrolled in a cross-sectional study, which was conducted from March to May 2009. As an IQ measurement tool, the Raven’s progressive matrices test was utilized. A pre-designed and pre-tested questionnaire was also used to check for any confounding factors.

**Summary of results:** Throughout analysis of our data, results showed that no significant relationship exists between the IQ and GPA of medical students (P value > 0.05). We studied some confounding factors that may affect the GPA, of these, more daily hours of studying and superior high-school grades were significantly associated with higher GPAs.

**Conclusions:** This study is one of the first studies that investigate for a relationship between the IQ and academic performance among undergraduate medical students. Results showed that no significant relationship exists between these two variants.

**Take-home messages:** This study was developed to emphasize any significant relationship between the IQ and GPA of students in medical college.

#### 9L3 Changing Times for Student Admission: The German Aptitude Test for Medical Studies 2007-2011

**M Kadmon**, G Kadmon (Heidelberg University School of Medicine, Heidelberg, Germany)

**Background:** The Aptitude Test for Medical Studies (TMS) was re-introduced in Germany in 2007.

**Summary of work:** Participation in the TMS, its influence on student admission, and its predictive value for academic performance have been evaluated in Heidelberg Medical School.

**Summary of results:** Registration to the TMS has risen from 6399 in 2008, 6413 (2009), 8650 (2010) to 12,194 in 2011. The proportion of male to female participants was stable at 1:2. The geographical distribution of the participants was similar to that of the general population except for overrepresentation in Baden-Wuerttemberg. The reliability of the TMS was confirmed with Cronbach’s α 0.75. Factor analysis of the nine TMS sections revealed two major
components: one including sections testing verbal-mathematical thinking that moderately correlated with baccalaureate grades ($r=0.33$), the other including sections depicting figural-spatial thinking that did not correlate with baccalaureate results ($r=0.06$). The male proportion among the successful candidates is $>48\%$, thus increasing the proportion of male admissions. The combined validity coefficient of the TMS and baccalaureate grades is higher than their separate validity coefficients.

**Conclusions:** It seems likely that the TMS tests different cognitive abilities than the baccalaureate. Furthermore, it has diversified the student body of our medical school.

**9L4 Diversification of electronic assessment in veterinary medicine**

**JP Ehlers*, E Schaper, K-H Windt, S Aboling, A Tipold**

(University of Veterinary Medicine Hannover, Hannover, Germany)

**Background:** At the University of Veterinary Medicine Hannover, electronic assessment is used in the selection procedure of first-year students since 2006, as formative tests in the classroom with an anonymous feedback system and for selfstudies with CASUS since 2005 and as summative state exams with [kju:] since 2007. The effectiveness of the method and the fulfillment of quality criteria are high, however teachers frequently only assess descriptive knowledge.

**Summary of work:** To extend the assessment-formats, new tasks (eOSCE, Key Feature) were tested and visions of ideal exams were discussed in interdisciplinary focus groups of teachers and students.

**Summary of results:** It was possible to assess procedural knowledge by the use of key-feature cases, multimedia clips (video, audio) and by using the electronic devices for an outdoor exam in botany right in the university’s garden. Discussions in the focus group showed that next to quality criteria it is important what kind of knowledge is assessed during which state of study. To achieve the ideal examination a vision and exploring new possibilities is still necessary.

**Conclusions:** It could be shown that E-Assessment exceeds being an electronical copy of paper-based tests.

**Take-home messages:** It is crucial to develop a vision of ideal examinations and to go on exploring the new possibilities.

**9L5 Student selection criteria at Witten/Herdecke University: Qualitative and quantitative perspectives**

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**Background:** Since 1983 selection of medical students at Witten/Herdecke University (WHU) has relied on a two-stage process, first stage being written application, second stage being interview-based. Until today the assessors’ intrinsic criteria for a positive selection in the interviews have not been identified.

**Summary of work:** Qualitative, semi-structured interviews (average duration 45 min.) were conducted with 25 assessors of age 44.6±9.5 years. Assessors (m=17, f=7) were grouped concerning experience and profession. The selection criteria mentioned by the assessors were categorized in four main groups: intelligence (high school grades, self-reflection, logical reasoning, creativity), motivation (university, medical profession), social competences (SC) (communication, group skills, extracurricular activities) and personality traits (PT) (authenticity, determination). Afterwards, quantitative methods have been applied to evaluate the data.

**Summary of results:** Motivation was the criterion most frequently mentioned by the assessors (Sum-Score: 3.44±1.78), followed by SC (1.57±1.05), intelligence (1.40±0.89), and PT (0.54±0.27). Criteria were independent of assessor experience and profession. Only a slight effect of gender in mentioning social competences ($z = -2.04, p = 0.04$) was noted.

**Conclusions:** Even though assessors belong to different professional groups and differ in experience they homogenously seem to consider the same criteria as important for medical student selection.

**Take-home messages:** Assessors’ selection criteria in interviews at WHU are quite homogenous.

**9L6 First-year medical students’ mental health status during the final examination of two difference selection processes**

**MSB Yusoff*, AFA Rahim†, AA Baba‡, SB Ismail‡, AR Eso†**

(†Medical Education Department; ‡Dean’s Office, School of Medical Sciences, Universiti Sains Malaysia)

**Background:** Many studies have found medical education is not in an optimal state for new and young incoming medical students. Thus, student selection is crucial to medical training to recruit suitable students. This study attempts to investigate the mental health status of medical students from two different selection processes after final examination.

**Summary of work:** A comparative cross-sectional study was done between two batches of first year medical students; one group was selected based merely on academic merit (2008/2009 batch) and the other based on academic merit, psychometric test and interview performance (2009/2010 batch). The general mental health status was measured by the General Health Questionnaire.

**Summary of results:** The percentage of distressed medical students in the 2008/2009 and 2009/2010
batches were 58.59% and 42.3% respectively. The mean GHQ score and percentage of distressed medical students were significantly different between the two batches (p < 0.05 and p < 0.01 respectively). The 2008/2009 batch was had 2.01 times higher risk to develop distress compared to the 2009/2010 batch (p < 0.01).

**Conclusions:** The medical students that were selected based on multi-modalities had better mental health status and were less likely to develop distress compared to medical students that were selected based merely on academic merit.

**Take-home messages:** These findings suggested that a selection process based on multi-modalities may help medical school to select medical students with better ability to cope with stressful events.

9M Short Communications: Approaches to Staff Development

9M1 The role of role play in a faculty development program - a randomized controlled study

J Johansson1*, K M Skeff2, G A Stratos3 (1Uppsala University, Department of Surgical Sciences - Anesthesiology & Intensive Care, Uppsala, Sweden; 2Stanford University, School of Medicine, USA)

**Background:** The Stanford Faculty Development Center developed a teaching improvement course for medical teachers. This study was designed to investigate the relative impact of role playing as an instructional technique for facilitating change in teaching behaviors.

**Summary of work:** During 2009-2010, six faculty development courses were delivered at Uppsala University Hospital to 48 physicians from different departments. The traditional course presentation includes a range of different instructional methods. For this study, participants were randomized to participate in (1) a “regular” course, including role play or (2) an “alternative” course, without role play. Participants used retrospective pre- and post-course self-assessment ratings to assess effects on 29 specific teaching behaviors (5-point scale).

**Summary of results:** Participants’ ratings of positive changes in teaching behaviors were higher (p=0.02) for participants in the regular course that included role plays (retrospective-pre M=2.86, SD=0.61; post M=3.79, SD=0.58) than for participants in the alternative course (retrospective-pre M=3.07, SD=0.63; post M=3.77, SD=0.47).

**Conclusions:** This study validates the commonly held view that role play is a useful method for improving teaching that adds to other instructional methods.

**Take-home messages:** Faculty developers should place role plays high on their list of instructional methods when designing courses for medical teachers.

9M2 A new faculty development approach for PBL tutorials: self-reflection and peer-feedback improve teaching skills

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**Background:** Tutor teaching skills are central to ensure student learning in problem-based curricula. We elaborated a faculty development approach combining self-reflection and peer feedback based on a new instrument designed to assess teaching skills. We evaluated whether this process improves tutor teaching skills.

**Summary of work:** Twenty-two PBL tutors volunteered to be videotaped during one problem session. Three peers reviewed the videotaped session, assessed tutor teaching skills and provided feedback to each tutor. Tutors self-assessed their teaching skills before and after reviewing their videotaped session, and during the next problem session after receiving feedback. The impact on teaching skills was evaluated by 1) interviewing tutors, 2) self-assessed tutor teaching skills, 3) student-assessed tutor performance pre- and post-feedback. We used qualitative and quantitative methods to analyze the data.

**Summary of results:** 1) Tutors report that self-observation is necessary to become aware of personal teaching strategies and that peer feedback gives cues to improve these strategies. 2) Self-assessed tutor teaching skills are identical before and after reviewing the videotaped session, but significantly better after receiving feedback. 3) Students confirm this improvement of teaching skills.

**Conclusions:** Tutors need to self-reflect before getting peer feedback in order to improve teaching skills.

**Take-home messages:** A faculty development approach combining self-reflection and peer feedback improves tutor teaching skills.

9M3 Pedagogical writing club – support for teachers’ scholarship of teaching

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**Background:** The model of scholarship of teaching (Boyer 1990, Trigwell et al. 2000, Kreber 2002) provides...
a valuable framework for professional development of medical educators. Pedagogical writing club is a new form of organizing support for teachers in their scholarly approaches to investigate teaching and learning in the Medical Faculty at the University of Helsinki (Steinert et al. 2008).

**Summary of work:** Writing club for teachers was established in December 2010. The goal of this initiative was to assist the faculty members in writing about their educational innovations. The learning needs and challenges of the participants were inquired in the beginning of this process.

**Summary of results:** Nearly all participants had extensive pedagogical training. The most frequently reported motives for participating in the writing club were that of learning pedagogical writing and getting support in medical education expertise. The most challenging themes reported were qualitative research methods and data analysis.

**Conclusions:** Scholarly teacher are active in investigating teaching and student learning. This requires support in educational research methodology and in communicating research results in a higher education format.

**Take-home messages:** Faculty development designed to support pedagogical writing and educational research methods enhances the teachers’ scholarly approach.

**9M4 Simulation Instructor Training: Can One Afternoon be Enough?**

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**Background:** Our network, servicing 8000 health professionals, recently became involved in providing a train the trainer (TTT) program for a mandatory half-day multi-professional course addressing the “deteriorating patient” theme (DETECT). DETECT contains an even mix of didactic sessions and four hands-on simulation scenarios involving manikins or actors.

**Summary of work:** Our network, servicing 8000 health professionals, recently became involved in providing a train the trainer (TTT) program for a mandatory half-day multi-professional course addressing the “deteriorating patient” theme (DETECT). DETECT contains an even mix of didactic sessions and four hands-on simulation scenarios involving manikins or actors. As upwards of 100 volunteering clinicians, who are not experienced simulation instructors, were to be trained, we concluded that established methods of simulation instructor development would be too labour intensive.

**Summary of results:** To date, 72 staff members have been trained over six months (42 nurses/20 doctors); 32 (44%) instructing on at least one occasion. The program is well appraised although the large majority opted to be buddied on one to two occasions. Analysis of their students’ evaluations was positive with greater than 90% of participants agreeing or strongly agreeing they met the learning objectives. Results of further courses and follow up surveys will be presented.

**Conclusions:** A short instructor training course is feasible assuming the course is based on a preset content and scenarios and on-going mentoring is available.

**9M5 Online course on Web2.0 educational applications for staff development**

*ECW Torfs*, AP Rozendaal, F Slonds, EA Langewis, LO van der Plank, GCM Noteborn, N Zupancic Brouwer, JM van der Loo, D Townsend, PI Dekker (University Medical Center Utrecht, The Netherlands, University of Amsterdam, The Netherlands, Eindhoven University of Technology, The Netherlands, University of Maastricht, The Netherlands, University of Applied Sciences of Amsterdam, The Netherlands)

**Background:** Web2.0 technologies are increasingly being used by students. Integrating these applications in educational practice offers opportunities for students and teachers to interact, to share information and to collaborate.

**Summary of work:** The goal of this online module, developed in the MARCH-ET project, was to help teaching staff to orient themselves on Web2.0 technologies and to integrate these tools in their own educational setting. The online module made use of various Web2.0 tools: the virtual learning environment was the social media website Ning and the course material was presented in a wiki. Moreover, teachers wrote blogs, used a discussion forum, and met in videoconferences.

**Summary of results:** Preliminary results show that online learning enabled active exchange of ideas and experiences between teachers of various universities and disciplines. Teachers implemented Web2.0 technologies in their own courses. The online module was evaluated by participating teachers and the redesigned courses were evaluated by the students taking these courses. The first results are expected in May 2011.

**Conclusions:** Experiencing online learning provides teachers with knowledge and tools to integrate Web2.0 technologies in their courses.

**Take-home messages:** Online learning offers the opportunity for teachers to get hands-on experience
with educational technology when these ICT tools are fully integrated in the course material itself.

9N Workshop: Young medical educator workshop: How to choose a conceptual, theoretical framework for my research project

Monica van de Ridder*, Stewart Mennin*, Charlotte Ringsted*, Zabair Amin*, Soeren Huwendiek, Regina Petroni Mennin* (Albert Schweitzer Hospital, Albert Schweitzerplaats 25, 9th floor, P.O. Box 444, 3300 AK Dordrecht, the Netherlands; University of New Mexico School of Medicine, USA; Centre for Clinical Education, University of Copenhagen and Capital Region; National University of Singapore; University Children’s Hospital, Heidelberg, Germany; Federal University of Sao Paulo, Brazil)

Background: A theoretical framework is an important element in research: it links theory and relevance, it provides directions for researchers, and it is essential for theory building. When a theoretical framework is lacking the research is not anchored. In this workshop the following questions will be answered: What is a theoretical framework? How to choose, define and describe the framework? Where to find theoretical frameworks?

Intended Outcomes: The workshop is focused on helping people relatively new to medical education how to connect/use theoretical frameworks in relation to research projects. At the end of the workshop participants will be able to: 1) Identify and apply criteria for anchoring the theoretical framework in their research; 2) Read, review and critique the description of theoretical frameworks in introductions.

Structure: A short introduction about the function and the relevance of a theoretical framework will be presented. Participants will discuss descriptions of theoretical frameworks in the introduction of research articles. Some examples from participants’ own theoretical framework will be discussed with the facilitators and the audience.


Who Should Attend: Young medical educators interested in doing research projects and publishing their work in medical education journals.

Level of workshop: Beginner

9P Workshop: A Step-wise Approach to Trainee Performance Problems

D Dupras*, R Edson, M Wieland (Mayo Clinic College of Medicine, 200 1st St SW, Rochester, MN 55905, USA)

Background: A small number of trainees encounter difficulties during their training. The identification and remediation of problems with trainee performance is a challenge for their programs. A recent survey of

9O Workshop: What faculty need to know to understand interactive testing strategies and create advanced items

Douglas Wooster*, Ellen Julian*, Andrew Dueck¹, Elizabeth Wooster*² (University of Toronto, Faculty of Medicine, Toronto, Canada; Ontario Institute for Studies in Education (OISE)/University of Toronto, Theory and Policy Studies - Higher Education, Toronto, Canada; American Registry of Diagnostic Medical Sonographers)

Background: Multiple choice format testing remains a prominent testing strategy for in-training and registration evaluation of students and postgraduate trainees. Creating items can be challenging but well-crafted tests show good reliability in these settings. Efforts to create a more ‘real world’ simulation has led to innovative interactive testing strategies and items that allow for assessing higher level activities, such as analysis and synthesis, by the examinee.

Intended Outcomes: Participants in this workshop will recognize advanced testing strategies including using an ‘interactive dashboard’, ’hotspot technology’ and ‘script concordance’ testing applications. They will have an opportunity to create items for each strategy in an interactive setting. They will appreciate the advantages and disadvantages of each approach. They will be aware of psychometric considerations in the use of these tools.

Structure: This activity will include interactive discussion of the applications and advantages of such items and test forms that utilize them. All participants will engage in hands-on use of these items with the guidance of an expert leader. The ‘interactive dashboard’ and ‘hotspot’ modalities will be presented and participants will have an opportunity to interact with this technology. The practical application of statistical analysis and psychometrics appropriate to these testing strategies will be discussed.

Who Should Attend: All those responsible for and who have an interest in creating effective interactive testing strategies and advanced testing items.

Level of workshop: Advanced.
Internal Medicine program directors in the United States found a point prevalence of 3.9%. These trainees consume a substantial amount of a program’s resources. We have developed a step-wise program to the identification, intervention and remediation of residents with performance issues in our large internal medicine training program.

**Intended Outcomes:** Participants will: 1. Understand a process to recognize trainee performance problems; 2. Recognize the importance of non-faculty observations and assessments of trainees; 3. Appreciate the merits of a step-wise approach to the remediation of trainees with performance issues.

**Structure:** This workshop will consist of 3 sections. The first two sessions will use case-based small group discussions focusing on identification of trainee performance issues and how these issues are addressed. The final portion will utilize interactive large group and short didactic sessions to describe and discuss a step-wise approach to the remediation of performance problems in trainees.

**Who Should Attend:** Anyone involved in the education and assessment of trainees.

**Level of workshop:** Intermediate.

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**9R Workshop: Identifying and applying theoretical paradigms to educational research**

Klara Bolander Laksov*, Klas Karlgren, Mathieu Albert* (Karolinska Institutet, Berzelius väg 3, 171 77, Stockholm, Sweden; Wilson Centre, Toronto, Canada)

**Background:** Medical education research has grown immensely during the last decade. Teachers and practitioners with a wide variety of disciplinary backgrounds are entering the arena of research eager to answer their questions on teaching and learning.

**Intended Outcomes:** In this workshop participants will be introduced to four paradigms in which traditions research in medical education is carried out; post positivism, constructivism, design sciences and critical theory. The workshop aims for participants to be able to identify the relationship between ontology, epistemology and methodology of medical education research projects in the different paradigms.

**Structure:** The first part of the workshop will provide an overview of different paradigms and exemplifies medical education research within these research traditions. Participants will get a chance to position themselves in relation to different claims regarding knowledge and research. In the second part of the workshop participants will split into four groups. In these groups participants will develop a design of a medical education research project in line with one of the four paradigms. Back in the large group participants will argue for and against the different designs to get a deeper understanding of how the paradigms differ on the levels of ontology, epistemology and methodology.

**Who Should Attend:** Anyone who is interested in or has started to design smaller research projects within the field of medical education.

**Level of workshop:** Intermediate.

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**9X Posters: Postgraduate Training / Training for Surgery**

**9X1 Workshop Training for Interns to Increase Competency in Postpartum Tubal Sterilization**

W Taninsurawoot (Udornthani Medical Education Center, Udornthani Hospital, 33 Poaniyom Rd., Meung, Udornthani, 41000, Thailand)

**Background:** Tubal Sterilization is a hard operation due to the limitation of the incision and difficulty in finding tubes. Model was created to help students learn easily and increase their skills before doing the operation.

**Summary of work:** This research aims to compare 16 interns who practice with the model before performing TR with 16 interns who don’t. Does their skill differ? Questionnaires and MCQs were used to evaluate the interns’ competency (authentic assessment). The data were collected and analyzed with frequency, percentage, mean, standard deviation and t-test.

**Summary of results:** Section one: appropriateness of the model, mean scores of 4.38 (max = 5), experience gained 4.50, sufficiency of practice time 4.69, application in working 4.69 and satisfaction of the instructor 4.69. Section two: the evaluation of interns’ basic knowledge: mean score is 82.5%. Section three: the evaluation of interns’ competency (authentic assessment): Using model before doing the operation has a mean score of 36.56. Without using model 16 interns have a mean score of 29.25 (p value < 0.05).

**Conclusions:** High competency is the result of practice with the model. Interns gain more understanding how to perform postpartum TR.

**Take-home messages:** Model is an important tool to enhance interns’ skill.

**9X2 Cognitive Competence in Obstetric and Gynecologic Surgery**

J Balayla, H Abenhaim, M Martin* (McGill University, McGill Centre for Medical Education, 600-5845 Cote des Neiges, Montreal, Quebec, Canada, H3S-1Z4)

**Background:** A surgical cognitive competency tool would be helpful in assessing Obs-Gyn residents and help justify the length of residency programs.

**Summary of work:** To develop a surgical cognitive competency (SCC) tool, we defined SCC as the ability to enumerate the steps of a surgical operation in...
the order that they occur in the operating room. 28 participants from PGY-1 to PGY-5 underwent an evaluation in three different but common obs-gyn procedures: total abdominal hysterectomy, cesarean section and laparoscopic sterilization. Current surgical textbooks were used to guide us in developing this tool. The overall cognitive competence score was calculated by adding the three scores and dividing by 100.

**Summary of results:** Novice and expert groups were compared by using the Mann-Whitney U Statistic. Median scores and overall competence scores increased with training from 56.8 for novice surgeons to 93.6 for expert surgeons (<0.05).

**Conclusions:** Cognitive competence in Obstetrics and Gynecology can be reliably assessed using our SCC tool. It discriminates between novice and expert surgeons for basic procedures. It may also be helpful in justifying the length of training required before certification.

**Take-home messages:** Surgical cognitive competene tools are helpful in assessing residents and programs.

### 9X3 Cardiopulmonary resuscitation essential skill of residents in University Hospital

Polpun Boonmak*1, Suhattaya Boonmak2, Jutarmart Pongphonkit1, Nittaya Pittayawattanachai1, Sawatree Maneepong1 (1Khon Kaen University, Faculty of Medicine, Department of Anesthesiology, Khon Kaen, Thailand; 2Khon Kaen University, Faculty of Medicine, Srinagarind Hospital, CPR Unit, Khon Kaen, Thailand)

**Background:** Cardiac arrest is an important emergency situation. Cardiopulmonary resuscitation (CPR) essential skills can improve patient survival rate. In university hospital, residents have important role in patient care team. So, the authors aim to determine CPR skills among residents in university hospital.

**Summary of work:** A descriptive study of all clinical departmental residents, working at Srinagarind Hospital, Khon Kaen University, Thailand, between August-November 2010, was performed by stratified random sampling. Skills tests, reference Advanced Cardiovascular life support 2005 * guideline, were ventilation skill, chest compression skill, ECG interpretation, and electrical therapy skill. We recorded percentage of passing and pitfalls of each test including associated factors.

**Summary of results:** The authors included 36 residents in the study. The residents who passed ventilation skill, chest compression skill, ECG interpretation, electrical therapy skill were 30.6 % (95% CI 16.3-48.1), 27.8 % (95% CI 14.2-45.2), 69.3 % (95% CI 46.2-79.2), 11.1 % (95% CI 3.1-26.0), respectively. The most common pitfall was step of clearing for defibrillation. Only one resident passed all CPR skill testing 2.8 % (95% CI 0.1-14.5).

**Conclusions:** Residents who had sufficient CPR skill was low. Repeated skill training may be important to improve patient care quality.

**Take-home messages:** CPR skill may be insufficient after the training. We should have periodic assessment of CPR skills including reinforcement.

### 9X4 Evaluation of learning effectiveness of performing mask ventilation by video-assist feedback during Directly Observed Procedural Skills

W T Hung*1,2, S C Hsu1, T H Chen1, C Y Chan1, J H Yang3 (1Department of Anesthesia, Chung Shan Medical University Hospital, Taichung, Taiwan; 2Faculty Development Center, College of Medicine, Chung Shan Medical University; 3College of Medicine, Chung Shan Medical University)

**Background:** We want to evaluate learning effectiveness of performing mask ventilation to patients by undergraduate medical students (trainees) after implementing a video-assist feedback method during directly observed procedural teaching.

**Summary of work:** Directly observed procedural skills (DOPS) was used to evaluate the skill of performing mask ventilation to patients of trainees. Traditionally, an observer used oral method to feedback the trainee (T-method) after the observation. We applied an oral plus video-assist feedback method (V-method) by using video-taping the procedure during DOPS to the trainee and replayed the procedure to the trainee at the feedback period. We evaluated the supervisor’s teaching effect, trainee’s self learning satisfaction, and learning result by using a questionnaire at the end of the trainee’s learning period.

**Summary of results:** Among 87 trainees who were evaluated, 43 used T method, 44 used V-method. There was no significant difference at the specific items of DOPS, such as chin lift, airway maintenance, and ventilation control. There were significant differences in observer’s teaching effect (4.4±0.4 Vs 4.7±0.3) and trainee’s self learning satisfaction (4.1±0.4 Vs 4.3±0.2) between two groups.

**Conclusions:** Implementing video-assist feedback of performing mask ventilation to the undergraduate medical students could increase trainee’s self learning satisfaction in airway learning procedure and promote observer’s teaching effect.

### 9X5 Direct Observation as a Focused Teaching Tool for new Medical Officers (non EM residents) in the Emergency Department

ECC Tan, GG Sim*, L Tiah, W Chong (Changi General Hospital, Accident and Emergency Department, Blk 12, North Bridge Road, #10-3958, Singapore 190012)

**Background:** The Emergency Department (ED) is a high risk working environment. This is especially so for
Medical Officers (MOs) who are new to the department.

**Summary of work:** We implemented a structured direct observation program in the ED to improve the time to operational efficiency of the new MO.

**Summary of results:** The MOs filled in a survey form to assess the individual doctor’s opinion on his/her own competence to various tasks in the ED prior to the start of the program, one day after the program, and 14 days after the program started. The MOs were also asked for feedback regarding this program. MOs felt that this direct observation teaching program was systematic and structured (94%), it helped and accelerated their learning process (94%), identified their strengths and weaknesses (84%) and enhanced their patient care (88%). 23% of them felt that it was stressful to have such a program. None felt that it was a waste of time.

**Conclusions:** Implementation of direct observation as a focused teaching tool was well received by both junior doctors and Emergency physicians.

**Take-home messages:** Direct observation as a focused teaching tool is an attractive methodology for training and assessment of residents and non residents in the ED.

### 9X6 Application of Margin In Life (MIL) theory to remediation and attrition rates among emergency medicine residents

Colleen J. Kalynych*, David Vukich*, Vivek Kumar†, Michelle Lott*, Elena Buziana* (UF COM Department of Emergency Medicine; †UNF College of Computing; University of Florida COM Jacksonville Department of Emergency Medicine, 655 West 8th Street, Jacksonville FL 32209, USA)

**Background:** Scant literature exists addressing resident stress and its impact on learning and attrition. This study sought to determine if residents who might have low margin (ratio of burdens/resources) may be at greater risk for remediation or attrition. The MIL suggests if a person’s margin is below .30, learning may be at risk.

**Summary of work:** EM residents (U.S. southeast) completed a questionnaire measuring life areas and an overall MIL score. Residents reported if they were considering leaving EM training. Program directors provided remediation, at risk for remediation, and those at risk identified with ‘traffic light’ system. LEPs advised or visited if failing to provide training opportunities may be identified.

**Conclusions:** Interim reviews have been successful in identifying trainees and LEPs requiring remediation.

**Take-home messages:** Face-to-face interim reviews are vital in assessing trainees’ progress mid-way through the academic year in a face-to-face interview. Remedial and targeted training for trainees in difficulty, including time frames may be set. Local education providers (LEPs) failing to provide training opportunities may be identified.

**Summary of work:** Interim reviews were piloted in 3 networked hospitals in the KSS deanery in 2008. Positive outcome following review of the process led to adoption of reviews throughout the KSS deanery.

**Conclusions:** Interim reviews have been successful in identifying trainees and LEPs requiring remediation.

**Take-home messages:** Face-to-face interim reviews are vital in assessing trainees’ progress mid-way through the academic year in a face-to-face interview. Remedial and targeted training for trainees in difficulty, including time frames may be set. Local education providers (LEPs) failing to provide training opportunities may be identified.

### 9X8 The Hidden Curriculum of the Wait Times Strategy to reduce emergency department wait times: implications for clinical training

F Webster†, K Rice*, K Dainty*, M Zwarenstein‡, A Kuper† (†University of Toronto, Department of Surgery, Toronto, Canada; ‡University of Toronto, Department of Anthropology, Toronto, Canada; University of Toronto, Department of Medicine, Toronto, Canada; University of Toronto, Department of Health) (Presenter: A D Baker)

**Background:** A new government policy in Ontario mandates significant reductions in emergency room wait times. Our study explored the impact of this policy on intra-professional collaboration between physicians in the Emergency Department (ED) and internal...
medicine (GIM), clinical practice and medical education.

**Summary of work:** Using institutional ethnography, observations and interviews were conducted with ED and GIM physicians. Relevant texts were analyzed in order to capture the invisible institutional coordination of work that can be heard through participant’s accounts.

**Summary of results:** Many clinicians, both from ED and GIM, reported an increase in referrals to consultants in order to improve “flow” since the change in policy. They described a shift in priorities from proper care and assessment of the patient to meeting performance measures. This resulted in tension and conflict during consults and reduced opportunities for education.

**Conclusions:** Trainees are losing important opportunities for learning clinical decision-making in an environment where the hidden curriculum places more importance on “getting the patient out” than on teaching proper assessment. Residents and faculty who are experiencing increased intra-professional conflict are serving as role models for more junior trainees.

**Take-home messages:** The educational implications of government health policy initiatives are important and should be taken into account in their inception and reduced opportunities for education.

**9X9** Provision of MRCS teaching for foundation doctors in the North Western deanery

*M Johnpulle*, Z Toumi* (Condorrat, Cumbernauld, Glasgow, UK)

**Background:** The General Medical Council together with The Postgraduate Medical Education Training Board (PMETB) training committee have set agreed standards to ensure that the teaching of junior doctors fulfils the criteria set in The New Doctor document. To ensure the quality of postgraduate training is set at a high standard local deaneries are in control.

**Summary of work:** This project focuses on the level of surgical teaching provided by the North Western Deanery. The key questions that need to be answered are whether there is an adequate exposure to surgical teaching provided in the Foundation years and whether there is a provision for MRCS teaching during this time.

**Summary of results:** Our results also show that 90% of trainees received surgical teaching in their compulsory weekly teaching. However 60% of trainees through the NW deanery do not receive separate surgical teaching or extra teaching. Of those trainees wanting to sit surgical membership exams (MRCS) 10% were offered specific MRCS teaching.

**Conclusions:** The allocated teaching is being fulfilled by the North Western Deanery. This survey demonstrated that the provision for extra surgical teaching and MRCS teaching could be improved.

**Take-home messages:** Due to foundation doctors having to choose their career path early on, postgraduate exams are at the forefront of their minds. Hence the provision of teaching for these exams should be considered as part of compulsory teaching.

**9X10** The Impact of “CHIIKI-IRYOU” program of residency system in Japan

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**Background:** The CHIIKI IRYOU (CI) program has been part of nationwide residency system since 2004. CI a Japanese term includes various concepts; community-based medicine (CBM), practice in local clinic (PLC), rural and remote medicine (RRM) and health-promotion. The evaluation for CI program, was not systematic. Consequently, CI program is not standardized and the quality is not assured.

**Summary of work:** We surveyed 230 residents, 84 program directors, and 101 facilities in the CI program. The questionnaire included questions about the propriety of CI program, what residents experienced, and facilities delivered. Program directors were asked about appropriate terms and effectiveness of the program, and what priority he/she has on CI program in residency system.

**Summary of results:** 79.1% of residents had experienced on CBM, 77% on PLC, 47.4% on RRM. 87.2% of local facilities were satisfactory on CBM, 87.1% on PLC, 34.7% on RRM. 84.5% of program directors admitted their priorities in CI program on CBM, 77.4% on PLC, 40.5% on RRM. 76.2% of directors replied they could provide appropriate resources for learning CI. A period of two months within a two years of residency is appropriate to achieve the objectives of CI program.

**Conclusions:** The CI program focused mainly on CBM and PLC, but less on RRM in Japan.

**Take-home messages:** A well-balanced CI program containing RRM should be promoted in Japan.

**9X11** The effect of European Working Time Directive on the education and development of junior doctors

*F Chowdhury*, P B Goodfellow (Chesterfield Royal Hospital, South Yorkshire, UK)

**Background:** It is thought that night and weekend shift work make an invaluable contribution to the training of a pre-registration house officer in developing essential clinical skills and patient management in the acute setting.
Summary of work: We conducted a survey of junior doctors in Chesterfield Royal Infirmary (n=54) enquiring about the percentage of contribution that night and weekend shifts had to their exposure in areas of acute management of patients. The areas included: acutely unwell patients, acute admissions, bleep fielding and prioritisation of tasks, pain relief, cardiac arrests, post take ward rounds, fluid balance, making referrals and practising vital clinical skills.

Summary of results: Greater than 65% of junior doctors thought that 50-75% of their exposure to acute management and vital clinical skills were acquired during night and weekend shifts.

Conclusions: Night and weekend shifts make a substantial contribution to the education and foundation of a junior doctor.

Take-home messages: The government have stated that all rotas must be European Time Directive Compliant; however this appears to be to the detriment of the education and development of junior doctors and less exposure to out of hours work will ultimately affect patient care.

9X12 The Positive Correlation between the Performance During Internship and Residency of Internal Medicine Residents – a 12-year Observation at a Medical Center in Taiwan

Background: During the interview process of resident recruitment, examiners evaluate applicants’ performance mainly according to performance during internship. The correlation between performance during internship and residency of internal medicine (IM) residents needs to be confirmed.

Summary of work: One hundred and eight residents who completed both 1-year internship and 3-year IM residency training from 1999 to 2010 at the study hospital were enrolled in this study. The performance during internship was judged by combined scores from 10 departments and the ranking percentile of total scores. The performance during IM residency was judged by the ranking percentiles of annual exam scores, routinely assessment scores, and 3-year training average scores. The correlation between performance during internship and residency were analyzed by statistical methods. P <0.05 (2-tailed) was defined as statistically significant.

Summary of results: The ranking percentile of total scores of residency had moderate positive correlation with ranking percentile of total scores of internship (r=0.468, p<0.001). Thirty-five residents with top-30%-performance during whole internship achieved better performance in all areas of residency.

Conclusions: Good performance during internship is a predictor of good performance during the entire IM residency.

Take-home messages: There is a positive correlation between the performance during internship and residency of IM residents.

9X13 Postgraduate internal medicine residents’ perceptions of other health care providers’ roles on an acute care internal medicine unit

Summary of work: The perceptions of roles (self and others) at admission and discharge to an acute care internal medicine teaching unit amongst seventy-two participants, 34 MDs and 38 health care providers from 9 different disciplines were assessed using an adapted previously validated survey. (Jenkins 2001).

Summary of results: Of 13 potential admission roles, 100 % of medical residents agreed on two of their roles (diagnosis and diagnostic testing). The other 11 roles had substantial disagreement (28 % to 92 %agreement). Similar disagreements existed for discharge roles. Where residents did agree on their own roles, other health care providers often disagreed. Residents’ perceptions of other health care provider’s roles differed from the other professional’s own perceptions. There was disagreement within other professions on their own roles.

Conclusions: Differing perceptions about roles occurs not only between professions but also within professions. This must be recognized in developing collaboration teaching.

Take-home messages: Resident collaboration education needs to include a method to explore roles of self and others in the clinical context.

9X14 Burnout in Medical Residents: a 4-year longitudinal study

Summary of work: We conducted a longitudinal study of 68 medical residents in the 4-year IM program at Hospital Italiano de Buenos Aires, Argentina.

Background: Several studies report high resident burnout (BO) rates in different settings, but
quantitative and qualitative data in Latin-America are lacking.

**Summary of work:** We designed a follow-up study of medical residents in a large University Hospital in Argentina. All residents were invited to complete a locally validated version of the Maslach Burnout Inventory from 2006 to 2009.

**Summary of results:** Response rates in every occasion were higher than 60% out of approximately 290 residents per year. The 2006- entering cohort was followed during the entire program (4 years). Global BO prevalences were 0.35 (2006), 0.42 (2007), 0.37 (2008) and 0.27 (2009), and 2006- entering cohort BO prevalences were 0.31 (2006), 0.38 (2007), 0.44 (2008) and 0.30 (2009), respectively. We found no differences in BO prevalence by gender, age, surgical vs. non-surgical residencies or in the cohort. Several associations between BO and institutional characteristics and clinical supervision were found. The qualitative research revealed physical and emotional exhaustion and stress caused by excessive workload, mismatch between the “huge” responsibility they assume and rewards, interference with personal life, ambiguity of roles between professional and trainee and lack of autonomy.

**Conclusions:** Our results are consistent with findings in the literature. We found no consistent trend of BO over time.

**9X15 The role of foundation year 2 in surgical training: An enquiry into the opinions of UK core surgical trainees**

*J Younis*, H J Scott (St. Peter’s Hospital, Chertsey, UK)

**Background:** Surgical training within the UK has been faced with huge challenges of late. The foundation programme is one such change. The aim of this study was to determine the opinions of core surgical trainees regarding foundation year 2 (FY2) experiences relevant to surgery.

**Summary of work:** A telephone questionnaire of surgical trainees from the KSS Deanery who had completed the foundation programme within the UK was conducted. Questions concerned the timing of career decision-making, whether FY2 surgical rotations were undertaken, training versus service provision experiences, and the preference of years of foundation/core training.

**Summary of results:** 59 trainees participated in the study. 80% (47/59) decided to pursue a surgical career during medical school. 86% (51/59) completed surgical rotations during FY2. 88% (45/51) classified placements as service provision posts. 81% (48/59) of trainees stated a preference for three core surgical training years following one year at foundation level.

**Conclusions:** Surgical trainees made career decisions early and appreciated the need for focused training over a longer period of time, feeling educational opportunities at FY2 were prioritised to core trainees.

**Take-home messages:** Further enquiry into the role of the foundation programme in surgery should continue, in terms of duration and content.

**9X16 Operating under supervision: managing surgical training and patient safety in the operating theatre**

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**Background:** Randomized prospective studies have demonstrated that surgical residents operating as primary surgeons under direct supervision do not affect clinical outcomes. However little is known about the supervision that is provided to create a patient-safe learning environment.

**Summary of work:** A qualitative study was carried out. Forty operations in general surgery, upper GI and colorectal surgery were observed in a major teaching hospital in London. Audio- and video-recordings of ten operations were collected and analyzed in detail using analytical tools from linguistics.

**Summary of results:** Supervisors and trainees constantly adjust their relative control over an operation in response to the unfolding anatomy and the trainee’s performance. Supervisors mediate the operative manoeuvres of trainees through verbal and non-verbal communication and frequently take over momentarily.

**Conclusions:** The relative control of supervisors and surgical trainees over an operation is highly adaptable and managed through verbal and non-verbal communication. Future studies on outcomes of trainee-led operations should control for this adaptability.

**Take-home messages:** The fluctuating nature of the division of control during operations is concealed by common expressions such as ‘doing’ or ‘performing’ an operation, which suggest that control is static and defined by control over instruments alone.

**9X17 Evaluation of experience, training and self-perceived competence in teaching among Core Surgical Trainees**

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**Background:** Teaching skills is an essential competency in postgraduate medical education. However, there is no formal incorporation of training in teaching skills in most postgraduate training programmes.
Summary of work: A survey of Core Surgical Trainees (CSTs) in the Mersey Deanery was carried out to assess trainees’ experience in teaching, training in teaching skills and self-perceived competence in teaching.

Summary of results: 64 CSTs (76.2% response) participated in this survey. 100% of trainees were involved in teaching others. Only 60.8% of trainees felt competent to teach. 47.3% underwent formal training in teaching skills and this was associated with more frequent teaching activity (p<0.001) and higher self-perception of competence in teaching (p=0.003). Other factors associated with a higher self-perception of competence were: experience designing a course (p<0.001) and a high frequency of teaching (p=0.036). 63.7% of trainees expressed the need for more teaching opportunities and 54.6% want more opportunities to undergo formal training in teaching skills.

Conclusions: Although all CSTs were involved in teaching, more than a third do not feel competent to teach and the majority have no formal training in teaching skills.

Take-home messages: There is a need to improve trainees’ competence in teaching skills and this may indicate the need for formal incorporation of training in teaching skills.

9Y Posters: Problem Based Learning / Critical Thinking

9Y1 How can e-learning support Problem-Based Learning?
D M L Verstegen (Maastricht University, FHML, Dept. of Educational Research and Development, Maastricht, the Netherlands)

Background: In the context of Problem-Based Learning e-learning tools and resources can be used in different ways. However, many existing e-learning resources have been developed for individual use. They do not stimulate collaborative learning, and may not stimulate constructive learning either.

Summary of work: Based on a literature search different ways to use e-learning tools and resources in PBL curricula are described.

Summary of results: One of the most common goals using e-learning tools and resources is to enable PBL for distance learning. When the goal is to improve (regular) PBL e-learning tools and resources are often used in the self-study period and/or to bring in authentic learning materials (multimedia) or to simulate authentic task environments. Less frequent is the use of e-learning tools and materials to support collaborative and constructive learning, e.g. tools to stimulate students to collaborate more or tools to stimulate critical thinking. In a few cases more general tools are used to structure the workflow or process, thus possibly enhancing self-directed study.

Take-home messages: The use of e-learning tools and materials can, but does not always suit the PBL concept. Successful implementation requires careful consideration of how they can support the underlying learning principles: contextual, collaborative, constructive, and self-directed learning.

9Y2 The assessment of student performance in problem-based learning tutorials: Comparison of relative precision using 3-point and 5-point Likert scoring methods
J W Choi (Department of Medical Education, Department of Pharmacology, Yonsei University Wonju College of Medicine, Wonju, Korea)
Background: The aim of this study was to examine whether there were advantages in scoring precision using an observation checklist rated on a 5-point Likert scale versus a 3-point Likert scale during PBL tutorials.

Summary of work: Two hundred and two students enrolled in the third year of Wonju College of Medicine at 2010-2011 were recruited to participate in this study. During PBL courses, each student studied 4 problems. The tutor evaluated the performance of each student in the group based on elements including individual participation, individual ability for problem recognition, individual preparedness, the level of the achievement of the learning objectives for the group, and group activity in general. The performance of each student was scored on a 1-3 scale (group 2010) or on a 1-5 scale (group 2011).

Summary of results: The Cronbach’s a values of the assessment instrument were 0.658 (group 2010) and 0.724 (group 2011). In the group 2011, the intra-rater correlation coefficient for ‘individual participation’ and ‘individual ability for problem recognition’ increased. The inter-rater correlation for these elements also increased in the group 2011.

Conclusions: According to the results of this study, the 5-point Likert scale may improve the overall scoring precision during the PBL tutorials compared with the 3-point Likert scale.

9Y3 The evaluation of problem-based learning curriculum
Sun A Oh*, Eui Ryoung Han, Eun Kyung Chung, Young Jong Woo, Jung Ae Rhee, Kwang Il Nam, Kee Oh Chay, Sook Jung Yoon, Taek Won Kang (Dept. of Medical Education, Medical School of Chonnam National University, 5 Hak-Dong, Dong-gu, Gwang-ju, 501-746, Korea)

Background: To become a meaningful learning experience for medical students, the curriculum has to integrate what they are learning in college with the skills and knowledge required in the clinic environment. Problem-based learning (PBL) has been operating in our medical school since 1999. The purpose of this study was to evaluate the PBL process. This study focused on the student viewpoint in order to create an authentic PBL.

Summary of work: The subjects were 375, 1st to 3rd year medical school students. Factor analysis of the 42 items questionnaire extracted 6 factors (1st, 2nd small group tutorial, tutor evaluation, self-evaluation, PBL perception, sufficient tutorial time) and developed 19 items.

Summary of results: There were significant differences in perception of PBL, self evaluation, 1st and 2nd small group tutorials in admission system (Medical College: MC, Graduate Medical School: GMS). There were significant differences in perception of PBL, 2nd small group tutorials, tutorial time sufficiency by academic year. The difference between genders in all factors was not revealed.

Conclusions: GMS students revealed more positive response than MC students. Because GMS students had an experience of college life, it affects a more positive attitude in PBL. The higher the academic year, the lower PBL attitude is. It might be caused by curriculum difference and study burden.

Take-home messages: To improve problem-solving and self-directed study competence, we should consider various efforts to monitor and reorganize PBL curriculum.

9Y4 Measures of Education on Communication for Medical Students - Lecture Effects Based on Communication with Tutors in PBL Lectures
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Background: Communicative ability is significant between doctors and patients for the patient’s optimal treatment. The purpose of this study is to investigate changes in communication ability of medical students based on communication levels of PBL tutors and to emphasize that levels and roles of communication by instructors should be concerned first in order to improve the communication ability of learners.

Summary of work: The differences between students in communication degrees, concentration on and satisfaction with lectures, and academic achievement were compared and analyzed by conducting a tool of "communication diagnosis" that can estimate communication ability of all the tutors and students participating in PBL lectures.

Summary of results: Tutors with higher level of communication who listen to students, ask timely questions, do not react negatively, and give verbal and non-verbal feedback for students to show creativity can help students promote communication ability and can positively affect concentration on and satisfaction with lectures and academic achievement.

Conclusions: Students interacting with tutors with higher communication levels improve their communication ability from active interaction at a greater rate. Thus, what is most important for tutors may be not professionalism or experience in field but teaching methods as tutors, or communication ability for interacting with students in a wide-ranged sense.

Take-home messages: Communication of tutors are related to satisfaction with lectures and academic achievement of students, so it is needed to reestablish roles of medical professors and to pay close attention in selecting PBL tutors in order to improve effects of the lecture.

9Y5 Intellectual conflict in tutorial groups

AMEE 2011 Abstract Book: 29-31 August 2011, Vienna, Austria
Background: This study examines how first-year medical and dental students engage in intellectual conflicts in PBL-tutorial sessions.

Summary of work: Four first-year tutorial groups were videotaped during the reporting phase of PBL. Students’ interaction in conflict situations in the videotaped tutorial sessions were analyzed in relation to their answers to self-evaluative questions on how cooperative or competitive they are, and how they behave in conflict situations.

Summary of results: According to students’ self-evaluation, they are mostly cooperative and not avoiding conflict situations. However, intellectual conflicts were scarce in videotaped PBL-tutorial sessions. The duration of conflict episodes were altogether 6.6 % of the sessions. Preliminary results show that conflicts were usually cooperative, but they often dealt with issues relating to students’ recollection of facts and terms. Conflicts where deeper reasoning and thinking processes were contrasted and elaborated were few. When such conflicts arose, they were often more competitive.

Conclusions: Bringing up differences in individual thinking processes can be difficult. Conflicts dealing with students’ personal thinking processes may easily evoke competition between students. This emphasizes the importance of cooperation between students.

Take-home messages: In order to enhance learning from intellectual conflict, students’ skills to recognize differences in their thinking and to disagree cooperatively should be improved.

9Y6 The social context of problem-based learning for developing professional insights and identities

D Manning (University of the Witwatersrand, Centre for Health Science Education, 7 York Road, Parktown 2193, Johannesburg, South Africa)

Background: Theories of learning which foreground the importance of the social context of the educational environment provide a useful framework with which to interrogate and interpret student engagement with the intended learning. Meaningful participation in problem-based learning (PBL) provides students with opportunities for gaining access to discipline-based discourse and while developing professional identities.

Summary of work: Using a mixed methods cohort study research design, students in their second year of an integrated PBL curriculum in a medical degree were invited to complete an anonymous self-administered questionnaire and to participate in semi-structured focus group discussions. Questionnaire data was analysed using descriptive statistics and focus group transcripts were analysed qualitatively for emergent themes.

Summary of results: The results clearly indicated the importance of the social context for effectively engaging with the medical discourse. The role of the facilitator was emphasised for guiding the students in developing professional insights.

Conclusions: The PBL tutorial is a valuable opportunity for students to start creating professional identities as medical practitioners and developing trajectories into professional practice.

Take-home messages: Ideally facilitators should be medically qualified but non-medical facilitators should be assisted in developing deeper insights and ways of thinking which are better aligned with the clinical reasoning process.

9Y7 Content versus process in PBL groups

Kristin Sandal Berg*, Are Holen (Department of Laboratory Medicine, Children’s and Women’s Health, NTNU - Norwegian University of Science and Technology, Trondheim, Norway)

Background: PBL is a major part of the medical curriculum at NTNU. From study year 1-3, facilitators are attached to the same group during the whole semester. In the fourth year, however, tutors are solely clinical content experts in the subject covered by the tutorial. Tutors change with the tutorials, and new tutors may appear every week. The aim of this study was to explore student satisfaction after this shift in PBL approach in the fourth year.

Summary of work: After a focus group, 52 items were extracted for quantitative analyses and administered electronically to fifth year students (n=115). 71 students (61.7%) responded. To identify items endorsed by the majority of students, a filter was applied; 14 items passed for further analyses.

Summary of results: Most students reported improved professional skills and better preparedness for exams and future professional tasks. They reported that this change gave less focus on students’ group dynamics, communication and evaluations; the PBL training during year 1-3 had developed their group skills satisfactorily. Most students appreciated content experts as tutors (above 80%).

Conclusions: Experienced students benefit professionally from content experts in PBL without loss of interactive group skills.

9Y8 The Current State of Medical Education at Chinese Medical Schools: PBL
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**Background:** The teaching of medicine on a global scale has gained much attention in the west, but there is a need for greater awareness of the reciprocal education that medical students in other countries receive.

**Summary of work:** We examined 43 forefront Chinese medical schools who have participated in the annual Medical Education Conference for China Mainland, Hong Kong, and Taiwan. As recognized leaders from all over the country, the curricular undertakings of the medical universities included in this study can be considered to reflect the future direction of the rest of China.

**Summary of results:** 79% of the 43 medical schools used PBL in the preclinical curriculum. 38% schools used PBL for less than ten percent of preclinical hours, 58% used PBL for 10%-50% of preclinical hours, and 4% used PBL for more than 50% of preclinical hours.

**Conclusions:** In these forefront Chinese medical schools, PBL is significantly more pervasive than it is in the United States.

**Take-home messages:** If US medical schools are trending down their use of PBL as Kinkade (2005) suggests, then Chinese medical schools did not get the message. A future evaluation of the medical education system at Chinese medical schools that is similar to this one will be required to truly understand the trend.

9Y9 Physicians’ perceptions of their role as supervisors of students in transition to clinical clerkship

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**Background:** Physicians, with dedicated time, were supervising medical students in problem-based group sessions, physical examination, history taking and documentation in a transition course to clinical clerkship.

**Summary of work:** In order to investigate the supervisors’ perceptions on their function a purposive sample of 19 physicians participated in focus group interviews which were analysed using inductive content analysis.

**Summary of results:** Four themes were identified. To be present in the moment, committed in mind, fully attentive to the learning situation and relating to the individual student’s learning process. To catalyse learning through building on the students’ observed behaviour and level of knowledge and stimulating self-directed learning in for instance student-patient meetings. To be an expert, a professional role model and use of own expert knowledge to guide the students’ transition from the bench side of basic science to the bedside of clinical practice. To support students’ sense of coherence, creating wholeness by building professional relationships to the students and enabling alignment of various learning activities.

**Conclusions:** Dedicated time to act as supervisor creates possibilities of being present in the moment, paying full attention and build on current situations and students’ activities.

**Take-home messages:** Create space and coherence for supervision and physicians will support student centred learning and use a facilitating approach.

9Y10 Are We Ready For Change? A Study of Preferences in Teaching & Learning Methods in a Medical College in Saudi Arabia

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**Background:** The College of Medicine has been running a traditional subject based curriculum for the last ten years. The Faculty is multinational with different teaching backgrounds. The college is mulling over the implementation of Problem Based Curriculum. Our medical students have had no previous experience with PBL.

**Summary of work:** To study the preparedness of the Faculty and Students of our college, we decided to look at the teaching and learning preferences. A questionnaire was designed to answer the faculty and student preferences on various components of PBL like self directedness, working in teams etc and circulated to the students and faculty.

**Summary of results:** This study is in progress and the responses are being analyzed. The results and conclusions will be presented.

9Y11 The Influence of students’ perception about small group discussion and facilitator role on the summative score

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**Background:** Small group discussion (SGD) and tutor role plays an important part in the PBL teaching and
learning process. Both of them may have direct influence in improving summative score.

Summary of work: The population of this study was 6th semester students. The sample was drawn by using simple random sampling (n=50, α=0.05). The study used causal survey method with path analyzes technique. The instrument to measure students’ perceptions about SGD and facilitator role were questionnaires with reliabilities at 0.84 (n=15) and 0.887 (n=15). Summative score was gained from summative test of hemato-oncology module that used MCQ with reliability of 0.776. (n= 145).

Summary of results: It was shown that there was a direct influence between students’ perception about SGD on the summative score by path coefficient (p) at 0.29. There was also a direct influence between students’ perception about facilitator role on the summative score with p 0.30 and a direct influence between SGD on the summative score.

Conclusions: The study indicates that there is a direct influence between students’ perception about SGD and facilitator role on the summative score.

Take-home messages: It is recommended to build a comprehensive activity in increasing SGD quality and empowering the capability of facilitators to achieve higher results of module outcome.

9Y12 Impact of a PBL curriculum on the development of medical practitioners
L McNamee (Nelson R Mandela School of Medicine, University of Kwa-Zulu Natal, South Africa)

Background: At the Nelson R Mandela School of Medicine, University of KwaZulu-Natal, a problem-based learning curriculum was introduced in 2001. Previous studies have not necessarily revealed the impact of curriculum innovations on the development of practitioners. This study was directed at gaining a better understanding of the subject.

Summary of work: A narrative study explored the experiences of 6 purposively selected medical practitioners, 3 S years after qualifying. Questions posed addressed communication with and attitudes towards patients, clinical reasoning, self-reported basic science knowledge, and continued learning. Participants responded with written autobiographical reflections which were thematically analysed.

Summary of results: Participants linked both positive and negative experiences to the curriculum. Participants attributed these not only to the curriculum, but to individuals’ beliefs, values and socialisations.

Conclusions: Internship was dominated by experiential learning. In addition to a curriculum, an individual’s worldview and personality influenced professional development.

Take-home messages: Participants demonstrated ongoing self-evaluation and self-organisation to address gaps in their own knowledge / skills / attitudes during internship.

9Y13 Experiences of clinical practice in a problem-based learning (PBL) medical curriculum and subsequent clinical environments
S Reddy (Nelson R Mandela School of Medicine, University of Kwa-Zulu Natal, South Africa)

Background: The study traced the experiences of learning the clinical aspects of a PBL medical curriculum and the participants’ construction of a relationship with subsequent clinical environments. The intention was to determine how PBL pedagogy was experienced within the clinical environments of the curriculum, internship and community service placements.

Summary of work: Phenomenography was used to describe and interpret the qualitatively different experiences. The outcome space identified three categories: The guinea pig identity,’ ‘knowledge construction,’ and ‘professional identity.’ Critical discourse analysis provided a framework to explore the ways in which power relations and ideological effects emerged within the data.

Summary of results: The study revealed that the participants felt at the mercy of a ‘curriculum experiment’ and discriminated against by the consultants who had negative views of PBL. Despite different ‘knowledge construction’ processes, the participants emerged with a ‘professional identity’ and sense of competence across clinical situations.

Conclusion and Take Home Message: The study concludes with a proposal for an empirical model that illuminates resolutions from the findings regarding medical knowledge construction in a PBL curriculum. Hopefully the model will serve as a curriculum innovation that will result in the production of professional doctors that are required for today’s communities.

9Y14 Effects of clinical concept mapping on discipline based critical thinking of nursing students
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Background: Enhancing nursing students’ critical thinking is a challenge faced by nurse educators. This study is aimed at determining the effect of clinical concept mapping on discipline based critical thinking of nursing students.

Summary of work: In this quasi experimental post test only design 27 nursing students participated. They were randomly divided into two groups. Experimental group participated in a one day workshop on clinical concept mapping. They were also assigned to use a six step clinical concept mapping during their clinical practice (for ten weeks). Post test was done using a specially designed package consisting of vignettes for measurement of seventeen dimensions of clinical thinking in nursing under two categories of critical thinking skills and habits of mind. Students of both groups were required to write about how they would use a designated critical thinking habits or skills to accomplish the nursing actions. The students’ responses were evaluated by two examiners based on identification of critical thinking, justification and quality of the student’s response. The mean score of both groups was compared by Mann-Whitney test using SPSS version 16.5.

Summary of results: A significant difference was found between the two groups’ critical thinking skills and habits of mind in 16 out of 17 dimensions of critical thinking.

Conclusions: Clinical concept mapping is a valuable strategy for improvement of critical thinking of nursing students. However further studies are recommended to generalize this result to nursing students in their earlier stage of education.

Take-home messages: Teaching of clinical concept mapping should be integrated in our nursing education programs.

9Y15 Exploring final year medical students’ clinical reasoning through videotaped ward simulation exercise and simulated recall interviews

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Background: Clinical reasoning is vital to patient safety. The final year ward simulation exercise (WSE) at Dundee is a realistic assessment method, featuring multiple clinical decision-making interactions. Robust longitudinal studies focusing on the development of clinical reasoning in the transition period between medical student and foundation doctor are lacking in the published literature. We aim to develop this field through both simulation and workplace-based observations.

Summary of work: Audio-taped debrief interviews are currently being carried out with 19 final year medical students, focusing on their clinical decision-making in a videotaped WSE, with routine and acute care scenarios. Students’ clinical decision-making processes are being explored with stimulated recall of positive and negative events.

Summary of results: Data collection is on-going, this being the second phase of a longitudinal PhD study. By the time of the conference, preliminary thematic and discourse analyses of the videotaped WSE and debrief interviews will be presented illustrating students’ clinical decision-making processes.

Conclusions: Students’ clinical decision making within a sophisticated simulated ward setting will be discussed in the context of their clinical reasoning development in this transition period.

Take-home messages: Not only will this study broaden understandings, but it will contribute to the existing literature, providing a basis for focused educational strategies, optimising students’ clinical reasoning abilities.

9Y16 Students’ perspectives on clinical reasoning at a Japanese medical university

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Background: In Japan, very few medical schools offer clinical reasoning (CR) sessions as part of the formal curriculum. Weekly seminars to promote clinical reasoning have been implemented at our university since 2010.

Summary of work: A paper-based post-seminar survey was administered to fourth year medical students who rotated in the Department of General Medicine from September 2010 to March 2011. There were 12 questions about recognition and perception of CR, as well as satisfaction regarding the seminars. Dichotomous questions and a Likert scale (1-5) were used (1= strongly disagree, 5= strongly agree).

Summary of results: The response rate of rotating students (n=59) was 100%. While 81% had heard of CR, only 41% had utilized CR and only 15% usually study using CR. Approximately 70% believe that CR is useful and would like to utilize CR more. Medical students were very satisfied with the seminars (Mean 4.6, SD 0.74), were able to understand the seminar (Mean 4.5, SD 0.80), and thought that the seminar would impact on their learning style (Mean 4.4, SD 0.75). They would recommend the seminar to colleagues (Mean 4.4, SD 0.85).

Conclusions: Students perceived CR sessions positively.

Take-home messages: Further study is needed to identify factors for effective CR seminars in Japan.
9Y17  And... what if preclinical students solve at least one clinical case daily?
N Fernández-Garza*, D Montemayor-Flores, S Guzmán-López (Universidad Autónoma de Nuevo León, Medicine School, Monterrey, N.L., México)

Background: We started in 2006 a curriculum based on Clinical Reasoning, in which the competencies of all preclinical courses lead to the identification of pathogeny and physiopathology in order to get the diagnosis. The challenge was to design a methodology that allow students to acquire this competence.

Summary of methodology: For the Physiology course the methodology chosen was the discussion of one clinical case daily. Sixty clinical cases were written to cover the course content. The case, along with questions regarding to the subject, was given to students the day before. During the class, the clinical case was analyzed and the questions were discussed.

Summary of results: Through this daily exercise students learnt to analyze the information in a clinical case and relate it with Physiology to identify pathogeny and physiopathology to finally get the diagnosis. The class was more enjoyable, participatory and students developed the Clinical Reasoning through the learning of Physiology.

Conclusions: Solving a clinical case daily during the class allow students the development of Clinical Reasoning at the same time that they learn how to apply the content of the course to solve a clinical case.

Take-home messages: The development of Clinical Reasoning must start in the preclinical years and it is very easy to do.

9Y18  Pathogeny and Physiopathology as cornerstone in the preclinical years
D Montemayor-Flores*, N Fernández-Garza, S Guzmán-Lopez (Universidad Autónoma de Nuevo Leon, Medicine School, Physiology Department, Mexico)

Background: We have a curriculum which considers diagnosis the cornerstone of Clinical Reasoning. To reach this it is essential to identify the pathogeny and physiopathology in the clinical case; the knowledge necessary for that is mostly learned in the preclinical years.

Summary of work: The syllabus of each subject in the preclinical years was redesigned, identifying as end competency the achievement of diagnosis through the pathogeny and physiopathology.

Summary of results: The use of a syllabus based on competencies that requires the identification of pathogeny and physiopathology to reach the diagnosis, led to the use of learning strategies where students are immersed in the solution of health problems through the discussion of clinical cases, developing in them the Clinical Reasoning and reducing lectures to a minimum.

Conclusions: Pathogeny and physiopathology are the main content in the preclinical years and the link between preclinical and clinical subjects. Through the identification of pathogeny and physiopathology students are able to reach diagnosis and develop the Clinical Reasoning.

Take-home messages: In Medical Education focus in the development of Clinical Reasoning, the identification of pathogeny and physiopathology to integrate the diagnosis represents the first intellectual competency that should be acquired in the preclinical years.

9Y19  Does the tutor’s area of expertise influence student Learning Issues in Problem-Based Learning?
T O Neild*, J Farr (Dept of Human Physiology, Flinders University, GPO Box 2100, Adelaide 5001, Australia)

Background: In student centred Problem-based Learning (PBL) the tutor is trained to have a purely facilitatory role, and should not provide any content information to the students. The students, after a discussion of a case, should decide on their own areas of knowledge deficit and express them as “Learning Issues” (LIs). However, there was concern that tutors’ interests and backgrounds might lead them to inadvertently influence the LIs. This hypothesis was tested in the 5 week section of the Medical Course at Flinders University introduced basic concepts of psychiatry.

Summary of work: Nine tutors agreed to participate in the study and provided information that enabled their level of clinical or research expertise in psychiatry to be coded on a 4 point scale, from “no clinical expertise”, to “currently practicing clinical expert”. The LIs generated by their groups were assigned to one of 6 categories covering a range from basic neuroscience to practical aspects of patient management.

Summary of results: There was no influence of tutor background on the nature of student LIs; all students produced a mix of LIs covering both clinical aspects of psychiatry and relevant basic neuroscience.

Conclusions: We conclude that, for well-trained tutors, tutor background was not influencing student LIs.

9Y20  Clinical judgement of pain in the non-verbal child at the Paediatric Intensive Care Unit
J Mattsson*, M Forsner, M Castren, M Arman (Department of Clinical Science and Education, Södersjukhuset, Karolinska Institutet, Sweden)

Background: The aim of this study was to explore PICU nurses’ experiences of clinical judgment of pain in critically ill non-verbal children. The alleviation of children’s pain has been investigated from various perspectives but undertreated pain remains a problem in the Paediatric Intensive Care Unit with empirical
evidence pointing towards the role of nurses and their pain judgment process.

**Summary of work:** A phenomenographic method containing interviews was of seventeen experienced PICU nurses. Three categories emerged, describing nurses’ experiences of clinical judgment of pain from diverse perspective and levels of understanding.

**Summary of results:** The findings are hierarchically ordered A, B, C, with A as the most elaborate level of understanding. (A), named Knowledge orientation, takes various aspects of pain in consideration and relates it to theoretical as well as experiential knowledge. (B), called Investigating orientation is focused on the specific child and this child’s specific pain cues, requiring the parent’s engagement. In (C) Practical orientation the judgment process is unsystematic, building on experiential knowledge.

**Conclusions:** This study puts forward that the clinical judgment process has direct implications for how nurses take contextual factors, the child’s condition and the parents’ perceptions into consideration when judging the severity and intensity of the child’s pain, and by extension the child’s pain alleviation.

**Take-home messages:** Increased awareness on nurses’ judgment processes benefits nursing care and nurses becomes more aware of how their judgment process directly affects the alleviation of pain. Finding ways of applying theoretical and experiential knowledge in everyday care is proposed to systematically facilitate this.

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**9Z Posters: Professionalism / Attitudes**

**9Z1 Service Learning and Reflective Practice: Professionalism for 21st century Physician**

*M Grogan* (Ross Medical University, PO Box 266 Roseau, Picard, Dominica, West Indies)

**Background:** The combination of Service Learning and Reflective Practice enhances learning and promotes the professionalism of the 21st century physician. Gains in self awareness, critical thinking, communication and interpersonal skills, cultural competency, and social responsibility impact the professional identity and a passion for life long learning and service.

**Summary of work:** A presentation of the Service Learning and Reflective Practice program at Ross Medical University, will include the objectives, the curriculum overview, and the student reports of professional growth. Student reflections related to a professional identity of social responsibility and continuous learning will be highlighted.

**Summary of results:** Students who participated in Service Learning and Reflective Practice reported meaningful learning that promoted reflection, team work, self assessment, and curiosity about global health issues. They identified individual goals for improvement and a commitment to service in underserved and international settings.

**Conclusions:** Combining Service Learning and Reflective Practice early in the medical education curriculum leads to meaningful experiential learning and professional growth.

**Take-home messages:** Service Learning and Reflective Practice promotes professionalism required for a 21st century doctor who must be reflective, collaborative, culturally aware, and socially responsible.

**9Z2 The importance of role modelling to achieve physician’s professional behaviour**

*Endang Basuki (Faculty of Medicine, University of Indonesia, Jalan Proklamasi No 16, Pegangsaan Timur, Salemba, Jakarta 10430, Indonesia)*

**Background:** Professional behavior is one of the goals that should be achieved by doctors graduated from Faculty of Medicine, University of Indonesia (FMUI). Empathy, Bioethics for Personal and Professional Development in the Context of Humanities Module (EBP2DCH) was designed to help students to achieve the behavior.

**Summary of work:** It was realized that providing EBP2DCH Module will not be sufficient to achieve the desired goals. Real situation in the clinical setting would have significant influence on the professional behavior of the graduates. Several kinds of health providers are involved in students’ daily activities. In FMUI, role modeling training for lecturers has been conducted. The training emphasizes that participants should: (1) be aware that role modeling is important to achieve physician’s professional behavior, (2) know characteristics of good role model, (3) provoke willingness to be a good role model, (4) know how to pose as a good role model. The training lasts for 3 days, with several interactive teaching methods. Training ends with self-reflection by the participants.

**Conclusions:** Role modeling is one way to achieve physician’s professional behavior by creating favorable environment. Training on role modelling should emphasize factors that could raise providers’ awareness on becoming good role model in performing daily duties.

**9Z3 Perceptions of first year medical students about importance of professionalism during early patient contact program at Medical University in UAE**

*V Manda* (Faculty of Medicine, University of Indonesia, Jalan Proklamasi No 16, Pegangsaan Timur, Salemba, Jakarta 10430, Indonesia)

**Background:** Professionalism is an important attribute of a successful doctor and early patient contact (EPC) can facilitate development of professionalism in...
medical students. The objective of the present study is to know the perceptions of first year medical students about importance of professionalism during EPC program.

**Summary of work:** The study sample included first MBBS students of GMU, Ajman in the academic year 2010-11 who consented for EPC posting as elective during Communication Skills Course. Students’ feedback was obtained through a questionnaire at the end of EPC posting based on Likert scales (5-1) (SA: Strongly Agree; A: Agree; US: Unsure; D: Disagree; SD: Strongly Disagree). The data was analysed using PASW 18.

**Summary of results:** 96% of students who experienced EPC realized the importance of professional conduct in medical practice. All of them realized the importance of patient confidentiality concerns in patient care settings. 84% felt they functioned effectively in small groups and an equal number saw their facilitator as good role-model.

**Conclusions:** Majority of students had realized the importance of professionalism during the EPC program during first year of medical school.

**Take-home messages:** EPC program should be introduced in first year of medical school to facilitate development of professionalism.

924 Assessing the first year course Introduction to Medical Profession, using a short written essay. What students are likely to lack in their early learning about professionalism

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**Background:** In 2010, a first year course (40 h) “Introduction to Medical Profession” (ItMP) was developed at the Milan International Medical School. It comprises lectures on pivotal concepts (disease/illness, doctor-patient relationship, professionalism etc.), medical humanities paths and early clinical contact, supported by reflective writing.

**Summary of work:** Students (N=38) wrote an essay for the ItMP final exam. The essay’s evaluation criteria were: 1. clarity and logic articulation, 2. pertinence of quotations, 3. capacity of distinguishing personal opinions from those of experts, 4. pertinence of personal reflections/experiences reported (from the humanities paths and the ward), 5. reflective attitude, and 6. formal aspects. According to these criteria, a 15 items grid associated to a Likert scale (1-4) was created and applied by two teachers.

**Summary of results:** Students obtained the highest scores in 2, 3 and 6. Referring to 1, students showed ability in discussing the course’s topics (i.e. disease/illness), supporting their assertions with literature. Less ability was shown in supporting their thesis with classroom/ward experiences (4) and in adopting a reflective posture (5).

**Conclusions:** Students have comprehended the main course’s concepts, but their essays often lacked the ability of integrating personal experiences/reflections with those concepts.

**Take-home messages:** Reflexivity is a core competence in professionalism and it must be trained and evaluated.

925 Shouldn’t Professionalism Be Taught?

A Murt*, D Cekmecelioğlu*, M Aydin, E Bozkurt, U Topcu (University of Istanbul, Cerrahpasa Medical School, Turkey)

**Background:** Tuning-Medicine reached a consensus about professionalism to include it as one of the essential components of learning outcomes. The professional competencies are sometimes accepted to be achieved in the educational process independent from the formal curriculum. Does that really work? Or shall we give more importance to developing and evaluating professionalism in physician training?

**Summary of work:** 28 outcomes under Professionalism headline of Tuning-Medicine were questioned by Likert-scales among 4th and 5th year medical students in order to check their values, attitudes and behaviours. Students who answered the questions were selected from different grades-average backgrounds.

**Summary of results:** The mean professionalism score of 4th year medical students were higher than 5th year medical students. (3.61 vs 3.44). 5th year students’ scores were higher just for 7 outcomes from those 28.

**Conclusions:** Acquisition of Professional attitudes cannot be just left to be achieved as a result of the educational process. Students are even losing their capabilities such as empathy, creativity and will to succeed. Formal teaching should be criticized because Professional vision may not be enough to produce Professional action.

**Take-home messages:** Professionalism should be accepted as an expertise that Dreyfus’ Model of teaching (ie. Building knowing how on knowing why) can be applied in order to avoid the problem of akrasia.

926 Significance of taking a student-authored oath in the white coat ceremony: Thinking about professionalism and needs of the society

Ryo Toya*, Noriko Okuyama*, Keisuke Kouyama*, Tetsuya Yasui*, Tomonobu Hasegawa*, Michito Hirakata*, Kenji Watanabe* (1Keio University School of Medicine; 2Faculty Development Committee, Keio University School of Medicine, Japan)
Background: Students of most medical schools usually take the Hippocratic oath. However, students of Keio University School of Medicine took a student-authored oath as one of the highlights at their white coat ceremony (WCC).

Summary of work: Students of the 91st class of Keio University organized an oath-creating committee. First, they conducted a survey on students’ perception of good doctors. Subsequently, they interviewed patients and co-workers about the society’s need for excellent physicians, discussed important attributes of ideal physicians, and compiled their oath.

Summary of results: The oath created by the students can be divided into 3 components: competence, compassion, and ability to understand the social needs. The committee members faced difficulties in achieving a consensus, because each student advocated a different value. Thus, the students engaged in serious discussions and continued to think about the mission and professionalism of doctors after the WCC.

Conclusions: The role of doctors in society has been changing since the age of Hippocrates thus requiring physicians to be flexible about their role. The process of creating an oath gave a valuable opportunity to think about the professionalism and the need to adjust according to the changing times.

Take-home messages: The process of creating an oath gives a valuable opportunity to the students.

927 Teaching professionalism through student presentations of medical “heroes” and “villains”
A V Anstey, S Khot, K Hawthorne*, E Webb*, R Hain (Division of Medical Education, School of Medicine, Cardiff University, Cardiff, UK)

Background: The context of this teaching innovation was a Year 3 professionalism seminar. The aim was to teach professionalism through strong narratives.

Summary of work: The 25 students formed groups of 2-3; with one week to prepare a PowerPoint presentation using any BMJ obituary. Students identified behaviors that were professional based on GMC ‘Duties of a Doctor’. The seminar consisted of 8-10 presentations of 5 minutes each assessed by the whole group for interest and effectiveness ensuring high student commitment. Written feedback was collected to assess whether proposed learning outcomes were achieved.

Summary of results:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very effective</td>
<td>52/152 (34.2%)</td>
</tr>
<tr>
<td>Effective</td>
<td>77/152 (50.7%)</td>
</tr>
<tr>
<td>Not effective</td>
<td>17/152 (11.2%)</td>
</tr>
<tr>
<td>Undecided</td>
<td>6/152 (3.9%)</td>
</tr>
</tbody>
</table>

Conclusions: The overall standard of these presentations was high. Based on initial feedback that presentations were repetitive, the format was altered to include medical “heroes” or “villains” from BMJ obituaries or the GMC website. Student engagement is higher following inclusion of defective professionalism.

Take-home messages: Professionalism teaching was enhanced through a novel combination of self-directed learning and tutor facilitated group discussion of issues arising through student presentation of medical ‘heroes’ and ‘villains’.

928 Learning Professionalism through Narration and Reflection
Kai-Kuen Leung*, Stanley S L Tsai, Wei-Dean Wang (1Department of Family Medicine, National Taiwan University College of Medicine, No. 7, Chung-Shan South Road, Taipei, 10016, Taiwan, R.O.C.; 2National Taiwan University Hospital, Taiwan; 3Department of Social Medicine, Taiwan)

Background: Narrative-based pedagogy reflected upon physician’s stories is more effective to mould behaviors. Contemporary narratives may be more akin to trainees than historical narratives.

Summary of work: Our aims are to nurture self-awareness, deep listening, to share experiences and perspectives, and maintain professional virtues and a habit of reflection-on-action. Family medicine residents were invited to participate voluntarily. Residents tell their own stories, reflection on their reactions, emotions, and what have been learned from the experience in a closed group. Group discussion allows a deeper understanding of the meaning embedded in the story, modeling, rediscover oneself from the eyes of others, development of intimacy among colleagues, and mutual support.

Summary of results: Two FM residents groups were conducted. Professional behavior scale applied before and after the group revealed no statistical significant difference. However, participants were satisfied with the small group and subjectively found that the group can promote professional development and give support to each other.

Conclusions: Using reflection on physicians’ narratives and small group discussion may be a way to learn professionalism. However, a better curriculum design and a sophisticated method to evaluate the impacts of the curriculum need further study.

Take-home messages: Educators should consider the combination of physicians’ narratives and reflection in the learning of professionalism.

929 Developing a Medical Professionalism Course - Seven Stars, Ten Elements
Yera Hur (Konyang University, College of Medicine, Department of Medical Education, Daejeon, Korea)

Background: How to be a good doctor is the key concept of medical education. This study aimed to
develop a professionalism course for medical students at a medical school in Korea.

**Summary of work:** To identify the outcome objects of a school’s professionalism course, the Delphi method was used, followed by a series of workshops by the task force to specify the principal themes of the subject courses, duration, and appropriate academic level for the courses to be delivered.

**Summary of results:** From the Delphi method 18 core outcome objects of the professionalism course were defined. These objects were then parsed to construct three phases of a professionalism course (Medical Professionalism I, II and III) including subjects such as medical professionalism, stress and time management, leadership, and career development. Medical professionalism was also supported by other courses in the curriculum by “medicine and art” courses. Team-based learning methods were used to strengthen teamwork issues. Significant course output was observed, in which “seven stars (intelligence, noblesse, harmony, affinity, mind control, effort, decision)” and “10 elements (good – values / insight / communicator / listener / heart / introspect / responsibility / professional knowledge & skills / practice)” of medical professionalism were delivered by the end-of-course projects.

**Conclusions:** Implementing medical professionalism courses in medical education curricula and posting students’ projects around the campus creates a positive atmosphere, keeping the students and faculties in constant recognition of how to be a good doctor.

**Take-home messages:** Students can identify their own medical professionalism definition when the course is well structured.

**9Z10 Professionalism - Lived or Learned?**

O Gale-Grant*, M Gatter*, P Abel (School of Medicine, Sir Alexander Fleming Building, Imperial College London, South Kensington Campus, London SW7 2AZ, UK)

**Background:** The international literature supports learning professionalism in the clinical context. In the UK, medical schools frequently teach professionalism as a separate formal course. During this student-run project we surveyed our peers’ understanding of professionalism, including how they learned and wished to develop this characteristic.

**Summary of work:** A pre-piloted closed- and open-ended questionnaire covering students’ understanding, where they gained their views and how they wished to learn this topic was distributed to 100 3rd (1st clinical) year students, following ethical approval. Results were analysed quantitatively and qualitatively. Both types of results will be presented.

**Summary of results:** Most students cited confidentiality (73%) and promptness (68%) as key aspects of professionalism. 34% cited acquisition of a large body of knowledge as important. 70% felt that professionalism is best taught in a clinical context, compared to 13% in the existing lecture context.

**Conclusions:** Two important points emerge: [a] Students’ understanding of medical professionalism differs from accepted, published definitions, including those in the GMC guidelines Tomorrow’s Doctors (2009). [b] Students would prefer to learn professionalism as a clinically integrated not lecture based topic.

**Take-home messages:** Student understanding of professionalism differs from commonly accepted definitions. Learning professionalism in the context of clinical practice might change this.

**9Z11 Defining Professionalism According to Advanced Medical Students through Art**

B Popescu*, M Chaparro (Universidad Nacional del Nordeste, Facultad de Medicina, Quintana 1470, Corrientes, 3400 Argentina)

**Background:** Teaching medical professionalism is a challenge in medical education. We assessed the definition of this competence by advanced medical students in our school of medicine in Corrientes, Argentina.

**Summary of work:** Students were divided in 5 groups of 10. Each group listed 10 characteristics defining professionalism. Afterwards, two scenes from the film “Moartea domnului Lazarescu” (The Death of Mr. Lazarescu) were shown, from which the students pointed out positive and negative aspects about the behaviour of the actual doctors. Modified Epstein Criteria was used to classify them into dimensions.

**Summary of results:** The students listed 46 characteristics of professionalism in different dimensions: 21 affective moral, 10 cognitive technical, 6 miscellaneous, 5 relationship and 4 habits of mind.

**Conclusions:** For the entire group analyzed: empathy, responsibility, scientific knowledge, respect, honesty and patience were the strongest characteristics of professionalism. When talking about the cognitive-technique dimension, the students considered that scientific knowledge defines this competence relevantly.

**Take-home messages:** Including reflection about professionalism through art in medical curriculum can be used as a teaching tool for this competence for medical students.

**9Z12 Multicampus case-based medical ethics and law seminar in Thammasat University**

V Paocharoen (Thammasat University, Faculty of Medicine, Pathumthani, Thailand)
Background: Medical ethics and medical laws are crucial subjects in medical education. Traditional lecture may be an inappropriate style in the present medical ethics and law teaching. Case discussion or real-case example may be one of many tools to conduct easy understanding in this particular course.

Summary of work: All medical students received the instruction to get involved in the seminar. They need to give real-case presentations concerning their ward responsibility. They are advised to play the short scenes about the problems which occurred in their scenario and performed group discussion about the problems and the solutions. Teleconference was conducted during the performance and discussion. Each problem was summarized by the instructor.

Summary of results: There are 130 medical students in 4 campuses of which 57 (43.85%) are male and 73 (56.15%) are female. The mean age is 20-23 years. The scores of the answers are as follows: real case example increases the understanding is 3.13, satisfaction of learning by real case example is 3.30, traditional lecture is appropriate for medical ethics teaching is 2.75, and students can adapt the seminar into real clinical practice is 3.02. The problems about teleconference are also reported.

Conclusions: Real case seminar is one of the alternative tools to increase learning satisfaction and efficacy of the learning in medical ethics and medical laws.

Take-home messages: Medical ethics and medical law are the hidden curriculum in the medical doctor curriculum. Innovative and interesting method for teaching should be considered.

9213 Abuse - it happens! How can students respond?
V Mitchell*, A Kent (University of Cape Town, Obstetrics and Gynaecology Department, Health Sciences Faculty, University of Cape Town, South Africa)

Background: Abuse does occur in the South African health system, particularly in Obstetrics and Gynaecology where human rights violations are a critical concern. When students witness unprofessional behaviours they face dilemmas, often not knowing how to respond.

Summary of work: At the University of Cape Town an opportunity has been created for conversations on these issues. Health and human rights are revisited after some clinical experience and students reflect on their own encounters. Participatory interactive workshops with Year 5 students promote dialogue which is noted and evaluated.

Summary of results: These workshops normalize student experiences, raising awareness and capturing their difficulties. Student responses have been qualitatively analysed and the Faculty has developed mechanisms to address student needs.

Conclusions: Students value the opportunity to voice their challenges. The emerging partnership between students and educators is proving beneficial. The Health Sciences Faculty has acknowledged the need to engage in interactions on these issues of social justice. The presentation describes how this is being achieved.

Take-home messages: How the University of Cape Town is opening staff/student dialogues about abuse in the workplace.

9214 Evaluation of emotional empathy at completion of a nursing degree course
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Background: In recent years, empathetic ability has become the subject of teaching and evaluation in numerous university courses, including ours.

Summary of work: Objective: to measure emotional empathy in third year students at the end of their course in order to define a study protocol that can be extended to other students at different stages of their curriculum. A descriptive observational study was carried out in September 2010 on a sample of 182 third year students, age range 20 - 46 (mean 25.45, DS 5.87), 84% females. The Emotional Empathy Scale was utilised and the data analyzed by the JsStat tool.

Summary of results: Answers were generally positive to positively put statements and generally negative to those put negatively, with the exception of 2 items. Comparing the z points and percentiles of our data with those of a survey carried out in a sample of 623 Italian individuals, similar distributions emerged. Statistically significant correlations emerged between gender and internship.

Conclusions: The tool utilised contains two items that can be influenced by the cultural context. In accordance with the literature, we found that gender and type of training are variables which can determine the degree of empathy of an individual in nursing studies.

Take-home messages: Empathetic conduct is the basis of nurse - patient relationships. It is necessary to invest in research to gain further insight into these complex but potentially important aspects of training.

9215 Cultural adaptation of Portuguese version of Jefferson Scale of Physician Empathy to Brazil
H Paro*, I Tibério, R Gallotti, P Tempski, M Martins (University of Sao Paulo, Center of Medical Education Development, Sao Paulo, Brazil)

Background: Abuse does occur in the South African health system, particularly in Obstetrics and Gynaecology where human rights violations are a critical concern. When students witness unprofessional behaviours they face dilemmas, often not knowing how to respond.
Background: The Jefferson Scale of Physician Empathy (JSPE) is a measure of medical empathy that has already been translated into more than 30 languages. We aimed at adapting the Portuguese version of the JSPE (JSPE-Port) for use in Brazil, using techniques of same language adaptation.

Summary of work: The JSPE-Port was reviewed by three Brazilian translators. Reviewers’ comments were analyzed by another reviewer to produce a reconciled version of the instrument. This last version was back translated. The authors of JSPE and JSPE-Port suggested final changes. The JSPE-Br was applied to 39 fifth-year medical students who also underwent a cognitive debriefing to confirm comprehension.

Summary of results: Of the 20 items of the JSPE, 13 required modification for use in Brazil. Of these modified items, 11 (84.6%) had minor changes and 2 (15.4%) had their structure altered due to possible misinterpretation for Brazilian culture. During cognitive debriefing, none of the 39 medical students reported any difficulty in comprehension.

Conclusions: The use of rigorous techniques of adaptation of questionnaires proved essential in producing a JSPE-Br that matched closely to the original version of the scale.

9Z16 The effect of Reflective Practice on ethical decision making in 1st year medical students
V Thomas*, M Grogan, D Callender (Ross University School of Medicine, Department of Integrated Medical Education, Picard, Dominica)

Background: This session with first year medical students addressed substance abuse in a PBL case and by colleagues to determine if reflective practice promoted ethical decision making.

Summary of work: In September 2010, 270 PBL students discussed the case of a drug-abusing student, and in January, 430 students discussed a student who borrowed prescription drugs. Students subsequently had a facilitated large group reflective practice session on medical ethical standards with a case study about ethical behavior related a colleague’s substance abuse, enabling them to adopt a holistic approach to patient care.

Summary of results: In September 142 (53%) students responded: 67% thought the activity clarified their thoughts and feelings on dealing with an impaired colleague; 69% reported increased awareness of professional behavior and 72% increased ability to make a medically ethical sound decision. 49 % felt this experience would positively affect their professional behavior. However, 14 % felt the activity was not helpful as they had ethical principles before coming to medical school. Reflective practice is currently being repeated with the January class.

Conclusions: Facilitated reflective practice is a method of teaching ethical principles to medical students early in their training.

Take-home messages: Some students do not realize that personal ethics and medical ethics are not always congruent.

9Z17 Patient Assessment of Behaviour (PAB) – a novel approach to assess professionalism amongst hospital junior doctors
A Torrance*, A Patel, R Lepley, C Robertson (Department of General Surgery, Worcester Royal Hospital, Worcester, UK)

Background: In UK, all junior doctors enrolled on the foundation programme are assessed by their peers using the Team Assessment of Behaviour (TAB) form. Junior doctors receive no feedback from patients regarding their behaviour and communication skills. The aim of this study was to design a patient assessment form and evaluate its use as an assessment tool.

Summary of work: A 10 question assessment form was designed based on TAB. Junior doctors allocated to the general surgical department were recruited. 8 forms were distributed by each doctor to patients and returned in sealed envelopes.

Summary of results: 8 junior doctors were recruited. 58/64 (91 %) PAB forms were returned. 62/64 (97%) patients expressed no concerns about their foundation doctor. 2 patients expressed minor concerns regarding their doctor’s communication skills. In comparison, both doctors received no concerns in their peer assessment form. 6/8 doctors found PAB useful and would recommend it to their peers.

Conclusions: PAB provides a patient orientated tool to assess professionalism. It compares well with current standardised assessment tools such as TAB. Further work is required to establish its validity and reliability.

Take-home messages: PAB provides a structured approach to give patient feedback to junior doctors enabling them to adopt a holistic approach to patient care.

9Z18 Investigating the effect of small group teaching on educating medical ethics issues to Shiraz undergraduate medical students
Mohammad Esmael Ghorbani Nejad*, Farnaz Sadat Javanmardi, Ali Sharafkhah, Mitra Amini, Maryam Panjehshahin (Shiraz University of Medical Sciences, Education Development Center, Shiraz, Iran)

Background: In recent years, significant attention was paid to student-centered strategy teaching. Small group teaching is considered as a new educational method which facilitates a dynamic interaction among members. The purpose of current study is to evaluate...
the effect of small group teaching on educating medical ethics issues from Shiraz medical students' viewpoint. Summary of work: This interventional study was done on 144 students, selected randomly. Students were divided into two groups of 72 students; one group were educated by snowballing method and another by BUZZ group. Some ethical cases were taught and discussed among 8-member small groups. By completing a questionnaire whose validity was accredited by EDC experts and its reliability was approved after a pilot study (r=.86%), the students were asked to give their opinions on the efficacy of this method. The collected data were analyzed by spss16 software. Summary of results: From the students' viewpoint, the most significant feature of small group teaching was its dynamic interaction. Deep learning, development of communication skills, self-directed learning and problem solving were at the bottom of small group teaching advantages. The students reported snowballing method was more effective and attractive than BUZZ group to teach them medical ethics issues. Conclusions: The increasing growth of science necessitates using new methods of education such as small group teaching. Since learning medical ethics issues will be improved by discussing, it will be suggested to use such new methods for meeting our students' educational needs.

9Z19 Continuous innovation of effective teaching methods of medical ethics, Mutah University, Jordan
A Mashali (University of Mutah, Faculty of Medicine, Department of Forensic Medicine, Pathology and Community Medicine, Alkarak, Jordan)

Background: Medical ethics is a practical discipline that provides a structured approach for identifying, analyzing and resolving ethical issues in clinical medicine. Teaching of medical ethics at Mu'tah medical school is through lectures for the second year. There was a need to change the method of teaching. New methods of teaching medical ethics were implemented to allow self learning and to assist students achieve the intended learning outcomes through improving the quality of medical education.

Summary of work: Students were divided into small groups for problem solving of case studies of one topic. The instructor provided them with case scenarios of real ethical dilemmas, where they had to analyze, identify and define the problem of that situation through data provided and their knowledge from free readings. Students were able to reach appropriate solution taking into consideration the social and cultural context of Jordan. A checklist was used to evaluate their knowledge, attitude, behavior and thinking. Summary of results: By the end of the academic year, feedback of students by a questionnaire revealed that 80% of students were highly interested and showed a highly positive response. 70% of students suggested to increase the number of topics in small groups.

Conclusions: Problem solving of ethical dilemmas encouraged students in self learning and critical thinking.

9Z20 Setting up a students’ clinical ethics committee
C Johnson, T Geramasenko, Y Hadaddin*, T Halstead, A Mollick, K Blythe, S Knight, B Rabindra, C Williams (Division of Medical Education, King’s College London, School of Medicine, 4.18 Shepherd’s House, Guy’s Campus, London SE1 9RT, UK)

Background: Medical ethics is a core topic in the UK undergraduate medical curriculum. Although teaching may enable students to recognise ethical and professional issues, they still need to be supported in addressing such dilemmas. Clinical students will come across ethical dilemmas and will require support in dealing with them.

Summary of work: At KCL Medical School a Students’ Clinical Ethics Committee (SEC) has recently been set up to enable medical students to refer cases for discussion. The core of this committee comprised a group of students who signed up for a special studies component. They received training on ethics case deliberation, prepared appropriate documentation and raised awareness of SEC through advertising.

Summary of results: Cases raising ethical dilemmas were referred to the SEC for consideration. Meetings were open to all undergraduate medical students. Using a template, cases referrals were written up, and where appropriate, used as learning tools.

Conclusions: It has proved difficult to schedule regular meetings of the SEC. However, it has a positive role in encouraging ethical debate and enhancing learning opportunities. The students involved feel they have benefited enormously.

Take-home messages: The role of the SEC is still uncertain, but a need has been identified. Only time will show the eventual success of the project.

9Z21 Treat medical ethics education like other lectures
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Summary of work: We aimed to find the extension of Medical Ethics Education (MEE) in the undergraduate medical education curriculum in Ondokuz Mayis University Medical Faculty 28 years after this recommendation. 2010-2011 educational year curriculum was constructed as 9240 hours educational time for 6 years. Forty-two hours (0.45%) were allocated for MEE which was embedded in a block based educational structure.

Summary of results: MEE was designed as 15 minutes discussion time with a short scenario focusing on MEE target at the end of the second session of each PBL scenario. This design never worked as expected. Most of the students took objection to a new scenario after just completing one and most of them didn’t participate in the MEE session.

Conclusions: The last 4 years exam data showed only one time one of the ethics targets had been asked in an exam. That students consider MEE session is not worthy in score/point based evaluation. In the PBL curriculum students should be able to identify what they need to learn for passing the class. This exam driven viewpoint has left MEE target as a dead-end.

Take-home messages: MEE targets should be assessed by formative and summative exams to reach curricular objective.

9Z22 What do medical students perceive as professional behaviour? A mixed-methods exploratory study

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Background: Enhancing medical professionalism at the undergraduate level is important but sparse research has been done in the UK. The use of tools to aid self-reflection in professional development holds promise, but until recently no UK tools have been available. The aim of this exploratory project is to explore medical student’s perceptions and responses to unprofessional behaviours.

Summary of work: A mixed methods study composed of (a) An online survey, of 4th year medical students at Southampton University using a validated peer based questionnaire assessing perceived frequency, severity and possible sanctions based on 42 peer-based professionalism scenarios. (b) Subsequent semi-structured pilot qualitative study (cognitive interviewing) exploring scenarios with the most and least variation identifying student’s underpinning values.

Summary of results: N=(a) Questionnaire survey. 38/200 students responded. Analysis is ongoing but preliminary results identified variation between perceived severity of misconduct and recommended sanctions; Few students would formally refer unprofessional behaviour to their Faculty, the majority choosing to ignore or personally challenge the behaviours. (b) Qualitative analysis: results pending.

Conclusions: This pilot work will, for the first time in a UK medical school reveal an understanding of how undergraduate students perceive professional misconduct. The qualitative findings provide a richer understanding of the cognitions and values behind student’s perceptions and highlight areas for future research.

9AA Posters: Continuing Professional Development/Continuing Medical Education

9AA1 Postgraduate medical education, work experience and physician confidence levels in management of depression in primary care. W E Tang*, MPHS Toh*, CYH Tan† (†National Healthcare Group Polyclinics, Singapore; †Health Services Outcome Research, National Healthcare Group, Singapore)

Background: Depression is often under-diagnosed and under-treated in primary care. We investigated the relationships between postgraduate medical education, work experience and attitude, self-reported confidence and practice of primary care physicians (PCP) in Singapore towards the management of depression in primary care.

Summary of work: An anonymous self-administered questionnaire was distributed to 138 physicians working in 9 polyclinics in Singapore. PCPs were asked rate their confidence in managing depression and their management of patients with depression. PCP’s responses were compared with their post-graduate training and work experience.

Summary of results: Response rate was 81.2%. Although PCPs with vocational family medicine training (FMT) were not significantly more confident than those without FMT in managing patients with depression, they were significantly more likely to agree that family doctors should provide psychological counseling for patients with depression, adjusted OR 2.79 (95%CI:1.03–7.55) and were more likely to initiate antidepressant therapy, adjusted OR 4.26 (95%CI:1.40-12.95). Having attended short courses in psychiatry and previous work experience in psychiatric inpatient departments alone were not significantly associated with PCP’s confidence levels or depression practice management.

Conclusions: Although postgraduate vocational family medicine training did not significantly increase PCP’s self-reported confidence in managing depression, it
was associated with more positive attitudes and management practices of patients with depression. **Take-home messages:** Postgraduate vocational family medicine training improves the management of patients with depression by primary care physicians.

**9AA2 How does attending a multi-day medical conference impact physicians’ intentions to change their practice?**

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**Background:** Family physicians who attend an annual multi-day family medicine conference are asked to identify three changes that they intend to make to their practice as a result of their attendance. A total of 2,708 statements have been collected; 753, 758 and 1,197 in 2008, 2009 and 2010 respectively. To inform the conference planners about the educational impact of the meeting, and develop the foundation for a commitment to practice change exercise, the first phase in this multi-phase project is the classification/categorization of these responses.

**Summary of work:** Data analysis from the 2010 evaluation forms is being used to develop a model for the classification of responses. Independent raters will evaluate and categorize the 2010 comments as per the established categories. Once the categories are established, the data from 2008 and 2009 evaluations will also be included.

**Summary of results:** The analyses are ongoing. Results of first phase will be available by Summer 2011.

**Conclusions:** The outcomes of this project will provide insights in relation to the educational impact of a multi-day conference relative to physicians’ stated intentions to change their practice. Future studies may involve contacting participants within a defined period of time following the conference to determine if intended changes were implemented.

**Take-home messages:** 1. Depression is very common in primary care and non-psychiatric settings. 2. Non-psychiatrists play a role in the care of depression, but identification and managing depression can be a challenge to them. 3. Depression training program showed an overall favorable effect for physicians.

**9AA4 Building a community of practice of residency preceptor through blended learning**

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**Background:** This project was held in a Public University Hospital in Brazil which receives more than 1,200 learners per year.

**Summary of work:** Following principles of the Brazilian Health System (SUS) and oriented by the National Curricula Guidelines for health professions, we developed a Pedagogical Practice Preceptorship Course focusing on patient care, management of continuing healthcare education in clinical settings and use of active teaching and learning methodologies.

**Summary of results:** We had 21 professionals from medicine, nursing, nutrition, social workers, physical and speech therapy. Less experienced participants worked among preceptors with more than 25 years of practice. All of them were specialists, 59% had a master degree and 12% also had PhD. The program institutional achievements highlights were:
development of 18 intervention projects for improvement of residency programs; a hospital newspaper special edition approaching preceptship; integration of professional practices due to collective work; self-reflection on educational practice and care; construction of preceptor self-assessment and incorporation of virtual environments as a teaching methodology.

**Conclusions:** Collective spaces for learning, as identified in this program, favor the collective creation and institutional partnerships, contributing to the development of specific teaching skills.

**Take-home messages:** Even with few financial resources is feasible to build strategies to improve effective continuing educational programs and expanding communities of practice.

**9AA5 First Do No Harm: Balancing competing priorities in surgical practice**

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**Background:** Poor patient outcomes are often considered errors resulting from failures of cognition or clinical reasoning. This representation underestimates the complexity of probabilistic decision-making processes under uncertainty. We explored surgeons’ perceptions of the factors that influence intraoperative decisions and how they negotiate competing priorities.

**Summary of work:** We conducted thirty semi-structured interviews with 39 surgeons to explore the factors surgeons consider when decision-making during operative procedures. Purposive and theoretical sampling was performed until saturation was achieved. Using a constructivist grounded theory approach, thematic analysis of the transcripts were iteratively elaborated and refined as data collection progressed.

**Summary of results:** Surgeons acknowledged a tension between competing factors and pursuit of ‘what is best’ for the patient in their intra-operative decision-making. Using Ginsburg et al’s classification scheme, the factors were “avowed” (risks to the patient), “disavowed” (greed, surgeon’s reputation), or “unavowed” (managing priorities external to the patient, e.g. teaching opportunities for trainees).

**Conclusions:** Several factors enter intra-operative decision-making processes that are not directly related to the patient. Although probably reasonable, they are not sanctioned in our current constructions of patient care.

**Take-home messages:** Discussing competing factors as a source of pressure in ‘real’ surgical practice allows for critical self-reflection and transparency when discussing surgeon error and thus learning from poor patient outcomes.

**9AA6 Shifting Paradigms for CPD Academic Leaders: From Profit Centers to Value Creation Centers (VCC) - a Model**

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**Background:** Knowledge has become a prime source of wealth in our societies. Healthcare (HC) is all about knowledge. HC systems outcomes highly depend on HC professionals’ competencies and performance, and HC systems improvements on knowledge translation efficiency.

**Summary of work:** To improve CPD offices’ contribution to knowledge translation within a specific HC system, we propose a model that helps academic leaders focus on societal needs when developing their strategic plan. This plan should leverage strengths and expertise, identify value adds that will be generated, and determine strategic partnerships that need to be developed in order to maximize the impact of the Office’s activities.

**Summary of results:** When implementing the VCC model, CPD offices tend to move from profit centers to VCC. VCCs integrate CPD in a system that creates value for society. They develop and leverage their internal and external capabilities, improving knowledge translation efficiency and their own value for society.

**Conclusions:** VCCs are focused on the enhancement of HC system outcomes and are more strategic and efficient in helping professionals maintaining and improving their competencies and performance.

**Take-home messages:** CPD offices are moving from profit centers to VCC. The VCC model increases CPD office’s value for society.

**9AA7 Identification of Poor Performance in UK NHS Organisations**

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**Background:** The Revalidation Support Team (RST) research programme was set up in August 2010 to identify and explore any gaps in knowledge not included in other RST work. It aims to provide assurance that systems and processes developed within the RST work streams are fit for purpose, as well as relevant to and grounded in doctors’ experiences and challenges. The second project in this programme, awarded to the University of Winchester, seeks to
understand how NHS organisations currently identify poor performance amongst doctors.

**Summary of work:** The aim of this research project was to scope the existing knowledge-base concerning the identification of poor performance amongst doctors working in NHS organisations, and to collate the processes, methods, tools and resources currently used to identify practice performance issues. This was achieved through a literature review, a survey of a purposive sample of UK NHS trusts using ‘Freedom of Information’ requests and interviews with key informants.

**Summary of results:** The outcome of the work will be a snapshot of the resources in use along with an evaluation of their effectiveness and potential areas for development.

**Conclusions:** The presentation will report the tools and approaches currently in use in the UK to identify doctors about whom concerns have been raised, and the areas for future development / research.

**9AA8 Generating behavior-specific feedback for continuing medical education presenters: Instrument validation and associations with academic rank**

**Background:** Few studies have examined the validity of instruments for evaluating continuing medical education (CME) presentations and improving the quality of feedback to presenters. We wished to solicit meaningful feedback for CME presenters by developing a new CME faculty assessment instrument, determining its validity, and identifying associations between evaluation scores and presenter characteristics.

**Summary of work:** We analyzed evaluations by a nationally-representative sample of the 317 CME participants for 37 presentations at a Mayo Clinic CME course in 2009. The assessment instrument (8 items, 5-point scales) was developed by our team based on published studies and expert review. Factor analysis and reliability calculations were performed. Associations between instrument scores and presenter characteristics were calculated using generalized estimating equations.

**Summary of results:** Item mean scores for 5241 evaluations ranged from 4.37 to 4.62. Factor analysis revealed a single dimension of faculty presentations. Reliability was excellent (Intraclass coefficient range 0.88 to 0.95; overall Cronbach’s alpha=0.94). Instrument mean scores were positively associated with academic rank (p=0.046), but not with the use of cases or the audience response system. When specifically prompted, participants gave highly behaviorally-specific feedback.

**Conclusions:** We describe a new instrument for assessing CME presentations.

**Take-home messages:** Our CME feedback instrument has strong validity evidence and generates behavior-specific feedback for presenters.

**9AA9 Sharing a Canadian Experience: Redesigned web application to support physicians’ lifelong learning and CPD**

**Background:** A formal program evaluation for the Royal College’s Maintenance of Certification (MOC) program has been completed and resulted in key recommendations and revisions to the MOC program and to MAINPORT – a web application which supports the documentation of learning activities by Royal College Fellows and CPD Participants. A key part of the transformation being implemented in 2011 is a full redesign of MAINPORT. The goal is to enable MAINPORT to become an integrated learning space that supports CPD planning, reflection, documentation, and the management of learning for practice.

**Summary of work:** The redesigned MAINPORT focuses on enhancing the user experience and enables key design principles and goals including: a simplified approach to the documentation of learning activities and outcomes (group learning, self-learning, and assessment); a greater ability to manage CPD through planning and tracking CPD goals; an expanded capacity to access learning resources, objects, and tools; direct access using mobile devices; and automation of reporting physician participation in learning activities by third parties.

**Conclusions:** Tools that promote reflection, documentation, and management of continuing professional development are important to support physician lifelong learning.

**9AA10 Assessing the value to CME program planners of a success case method evaluation**

**Background:** Evaluations are rarely designed to explore how and why educational interventions contributed to observed outcomes. We used a modified Success Case Method (SCM) to evaluate three continuing medical education performance improvement activities on smoking cessation, focusing on the mechanisms linking education and practice change; we then assessed stakeholder perceptions of the value of this method.
9AA11  Designing a Practical Guideline for Needs Assessment in Continuing Medical Education Programs
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Background: Diverse models and techniques have been proposed for assessing educational needs. Therefore, making a practical guideline may help continuing medical education (CME) directors to choose the most appropriate model and technique according to their context.

Summary of work: A comprehensive literature review was done to clarify specifications of needs assessment models and techniques. The results were discussed in focus groups. Accordingly, the following factors were considered as determinants in selecting a needs assessment model or technique: The level, purpose and target of needs assessment, definition of need, and available resources. A draft of practical guideline was prepared in 8 parts based on the above factors. At the second stage the prepared draft was sent to the directors of CME departments of Iranian medical universities to collect their viewpoints about the clarity and practicability of the guideline. Data were statistically analyzed with descriptive statistics.

Summary of results: 87.5% of respondents found the guideline clear and 87.2% found it practical.

Conclusions: Based on the views of majority of program directors, the proposed guideline is clear and applicable, so it may be used for CME needs assessment.

Take-home messages: SCM can enhance/supplement traditional evaluation methods.

9AA12  Use of simulation to advance skills in patient assessment in continuing professional development courses for pharmacists
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Background: Simulation has been used extensively as an educational tool in undergraduate pharmacy education to develop and assess skills in patient care. It is becoming more popular in continuing professional development (CPD) to advance skills of pharmacists.

Summary of work: Two types of simulations were used in CPD courses at the University of Alberta: written simulations and standardized patients. Realistic interactive simulations that addressed patient assessment were incorporated into three professional development courses. Program evaluations for each course employed participant surveys to evaluate the use of simulations and pharmacist experiences.

Summary of results: The results are based on survey data from course evaluations arising from 9 course offerings over two years in 2009-2010. Total enrollment was 161 pharmacists. Simulated patient scenarios included menopause, diabetes, community acquired infections, and cardiovascular disease. As a result of participating in these courses, the majority of pharmacists noted benefits to simulation in CPD courses: reinforced a systematic approach to patient assessment, increased confidence, and expanded practice to include more comprehensive patient assessments.

Conclusions: CPD courses that involve simulated patient assessment experiences appear to advance pharmacists skills and increase confidence.

Take-home messages: Simulated learning experiences in CPD courses that focus on patient assessment provide opportunities for pharmacists to advance their skills.
medical education program for physicians. Usually a continuing medical education (CME) program is implemented through seminars, printed materials, audio & visual presentations and use of internet etc. However, the quality & the outcome of the programs vary. Therefore it is necessary to evaluate CME programs.

Summary of work: To evaluate CME programs, we introduced the killer scales questionnaire to physicians attending CME seminars (2008 to 2010) and their opinion were analyzed by SPSS statistical analysis program.

Summary of results: The most important motivation for attending CME programs was to upgrade their skills knowledge (96.7%), followed by interacting with other colleagues (88.3%), learning medical web search (72.4%) and having certificates for other official purposes (65.9%). The young physicians were interested to use more internet than the traditional way of conducting seminars (48.6%).

Conclusions: There was a need to improve the quality of seminars though the satisfaction was 79.8%. Introduce more medical subjects in CME programs on the internet.

Take-home messages: CME programs should be improved and developed by combination of traditional and advanced methods.

9AA14 Investigating the career intentions and training requirements of Staff and Associate Specialist (SAS) Doctors in one Deanery
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Background: Career intentions and training needs of SAS doctors in the National Health Service in England have not been widely investigated. The British Medical Association conducted a national survey prior to Department of Health funding to support the professional development of SAS doctors.

Summary of work: A questionnaire was sent to 467 SAS doctors in hospital Trusts within one Deanery investigating career intentions and training requirements. Twenty semi-structured interviews were conducted and themes were identified.

Summary of results: 251 (54%) questionnaires responses from many experienced doctors, 6-25 years experience, remaining in post for a 5+ years (n=103, 41%). Many have a portfolio (n=149, 59%), a clinical supervisor (n=159, 63%), a recent appraisal (n=165, 66%) however, only 87 (35%) have an educational supervisor. 55 (22%) want to remain at their present grade and 93 (37%) aspire to become a consultant. CPD opportunities were regarded as vitally important. Interviews identified themes: Lack of group identity, service cover, CPD lack of guidance, CPD Proactivity varying trust experience and CESR guidance.

Conclusions: SAS doctors are highly experienced and keen to engage in CPD. Deaneries and Trusts need to tailor CPD to individual doctors.

Take-home messages: Further investment in CPD for SAS doctors. SAS doctors must be allocated an Educational Supervisor.

9AA15 Setting up Local faculty groups (LFG) for SAS grade doctors- experience from KSS deanery
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Background: Developmental funds for Staff and Associate specialists (SAS) were set up by the department of health as part of developmental needs of this grade. We describe our experience of setting up Local faculty groups (LFG) in Kent, Surrey and Sussex (KSS) deanery for SAS grade doctors. The remit of LFGs include appraisal needs, local delivery of courses to enhance leadership, enhanced appraisals, educator development, article 14 applications, negotiating skills and specific clinical areas to set up new services. This would empower SAS doctors to utilise funds to suit their own learning development.

Summary of work: We established LFG to oversee the developmental needs of SAS doctors chaired by a SAS tutor in all participating Local Education Provider (LEP) units, with local autonomy of fund allocation. Questionnaires were sent to SAS doctors along with face-to-face meetings with SAS tutors in participating LFGs for needs assessment to help in local delivery of courses and utilization of the funds.

Summary of results: Action plans were developed locally along with sharing of good practice Individual learning needs were identified and funds released.

Conclusions: SAS agenda is now part of Local academic board(LAB), which ensures interprofessional engagement with SAS doctors and trainees and at trust board level.

Take-home messages: Establishing faculty for non career grade doctors.

9AA16 CPD participation facilitated by new tools
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Background: July 1st 2007, the Collège des médecins du Québec (CMQ), the Quebec medical licensing authority, strongly encouraged all physicians to use a self-managed continuing professional development plan (SCPDP) to maintain their competency.

Summary of work: The FMOQ’s CME department developed tools (SCPDP, electronic SCPDP, workshops
and guide) and updated them yearly to help physicians plan their continuing development strategy based on a reflective approach. This has recently been extended to team-work, given its increasing prevalence, through the development and dissemination of an interactive workshop on the Canmeds framework. As physicians’ everyday practice reality is constantly changing, a further new workshop on “Change Management” was produced. These tools and workshops were developed with an educational grant provided by six different pharmaceutical companies.

**Summary of results:** Though initially perceived negatively by physicians, a reflective approach to CPD has been facilitated by providing various tools and has led physicians to participate in professional development and team work training.

**Conclusions:** Providing adequate tools and workshops greatly facilitates the response to new professional standards and can lead to better understanding of team-work and the integration of other professionals in healthcare teams.

9AA17 Cardiopulmonary Resuscitation knowledge among physicians and nurses in University Hospital

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**Background:** Cardiopulmonary resuscitation (CPR) knowledge is important for physicians and nurses. This study aims to determine CPR knowledge in physicians and nurses including factors that influence knowledge in university hospital.

**Summary of work:** A prospective, descriptive, study of physicians and nurses who worked at Srinagarind Hospital, Khon Kaen University, Thailand, between May to July, 2008. We randomized using stratified random sampling technique by department. The test questions were modified from ACLS 2005\(^\text{®}\) guideline. The test was given and collected in 20 minutes. We recorded demographic data and factors that may influence the knowledge. Total score that more than 80% was classified as sufficiency knowledge.

**Summary of results:** We enrolled 71 physicians and 116 nurses. Sufficiency knowledge (%; 95%CI) was 15.7% (8.1, 26.4) in physician group and 3.3% (0.1, 6.8) in nurses group. Mean±SD of percent of the total score, CPR concepts, ECG interpretation, medication, and application were 58.4±21.5, 55.9±26.5, 73.4 +26.0, 51.0+23.5, 57.5±30.3, respectively in physician group and 40.6±17.9, 39.7+22.9, 46.0+25.1, 31.0+20.5, 49.4+29.6, respectively in nurses group. Higher frequency of practice and training group had more CPR knowledge.

**Conclusions:** In our study, most medical personnel had insufficient CPR knowledge. Training and practice frequency influence the CPR knowledge.

**Take-home messages:** CPR training program should be periodic assessment and training.

9AA18 Professional capacity of nurses and Medical Education

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**Background:** Nursing Education System has an effective role in improving professional capabilities. Nurses’ clinical skills are an important factor in quality of care. Studies and international experience in this field show that enhanced technical skills and professional knowledge can develop the professional capability of nurses.

**Summary of work:** 40 nurses of clinical education were enrolled in a descriptive study. Data collection tool was a questionnaire (UMDNJ - Robert Wood Johnson questionnaire) that contains information in three areas of knowledge, skills and dealing with the situation. We used Excel and SPSS software Version 14 for analyzing data.

**Summary of results:** Highest knowledge in the areas of health were found as: child health (46.2%), adult health (44.4%), pregnancy care (42.3%) respectively; the highest skill levels found were in the fields of Patient knowledge about health and disease (29.6%); education and counseling patients with regard to cultural issues (29.6%); information about the popular treatment or traditional methods (25.9%) and in areas of dealing with the situation (40.7%).

**Conclusions:** Although some aspects of clinical education evaluation were positive, the abilities of professional nurses to reinforce strengths and correct weaknesses can be an effective step to improve the quality of clinical education. It requires also clinical training workshops and can be useful in order to control its implementation, monitoring and supervision.

9AA19 Linking Patients’ Understanding of Management of Shared Decision Making: A Challenge in Continuing Health Education (CHE)

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Background: Medical students and residents are trained to apply evidence based management protocols to patient care. Primary care physicians (PCP) and specialists use these protocols in practice. Patients have expectations based on information from friends, family or the media. Often, these paradigms are not consistent and may represent a challenge in shared decision making.

Summary of work: This study assessed the discordance we identified; this situation presents a challenge for educators.

Take-home messages: CHE activities do not address the discordance we identified; this situation presents a challenge for educators.

9AA20 Improving Continuing Professional Development (CPD) in Sweden; a task force formed within the Swedish Medical Association (SMA)

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Background: In Sweden, CPD is mainly organized by medical societies and to a limited extent by hospitals/universities. Participation in CPD is voluntary. The authorities are not supervising CPD. There is no system for recertification/control.

Summary of work: The SMA has since 2004 performed a yearly questionnaire of the extent of CPD among Swedish physicians. The time used for internal or external educational activities are asked for.

Summary of results: A striking new trend in recent years and in an accelerating fashion, is that the fraction stating they do not attend any CPD has increased and that specialties with great needs and lack of specialists receive less training. The cause of this development is not clear. Possible explanations are economic restrictions or less time free from patients.

Conclusions: The questionnaire is an important instrument to discover changes in CPD. The increasing number of physicians that do not perform necessary CPD raises questions of doctors’ adherence to guidelines, risking patient safety and causing raised costs for medical care. We aim to find ways to keep track of CPD, develop better ways for CPD, have all doctors participating in CPD and better means to evaluate outcome of CPD.

Take-home messages: A questionnaire is an important instrument to discover changes in CPD. Specialties with lack of specialists receive less training.

9AA21 The usefulness of the Andalusian Agency for Healthcare Quality’s Accreditation Model for the Continuous Professional Development

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Background: The Andalusian Agency for Healthcare Quality’s (ACSA) Professional Skills Accreditation Programme has 70 Skills Manuals available, one for each professional discipline, and uses the portfolio methodology.

Summary of work: Aim: To analyse the perceived usefulness of the continuous professional development of the ACSA Professional Skills Accreditation Programme. Type of design: Quantitative and longitudinal study by questionnaire. Field of the study: professionals who have finished their professional skills accreditation process. Timeframe: 2006-2010.

Summary of results: At the end of 2010, more than 13,000 professionals were in some phase of the skills accreditation process, 2,592 of whom have achieved some accreditation level. 1,893 questionnaires were received (73%). The overall rating obtained by the Accreditation Programme was 7.85/10. The rating of the perceived utility in the continuous professional development was: • “self-learning and reflection of their practice”: 7.92/10; • “maintenance and improvement of their skills”: 7.83/10; • “maintenance and improvement of their results”: 7.83/10.

Conclusions: The Andalusian Agency for Healthcare Quality’s Professional Skills Accreditation Programme was considered by the professionals as useful for their continuous professional development.
Take-home messages: The portfolio methodology applied to this voluntary process is confirmed as a suitable approach to introduce professional development improvement.

9BB Posters: Work Based Assessment

9BB1 Formative Workplace-based Assessment in undergraduate medical training: A program evaluation in a Swiss University setting


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Background: Workplace-based Assessment (WPBA) tools are helpful to foster clinical competencies in postgraduate medical training. However, little is known about their use in the undergraduate setting in Continental Europe.

Summary of work: In 2010, Mini-Clinical Evaluation Exercise (Mini-CEX), Direct Observation of Procedural Skills (DOPS) and Case-based Discussion (CBD) were introduced in 43 clinics of 6 specialties. During clinical clerkships, every 4th year student underwent one WPBA each week.

Summary of results: In total, 1401 Mini-CEX and 714 DOPS were performed with 141 students. The duration of observation (median 15 minutes) and feedback (median 5 minutes) conformed to the recommendations. Students rated the feedback as very helpful [8.2 ± 2.0 for Mini-CEX and 8.0 ± 2.1 for DOPS (1 = little helpful, 10 = very helpful)]. About 60% of the assessment forms contained written information about identified strengths and weaknesses, about 40% included specific learning goals.

Conclusions: Conducting one WPBA per student per week seems to be feasible. The students appreciated the feedback even though specific learning goals depending on identified weaknesses were not recorded in all cases.

Take-home messages: To further increase the utility of formative WPBA, instruction of students and trainers should emphasize the recording of specific learning goals.

9BB2 Direct Observation of Procedural Skills in Gynecology in Postgraduate Year Resident Training: Practice Experience at the Chang Gung Memorial Hospital

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(Department of Obstetrics and Gynecology, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taoyuan, Taiwan)

Background: Pelvic examination is essential in Gynecology. To investigate the fair and uniform methods to evaluate the learning results in postgraduate year resident training (PGY), we use the direct observation of procedural skills (DOPS) in Pap smear for preliminary study.
Summary of work: PGY 1 and 2 students in Chang Gung Memorial Hospital were randomized to take the DOPS since 2010. At the end of this training in the department of gynecology, they received the examination using standardized patients with gynecologic model and videotape was also recorded. By watching the videotape, raters scored them by using standardized checklists (six-point Likert scale) and global rating scale. After revising on the try-out checklist, the qualified raters scored twice in pre-test and post-test. Results of examinees’ evaluation were analyzed for the checklists Cronbach’s reliability and inter-rater reliability.

Summary of results: In the try-out checklist, the Cronbach’s reliability was 0.9635 and the Kendall’s coefficient of concordance was only 0.26. After revising on the try-out checklist and training the qualified raters, the Kendall’s coefficient of concordance was 0.584 in PGY-2 post-test and 0.604 in PGY-1 post-test. The Intraclass correlation coefficient was 0.921 in PGY-2 post-test and 0.879 in PGY-1 post-test. This revealed that training the qualified raters is being related to the inter-rater reliability.

Conclusions: The DOPS is an effective method for assessing the clinical performance of the PGY. It could be improved by modifying the checklists and training qualified raters.

Take-home messages: The DOPS in pelvic examination is an effective method for assessing the clinical performance of the PGY.

9BB5 Implementation of the DOPS during the teaching of surgical residents: Clinical experience at the Chang Gung Memorial Hospital

K H Tsui1,2,3, C Y Liu1, J M Liu1, P L Chang1, R P Tan1,2, Y Y Jan1,2, S T Lee1,2 (1The Division of Urology; 2Department of Medical Education; 3Department of Surgery, Chang Gung Memorial Hospital-LinKo, Chang Gung University College of Medicine, Taipei, Taiwan)

Background: To test the hypothesis that using Direct Observation of Procedural Skills (DOPS) for evaluation can improve the clinical ability.

Summary of work: In this study, 50 cases of Benign Prostate Hypertrophy (BPH) were designed, which included Transrectal ultrasonography (TRUS) and Digital rectal reexamination (DRE). The residents were evaluated in terms of their clinical performance and the results of the evaluation compared with their traditional teaching results, including course grades and examination marks; the aim was an understanding of resident achievement in this area.

Summary of results: The study found that, using this DOPS, which had a score range of 0-100, residents’ scores ranged from a high of 90 to a low of 40 (mean = 80). This indicated a significant improvement in the resident using the DOPS. It also corresponded with the results from the TRUS, which have shown that ultrasonography of prostate volume and clinical DRE skill evaluations do show a good level of correlation.

Conclusions: Having established a DOPS evaluation system, Chang Gung memorial hospital will continue to develop this system in order to strengthen residents’ clinical abilities. We aim to train outstanding medical personnel that contribute productively to the society.
Take-home messages: DOPS is a useful evaluation system, CGMH will continue to develop this system in order to strengthen residents’ clinical abilities.

9BB6 Introduction of undergraduate medical student ‘DOPS’ assessments
J Wright*, S Mollappa, R Soobrah, J Pitkin (Northwick Park Hospital, Undergraduate Department, London, UK)

Background: Medical students need to be aware of their responsibility to maintain their clinical skills throughout their careers and complete e-portfolios. Work place based assessments (WPBA) are established postgraduate assessment tools. ‘DOPS’ (direct observed procedural skill) assessment is one such WPBA. We aimed to evaluate their introduction to undergraduate medical students who are in their first year of clinical study.

Summary of work: 41 third-year medical students undertook ‘DOPS’ assessments for a commonly performed clinical procedure (venous cannulation), on ‘simulated arms’ in the clinical skills-lab. They were supervised by experienced tutors. Feedback was collected through post-‘DOPS’ assessment questionnaires.

Summary of results: 78% agreed that verbal and written feedback given by tutors enhanced their understanding of this procedure. 83% of students felt more confident performing the skill after their ‘DOPS’ assessment. Importantly, the majority of students agreed that ‘DOPS’ assessments had improved their confidence before their OSCE exam. 81% agreed that ‘DOPS’ assessments are relevant to their overall training and professional development.

Conclusions: Student ‘DOPS’ increase student competence and facilitate transition of skills from the lab to the patients’ bedside. Thorough clinical skills-lab assessment by student ‘DOPS’ may enhance patient safety.

Take-home messages: Early exposure to ‘DOPS’ enables students to appreciate and embrace the concept of work-place based assessments.

9BB7 360 degree tool assessing specialist registrars’ ability to lead ward rounds
I Lakshminarayana*, D Wall (West Midlands Deanery, UK)

Background: Ward rounds offer a wide range of training opportunities for undergraduate and postgraduate trainees. Ward rounds are now business oriented and the teaching element has been squeezed out due to service pressures. Assessment drives learning, hence, by developing an assessment tool structured feedback and reflection is facilitated.

Summary of work: A panel comprising senior paediatric consultants and nurse managers were interviewed. From analysis of interview transcripts, ten key themes emerged. A structured questionnaire based on the key themes was designed and sent electronically to paediatric consultants, nurses and trainees. The tool used a six point scale ranging from 1 (not important) to 6 (very important) and participants were asked to rate how important they felt each of the theme was in relation to ward rounds.

Summary of results: 81 consultants, nurses and trainees responded. The internal consistency of this tool using Cronbach’s alpha is 0.954. Factor analysis showed that five factors were responsible for 72% of variance.

Conclusions: Communication emerged as the key theme. This assessment tool will enhance learning during ward rounds by providing structured multisource feedback specific for the task. A pilot study of this assessment tool will be undertaken.

9BB8 An Evaluation of the Use of the Mini-CEX Assessment in Junior Doctor Training
D Jackson*1, D W Wall2 (1University of Birmingham, South Birmingham Primary Care Trust, Birmingham, UK; 2University of Birmingham, Centre for Medical and Dental Education, Birmingham, UK)

Background: The mini-Clinical Evaluation Exercise (mini-CEX) is a workplace-based assessment tool used in the UK Foundation Programme. American studies have found it a reliable tool, with reasonable feasibility and satisfaction. However, little evaluation of its efficacy has taken place within its UK setting.

Summary of work: The objective of this study was to evaluate the reliability, validity, feasibility and satisfaction of users of the Mini Clinical Evaluation Exercise (mini-CEX) within a large teaching hospital. Methods comprised: descriptive score analysis, focus groups, semi-structured interviews and an anonymous questionnaire-based survey. Participants were Foundation Year One trainees and their assessors.

Summary of results: 196 mini-CEX assessments were analysed, demonstrating a reliability G-coefficient of 0.8 with 8 mini-CEX assessments. Trainees appear dissatisfied with the mini-CEX, with an average satisfaction score of 3.8 out of 10. Direct observation is particularly neglected, and only one quarter of trainees feel the tool is a useful means to gain feedback. Dissatisfaction centres around a lack of faculty engagement.

Conclusions: Score analysis demonstrates excellent reliability figures. However, trainee opinions appear to run contrary to these findings.

Take-home messages: Although quantitative analysis suggests reliability, not all trainees are directly observed. Trainees have also questioned its educational impact. Users of the mini-CEX tool need to consider whether it is fit for purpose.
9BB9  The perception of medical students about Mini-Cex: a qualitative study
G Falbo, R Bezerra*, H Prado, M Bandeira (Faculdade Pernambucana de Saúde, Recife, Brazil)

Background: Assessment methods are important tools to help students to identify and recognize their learning needs. The Mini Clinical Evaluation Exercise (Mini-CEX) is a method to simultaneously assess clinical skills and offer feedback on assessment immediately after its completion. It allows interaction and greater recognition of learners’ strengths and weaknesses.

Summary of work: We adopted a qualitative study, which permitted analysis and understanding of students’ perceptions about the object of study. In the first part of the study, we used individual semistructured interviews to identify focus group questions to be discussed in a later meeting.

Summary of results: We observed that students recognized the importance of Mini-CEX as an assessment method and its positive influence on clinical skills development, but questioned the lack of standardization in the assessment and feedback given by tutors, as well as the negative impact of a punctual assessment.

Conclusions: Students admitted Mini-CEX as a useful assessment tool, although identifying some limitations in its practical application. It is a valid educational method, since it is used in addition to different assessment methods which are also extremely important in medical education.

Take-home messages: Mini-Cex is a useful assessment tool and it must be included between the different methods to assess junior doctors and undergraduate medical students.

9BB10  Professional development is enhanced by serving as a mini-CEX preceptor
W Chen*, M M Loi, T C Li, P J Chen, C Y Chan, C C Lin (China Medical University, School of Medicine, 91 Hsueh-shih Road, Taichung 40402, Taiwan)

Background: The mini-clinical evaluation exercise (mini-CEX) is widely used for the evaluation of medical trainees’ clinical competence. However, the effect on the preceptors has not been examined. Based on the principle of “to teach is to learn twice”, we hypothesized that the act of mini-CEX would enhance preceptors’ own learning and performance.

Summary of work: A 21-item questionnaire incorporating the four levels of educational outcomes from Kirkpatrick’s model was completed by experienced mini-CEX preceptors. Data collected on the questionnaire included ratings of Kirkpatrick’s level of ‘Reaction’ and ‘Behavior’ and the frequencies of re-learning the clinical skills related to mini-CEX, which assessed Kirkpatrick’s ‘Learning’ level.

Summary of results: More than one half of the respondents either strongly agreed or agreed that mini-CEX both increased reflection on their own clinical practice and had positive impact on their clinical skills. More than 80% of preceptors have re-learned the mini-CEX clinical skills. Experienced preceptors re-learned the clinical skills more frequently than the less experienced preceptors. About one-third of respondents indicated that being a preceptor of mini-CEX increased both self-confidence and healthcare quality in their own clinical practice.

Conclusions: These findings provide the first evidence that participation as a preceptor in mini-CEX could have a positive impact on preceptors’ reactions (Kirkpatrick level 1), improvement in knowledge, skills, and attitudes (level 2), and, to some extent, improved response in behavior changes (level 3).

Take-home messages: During the mini-CEX encounter, preceptors have a good chance to reflect on and are able to adapt the new knowledge and skills in their current practice.

9BB11  A laboratory study on the reliability estimation of the Mini-Cex
A Alves de Lima*, D Conde*, J P Costabel*, J P Corso*, C P M Van der Vleuten† (Instituto Cardiovascular de Buenos Aires, Educational Department, Buenos Aires, Argentina; †Maastricht University, Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands)

Background: In reliability estimations for Mini-Cex the fundamental assumption of local independence is violated. Furthermore, the variance caused by the case/patient or by assessor is completely confounded. The aim of this study was to use a controlled setup that overcomes these difficulties and to estimate the reliability of the Mini-Cex.

Summary of work: Three encounters were videotaped from 21 residents. The patients were the same for all residents. Each encounter was assessed by 3 assessors who assessed all encounters for all residents. This delivered a fully crossed (all random) two-facet generalizability design.

Summary of results: A quarter of the total variance was associated with universe score variance (28%). The largest source of variance was the general error term (34%) followed by the main effect of assessors (18%). Generalizability coefficients indicated that an approximate sample of 10 encounters was needed assuming a single different assessor per encounter and assuming different cases per encounter (the usual situation in real practice), 4 encounters when 2 raters were used and 3 encounters when 3 raters are used.
Conclusions: Unexplained general error and the leniency/stringency of assessors are the major causes for unreliability in Mini-Cex. To optimize reliability rater training might have an effect.

Take-home messages: Leniency/stringency of assessors is a major cause for unreliability.

9BB12 Mini-Clinical Evaluation Exercise (mini-CEX) versus Objective Structured Clinical Examination (OSCE) as an Assessment of Clinical Skills: Correlations and Estimated Cut-off Score

Hsiao-Yuan Cheng*, Mei-Chen Liao1, Shih-Tseng Lee1,2
1Department of Medical Education; 2Department of Neurosurgery, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taoyuan, Taiwan

Background: Among those performance assessments, the OSCE and the mini-CEX have been widely applied. However, using either of them alone cannot guarantee to equip physicians with performance competencies. The purposes of this research are two fold: 1) to evaluate potential correlation between performance on mini-CEX versus high-stake OSCE; 2) to assess the predictive power of OSCE score on final internship score.

Summary of work: Fifty-three interns at the Chang Gung Memorial Hospital, Linkou branch, were evaluated in a year. During that time frame, several mini-CEX and one time high-stake OSCE were administered. Examiners were experienced, well-trained staff. Performances on mini-CEX were compared to OSCE and final internship scores.

Summary of results: Twelve preceptors rated fifty-three interns in ninety encounters. There is no significant correlation between performance on mini-CEX versus OSCE (r=0.004, P=0.977). There is positive correlation between OSCE scores and final internship scores (r=0.284, P=0.039). This analysis showed the optimal cut-off point of OSCE was 87.9 (sensitivity 48.8%, specificity 90.0%). Receiver operating characteristic (ROC) curves were constructed to help determine cut-off point for future examinations.

Conclusions: Performance on mini-CEX taken early in the clinical course did not predict later performance on OSCE. It is necessary for preceptors to use different methods evaluating trainee’s performance in learning process. The use of ROC curves represents an alternative novel method for determining future cut-off point.

Take-home messages: 1. Exploring what learners’ need by multiple evaluations. 2. ROC curve represents an alternate cut-off score of future examination.

9BB13 Assessing undergraduate medical students using 360 degree assessments – Phase 2: Pilot Project

R Sagoo, R Subbu*, M Heir, E Jones (Undergraduate Office, Heart of England NHS Foundation Trust, Bordesley Green, Birmingham, B9 5SS, UK)

Background: 360° assessments are widely used to assess the professional behaviours of doctors, so why not students? By undertaking these assessments, medical schools may identify potential problems and issues earlier, reinforce standards of good medical practice, and provide constructive feedback. Phase 1 of this study was undertaken in 2009 (Mandip Heir et al, presented at AMEE 2009) which resulted in the development of a suitable 360° assessment tool. Aim: To pilot the 360° assessment tool developed in phase 1.

Summary of work: Sample population were 51 semester 2 3rd year medical students at a Birmingham district general hospital on general medical/surgical placements for 13 weeks. Students were asked to obtain 5 completed 360° assessments over 2 weeks. These are in the process of being collected and analysed. The feedback summary for each student will be sent to the respective firm lead consultant who will then convey this information to their firm’s students (4-5 students per firm). Once completed, we will set up focus groups/questionnaires with the students and consultants involved to gather their opinions on the process.

Summary of results: Still pending but will be available by 19th May 2011.

Take-home messages: Judging from phase 1 results, 360° assessment would be a useful feedback tool for students.

9BB14 Evaluation of Medical Residents Using Milestones Based on the Dreyfus Skills Acquisition Model

Jacqueline Moore*, Khalid Zakaria, Basim A Dubaybo*
(Department of Internal Medicine, Providence Hospital, 5015 Redwood Ct, West Bloomfield, MI 48323, USA)

Background: Training programs evaluate residents using end-of-rotation assessment form. The quality of the evaluation depends on skills of evaluators and number of encounters with trainees. The form poses several challenges including subjectivity, lack of anonymity, propensity for bias, lack of reliability, and inability to assess changes over time.

Summary of work: We designed an evaluation form which measures attainment of specific milestones of training placing the residents along the continuum of skills acquisition scale of Dreyfus (Novice to Expert). Using ANOVA, we compared the ability of the traditional form and the new form to discriminate among residents within a level of training and among levels of training.

Summary of results: The traditional form placed most trainees in the superior category although there was a
distinction among different levels of training (P<0.05, ANOVA). The limitation of having almost all trainees "superior" was circumvented by the new mile-stone driven form which allowed discrimination among levels of training (interns, advanced beginners, PGY 2 competent, PGY 3 proficient) and within each level so that weak trainees could be identified, P<0.05, ANOVA).

Conclusions: Using milestones in the evaluation process allows programs to better discriminate among residents and develop remedial plans if necessary.

Take-home messages: Evaluations should be based on the acquisition of discrete milestones.

9BB15 Oral health students' experiences of clinical assessment
N A Gordon (University of the Western Cape, Faculty of Dentistry, Department of Oral Hygiene, Private Bag X08, Mitchells Plain 7785, South Africa)

Background: 3rd year oral health students are assessed 1) on a performance scale ranging from unacceptable to excellent in every clinical session and 2) via a quarterly clinical examination with a patient. Assessment grids for each are provided to guide students learning.

Summary of work: This study aimed to determine students’ experience of clinical assessment. Data was gathered from a self-administered questionnaire (n=30) and focus group discussions.

Summary of results: Students found the quarterly clinical examination form more useful than the daily assessment form in terms of preparation for the clinic, guiding their learning and reflecting their competence. In 70-75 % of instances, feedback provided was corrective, supportive, encouraging, directive, supervisors’ demonstrated procedures students struggled with. Students were guided to evaluate their own work (60%), observed in their patient management (60%). Although all students reported in the questionnaire that the clinical environment was supportive, this was contradicted in the focus group discussions where the clinical environment was reported as a stressful.

Conclusions: There is an inconsistency between student experiences and the purpose of the clinical assessment. Take home message: It is vital that student experiences of assessment methods be evaluated and necessary interventions done, to ensure clinical competence.

Take-home messages: It is vital that student experiences of assessment methods be evaluated and necessary interventions done, to ensure clinical competence.

9DD1 Integrating Palliative Care into Postgraduate Curriculums- a surprising but evidence based approach
D Marshall*, S Winemaker, A Taniguchi (Division of Palliative Care, Dept of Family Medicine, Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada)

Short description of innovation: While researching the evidence regarding various methods of delivering core competencies in Palliative Care to postgraduate medical learners, the authors discovered that there is little evidence for block rotations for learners, as a key teaching method. Rather, evidence suggest that multi modal strategies need to be implemented and woven into the clinical teaching curriculum. This runs contrary to current standard teaching. We have developed a customized menu of offerings that are tied to specific competencies from which the learner can self select and self monitor completion. This menu of competency based offerings will be detailed during this session.

What will be demonstrated: We will demonstrate how we arrived at this multi-faceted, competency driven method of teaching postgraduate learners the essential palliative care competencies, and how such a complex menu of offering is organized and delivered across several campuses and programs.

What is particularly interesting about the innovation/How it could be implemented: This innovation is interesting as it takes the evidence from the educational literature and via implementation of that evidence, complete shifts our focus of teaching. As many if not most schools also rely on a certain block clinical rotation in palliative care, as the "backbone" of their palliative care curricula, this innovation shows us how to move away from a comfortable but pedagogically unsound program to one that is rich in options and pedagogically sound.

Why participants should come to the demonstration: To learn how to shift away from traditional palliative care teaching to methods and strategies that are evidence based and pedagogically sound.

9DD2 Teaching your medical students to understand about real life of their patients and know the direction to do the best care
R Senanoi, P Peumpanupat, S Tasnsuphaswasdikul, R Champunot (Department of Internal Medicine, Buddhachinaraj Hospital, Phitsanulok, Thailand) (Presenter: Athit)

Short description of innovation: Final year medical students during first week of internal medicine rotation are divided into groups of 3 students each. First, every group should select one patient of theirs
that stayed in the hospital more than 1 wk. Then the patients and their family will be asked to participate in this activity. The activity is to make poster presentation about patient’s life in the past (happiness, sadness, pride, etc). Brief orientation about activity that they will do with patients and patients’ family to make this poster succeed. After completing the poster they will give it to the patient. The poster will be photographed, presented and the experience from this activity shared in the last week of the internal medicine rotation. One main teacher and other teachers will join in, ask the students’ feeling, discuss and give feedback on the day of presentation.

**What will be demonstrated:** Process of activity, examples of poster presentation, success of activity

**What is particularly interesting about the innovation/How it could be implemented:** People are different, people have unique experiences in life, so your students will learn more about their patients. When your students know deep down, know things others did not, then they will know the direction to care for their patients in the best situation. Our team now wish to pass this knowledge and activity onto AMEE, to help our medical students choose the best way for their patients’ life and to succeed.

**Why participants should come to the demonstration:** The way to teach your students to understand about real life of their patients and then they will know the direction to care for their patients in the best situation.

9DD3   An innovative early clinical skills program

*R Sutherland*, A Dodds, J Conn, M Collins, G McColl
(The University of Melbourne, Melbourne Medical School, Medical Education Unit, Melbourne, Victoria, 3010, Australia)

**Short description of innovation:** We have designed and implemented an innovative early clinical skills program to specifically address the learning needs of novice medical students.

**What will be demonstrated:** We will demonstrate our comprehensive written materials for students and tutors and our creative audiovisual materials developed specifically for the program. We will outline the principles of our program by showing how one small-group tutorial operates, including display of the student and tutor notes; relevant student role play and simulated patient scripts and teaching DVDs. Body painting as a method for the integration of surface anatomy knowledge with peer physical examination practice will also be demonstrated.

**What is particularly interesting about the innovation/How it could be implemented:** The distinctiveness of the program lies in its structured, developmental and research-led approach to promoting skills acquisition. Participants will learn about our novel introduction of basic diagnostic reasoning skills during the medical interview and our standardised and evidence-based approach to the physical examination.

**Why participants should come to the demonstration:** Our program has had a significant positive impact on student learning and engagement and has attracted the highest Quality of Teaching scores of any component of our medical course. It has been successfully implemented at two other medical schools and has received teaching and learning awards at the faculty, university and national level.
10B Symposium: From departmental based to integrated curricula: a tale of three cities

Chair: Richard Marz (Vienna, Austria); Panel: David Taylor (Liverpool, UK); Martin Fischer (Witten / Herdecke, Munich, Germany)

Change (in the true sense of the word) never comes easy. However, curriculum reform seems at times just about impossible. There are always excellent reasons for NOT changing and academics are very creative in finding more.

In the session three, at least partially successful, examples of curricula change will be presented. Simultaneous change of many elements took place but compromises were also made. We will explore the trade-offs and discuss strategies for overcoming resistance.

10C Short Communications: Social Responsibility of a Medical School

10C1 Measuring socially accountable practice within a School of Medicine

I Lindemann*, H Ward, T McDonald, A West, D Prideaux (Flinders University, Health Professional Education, GPO Box 2100, Adelaide, South Australia, 5001)

Background: THEnet (Training for Health Equity Network) is a collaboration of eight medical schools internationally who are committed to advancing a social accountability agenda within medical education where medical school outcomes align with priority health and health system needs. THEnet have developed a draft ‘Framework for Evaluation of Social Accountability in Medical Education’. This presentation reports on the outcomes of the pilot implementation at one of the THEnet schools.

Summary of work: Data was collected over five months from documents, interviews, focus groups and workshops. Participants were selected from disciplines across the school and included staff, students and other key stakeholders.

Summary of results: The study was able to identify areas where the school demonstrates strong social accountability and areas which require improvement. The benefits and challenges to working with the framework will be discussed along with some preliminary examples of impact.

Conclusions: This work continues to inform the school in their efforts to embed social accountability principles across a wide range of school activities and has provided insights into opportunities for further change.

Take-home messages: The THEnet framework for ‘Evaluation of Social Accountability in Medical Education’ can inform a school’s efforts towards becoming more socially accountable.

10C2 A perspective of basic researchers on Social Accountability of Medical Schools

A Centeno*, A del Rio, S Campos (Austral University, Faculty of Biomedical Sciences, Department of Biomedical Education, Argentina)

Background: Social Accountability (SA) is emerging as a new requirement for medical schools.

Summary of work: We conducted a qualitative design research using in depth interviews to understand what specific actions of SA were being taken, if they were related to each institutional mission, who were the actors who participated in the activities, and what the obstacles that may be found. We interviewed key actors (faculty, researchers, administrators, students) at six different accredited medical schools in Argentina.

Summary of results: Results show that research is seldom oriented to local needs, and not oriented to the institutional mission. Support for research is still inadequate and many times money comes from the state and not from university funds. Medical schools still have a strong influence on political issues and frequently advice health authorities. Schools support but do not organize solidarity and service activities. There is a loose relationship between the institutional mission and the accountability actions, and no theoretical background has been mentioned, or obstacles identified by these researchers.

Conclusions: These initial results show how the topic of social accountability of medical schools is still insufficient from the point of views of these researchers.

Take-home messages: Complementing this information with the perspective of other actors will allow us to plan for a stronger and scientifically based adoption of SA actions.

10C3 Selecting for Admission to Medical School: Discourses of Excellence, Equity, and Diversity on the Websites of Canada’s 17 Medical Schools

S Razack*, M Maguire, Brian Hodges, Y Steinert (Montreal Children’s Hospital, 2300 Rue Tupper, C-807, Montreal, Quebec, H3H 1P3, Canada; University of Toronto, Canada)

Background: Canadian medical school websites can be used as promotional tools, advancing arguments to claim institutional excellence and to appeal to the ‘best and the brightest’, who might join their institutions as medical students. What do these texts say about
'excellence'? How are social accountability discourses, such as those related to 'diversity' and 'equity', represented?

**Summary of work:** Using the concepts of ‘excellence’, ‘equity’, and ‘diversity’, we undertook a discourse analysis of the websites of Canada’s 17 medical schools, through the lenses of 3 social theorists (Foucault, Bourdieu, Bakhtin).

**Summary of results:** Institutional prestige and applicant suitability are generally promoted through discourses of excellence (research, innovation, & global positioning). Diversity discourses emerge primarily as appeals to institutions’ ‘cosmopolitan sophistication’. Equity is vaguely defined.

**Conclusions:** Canada’s medical schools tend to promote academic excellence discourses in similar and different ways on their websites. Service to society discourses are much less prominent.

**Take-home messages:** Discourses play a central role in regulating social institutional practices. It is worthwhile for medical schools to examine the messages they are communicating via their websites. If we are to move beyond prestige-based characterizations of excellence and build a socially accountable profession, open and inclusive conversations are needed, in order to evolve admissions practices towards this goal.

### 10C5 Integration; the key to improving health and medical education in Iran

**Abbass Entezari**, Nader Mofidzamanesh, Mohammad Ali Mohagheghi (Educational Development Center, Ministry of Health & Medical Education, Tehran, Iran)

**Background:** After the Islamic revolution two most important interventions in the creation of a nationwide health system were setting up of PHC networks and the formation of the Ministry of Health and Medical Education (MOHME) and the integration of medical facilities.

**Summary of work:** We will look at the birth and growth of integration, the triumphs, the dreams, some of the obstacles and challenges found along the path as well as at the hopes and strategies for the future. MOHME is responsible for all aspects of policy making, planning, leadership, stewardship, supervision and evaluation of health services, including the training and educating of human resources for health, within the “Comprehensive Health Delivery System” that makes up Iran’s health infrastructure. In 2005, Higher Ministerial Council of Integration (HMCI) was established. The main concern of this council was accountability and responsiveness to community needs in medical education.

**Summary of results:** Activities that were proposed were establishment of educational Health network in PHC network, development of Educational Health center, revising curricula, exposure to community, residential health rotation in educational health network, health risk management workshops for all faculty members, establishment of Knowledge Translation Center (KTC) at national level for development of national medical textbooks.

**Conclusions:** Integration of medical education into health care delivery system is the most appropriate & economical strategy for achieving health promotion and the key point for improvement of medical education for better social accountability.

### 10D Symposium: IX Ibero-American Session - Globalization and
Accreditation in Medical Education: Its Impact in the Americas

Co-chairs: Pablo Pulido (PAFAMS, Venezuela); Emmanuel Cassimatis (FAIMER-ECFMG, USA); Stefan Lindgren (WFME, Sweden)

A key effort to improve the quality of medical education in the Americas has been the evolving work in evaluation and accreditation of the undergraduate studies performed by individual Institutions, at the national level or under the aegis of the affiliated National Associations of Medical Schools to PAFAMS. It is clear that important social, political and economical differences, are currently making an impact in countries in the north, central, Caribbean and south sub-regions making imperative a re-engineering of the evaluation standards from PAHO, IIME, FAIMER, PAFAMS or WFME as seen in recent pilot experiences. Focus is on evaluating the quality of the institutional system design and more recently on outcomes of medical education skills and values of medical graduates is considered key to assess the effectiveness of medical education programs. The continuous advances being made in medical sciences will challenge both the knowledge and skills together with values of the medical professionals and health care delivery to the population they serve.

Among the critical factors in the Medical Education in the Hemisphere are: 1) the uncontrolled proliferation of medical schools some of them with strong commercial bias; 2) lack of understanding the complexities of emerging health systems; 3) changes in the practice of medicine, especially in practical primary care and the practice of public health and social responsibility; 4) migration of physicians and health professionals, from areas of greatest needs to other countries; 5) Enhance the culture of professionalism and ethical values propositions.

In this context, “Globalization” brings the need to review the organization, structure and functionality of medical schools. The purpose of this session is to discuss strategic alternatives to update useful international accreditation methodologies and standards helping to meet the social justice and leadership mission of medical education.

10E Short Communications: Training for Leadership

10E1 LEADER – A tool to enable the assessment of clinical leadership of doctors in training

P Reynolds, R Hughes, E Eyre* (Department of Paediatrics, St Peter’s Hospital, Chertsey, Surrey, UK)

Background: PMETB have recognised that medical leadership should be incorporated into post-graduate training although no mechanism has been established.

Summary of work: We have developed ‘LEADER’, a tool comprising a single sheet of written prompts, based on The Medical Leadership Curriculum Framework to be used with existing workplace-based assessments which enables discussion of clinical leadership issues and competencies. Paediatric and medical trainees and supervisors carried out standard ACAT, CBD, ACAT-LEADER and CbD-LEADER assessments. Participants rated aspects of the tool using a Likert scale of 0-4 (0 = weakest).

Summary of results: 22 CbD-L, 18 CbD, 9 ACAT-L and 12 ACAT were carried out by 9 assessors with 45 trainees (ST1 - ST5). ACAT-L group showed mean scores from trainees for development of leadership of 3.75, awareness of leadership 3.75 and overall rating of the tool 3.5. Mean duration of LEADER assessments did not differ significantly from standard assessments. Mean overall rating of the LEADER tool by assessors was 3.57 for CbD-L, 3.7 for ACAT-L. Statistical analysis showed a significant difference between LEADER and standard assessments when trainees rated their understanding of leadership and development of leadership competency.

Conclusions: The LEADER tool is practical to use, does not require additional educational supervision time and is superior in developing leadership skills amongst trainees.

Take-home messages: LEADER is a practical and effective tool for educational supervisors that incorporates leadership training into the existing assessment framework for medical trainees.

10E2 Educating the Next Generation of Graduate Medical Education Leaders

W Wiese-Rometsch*, H Kromrei (Detroit Medical Center, Department of Graduate Medical Education, 4201 St. Antoine, University Health Center-9C, Detroit, Michigan, USA)

Background: Professional development for Graduate Medical Education (GME) leaders (Program Directors and Administrators) is necessary for institutions sponsoring residency programs. Few institutions offer such opportunities. Needs assessment revealed that our GME Leaders would benefit from a professional development program that addresses knowledge, skills, and attitude deficits.

Summary of work: We developed a GME Leadership Academy to provide structured professional development for GME Leaders to increase their knowledge and regulatory compliance. The curricula are delivered over a one-year period via eight 2-hour workshops. The course utilizes the Program Performance Portfolio (P3), a tool for GME Program
Measurement and Management. The P3 is an automated system for planning and managing program performance. Instructional strategies include “hands on” seminars. Goals, objectives, tasks and assignments are aligned to program requirements and concerns identified through the Needs Assessment. Utilizing “real time” performance data allows for immediate application of curricular content.

**Summary of results:** Participants complete reflections, exams, and session evaluations. Exams indicate increased knowledge and feedback reveals high level of satisfaction with the course. Comments include: “...should be mandatory for all Program Directors.”

**Conclusions:** The GME Leadership Academy improves participants’ knowledge, increases awareness of performance gaps and creates a community of learning.

**Take-home messages:** Our program provides an effective model for GME leadership professional development.

**10E3 Team leaders’ communication in a training situation**

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**Background:** The role of the leader is often described as a core component to teams’ performance and effectiveness. The team needs a leader that takes the command in the team and initiates the progress of the work and coordinates the members during the performance. The team work is influenced by the composition of the team members’ profession, ethnicity and gender. Furthermore knowledge and experiences differs within the teams. Therefore, it is a challenge for the team leader to coordinate the team in order to optimize the performance.

**Summary of work:** The aim is to study how the team leader communicates in the team during simulation; how the leader presents him/herself in the team, involves the members and how this may affect the teams’ performance. 18 teams were audio and video recorded during HPS training. The communication were analyzed inspired by discourse and rhetoric analysis.

**Summary of results:** Findings suggests’ that the formal team leaders present themselves in different ways. How the leader acts effects the team work, which in turn may affect patient safety.

**Conclusions:** How the leader acts effects the team work, which in turn may affect patient safety.

**10F Short Communications: Community Oriented Medical Education**

**10F1 Community Based Education (CBE) Competencies for Health Professionals - A Systematic Review**

Z Ladhani*, A Scherbpië, F Stevens (Shifa College of Nursing, Islamabad, Pakistan; School of Health Professions Education, Maastricht University, The Netherlands)

**Background:** CBE is becoming popular and many institutions have adopted various curricular models to teach community health concepts; however there is no consensus on the core competencies for CBE. This systematic review has identified and categorized CBE...
competencies to determine most used and recommended ones.

**Summary of work:** A systematic review of electronic data bases including MEDLINE, CINAHL & ERIC and manual search of four medical education journals was carried out. Search was restricted to original research, published between January 2000 and December 2009.

**Summary of results:** Nineteen studies fulfilled the search criteria, the competencies identified were categorized under six themes: Public health; Cultural diversity; Leadership & Management; Community Development and Advocacy; Research and evidence based practice and Generic Competencies including Communication; Problem solving; Decision making; Creativity; Motivation; Self-Reflection; Facilitation; Presentation. Moreover, a number of clinical competencies also found to be overlapping with CBE content.

**Conclusions:** The literature on CBE competencies is limited in numbers and in its geographical span as most of the studies found were from developed countries; it is critical now to expand the existing work to other institutions and countries.

**Take-home messages:** To meet the evolving health care needs of populations, core competencies for CBE must be recognized and integrated in health professionals’ curriculum.

10F2  Creating a community clinical school

**S Trumble**, **R Astles-Phillips** (Melbourne Medical School, University of Melbourne, Melbourne, Victoria, Australia)

**Background:** Changing patterns in the way large teaching hospitals deliver health care plus a surge in the number of medical students requiring clinical placements combined to ‘push’ students into community-based clinical settings. Rather than being seen as a burden to already over-worked general practitioners and other community-based providers, these students need to be viewed as the first cohort of medical professionals to be most appropriately prepared for their future role. Many universities have long traditions of basing individual clinical schools within large hospitals. The success of rural clinical schools has encouraged consideration of similar models in outer metropolitan areas.

**Summary of work:** This paper describes the challenges overcome in creating a community clinical school in Melbourne’s outer suburbs, and defines the necessary ingredients for success. Originally conceived as a way of simply increasing placement capacity and building workforce, the educational benefits of a community-orientated school are now evident.

**Summary of results:** Strategies developed include dealing with the expectations of internal and external stakeholders; securing funding for capital works; reforming curriculum for community-based delivery; and engaging with clinical teachers.

**Conclusions:** Success of a community clinical school depends on true engagement with the community and recognition that increased costs are inevitable, yet outweighed by advantages.

**Take-home messages:** Community clinical schools have benefits for both students and patients.

10F3  A different look at interprofessional community-based education: the community as teacher

**A Towle**, **W Godolphin, C Kline** (Division of Health Care Communication, College of Health Disciplines, University of British Columbia, Vancouver, Canada)

**Background:** Community-based medical education is a broad concept, encompassing all instructional programs carried out in a community context outside the academic hospital, categorized into programs that provide services to underserved populations, programs with a research focus and clinical training. We describe a new approach in which students learn directly from patients and community members who are ‘experts by experience’.

**Summary of work:** We describe the outcomes of a qualitative study of two contrasting interprofessional education initiatives in which patients and community members define what students should learn and become their teachers. In one, people with chronic health problems design and teach workshops. In the other, students learn through a cultural immersion experience at summer camps for Aboriginal youth.

**Summary of results:** Students attending workshops learn about bio-psychosocial perspectives, patients as varied individuals, patient expertise and the realities of collaborative practice; students attending the camps learn about barriers to communication, cultural differences and community strengths. Students reflect on their culture, biases and stereotypes, and roles and identities.

**Conclusions:** Learning from and with patients and community members outside academic or clinical settings increases students’ learning about patient-centred care and cultural safety.

**Take-home messages:** Community-based education can utilize the expertise of patients and community members for interprofessional learning.

10F4  Comparisons of Emotional Intelligence and Empathy of first year medical students divided in 3 different age groups of partner with community based practice


**Nagoya University Graduate School of Medicine, Department of Education for Community-oriented**

**Background:** To meet the evolving health care needs of populations, core competencies for CBE must be recognized and integrated in health professionals’ curriculum.
Background: It is reported that Emotional Intelligence (EI) and Empathy declines as students progress through medical school. This study compared the impact of community-based practice (CBP) on EI and empathy in 1st year medical students, over a three year period. Summary of work: Students took the CBP with either a child, a pregnant mother or an elderly person. Immediately after CBP students wrote a reflective portfolio. Teachers gave feedback to every student. The students’ EI and Empathy were assessed by validated questionnaires.

Summary of results: The results from three groups of pre and post-CBP and follow-up were compared by ANOVA followed by Bonferoni. The reliability (Alpha) was high both in EI (0.85) and PES (0.9). A significant difference was found between 3 groups (children n=104, maternity mothers n=99, the elderly n= 56) on PES at pre (0.04), post (0.032) and follow-up (0.071). Maternity groups (average: 86.11) were significantly higher than nursery groups (average: 82.86) at post CBP (P=0.04). There was a similar influence on each group of students EI and PES.

Conclusions: CBP in three groups made a similar impact on students EI and PES.

Take-home messages: Appropriate experience in CBP can improve students’ EI and empathy.

10F5 Humanizing medical students’ first contacts with patients during the first year of graduation: a strategy using community-based home visits

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1University Hospital, University of Sao Paulo, Sao Paulo, Brazil; 2Fundacao Faculdade de Medicina, UBS Jardim Boa Vista, Sao Paulo, Brazil; 3Department of Pediatrics, University of Sao Paulo School of Medicine, Sao Paulo, Brazil)

Background: In medical education, to enhance students’ affective abilities is challenging. Empathy scores even tend to worsen during undergraduate period (Hoyat, 2009).

Summary of work: In the Faculty of Medicine of the University of Sao Paulo, Brazil, first year of medical course curriculum includes contact with community-based primary care institutions. During the year, students develop a health promotion project in primary care. During the last two years, a high number of people were observed living with disabilities. These individuals and their caregivers complained of poor access to leisure and limited social network. This inspired the “visits of joy” project, characterized by special home visits, prepared over several weeks. During the preparation period, medical records, family habits and cultural context were reviewed. Training included discussion with primary care staff, videos and conferences.

Summary of results: In the visit day, students and health care professionals stimulated conversation not restricted to patients’ diseases. Students exercised empathy and communication. A post-intervention survey revealed that patients and their caregivers had a very positive perception.

Conclusions: Students were able to know a different social and cultural reality and to exercise fundamental affective abilities.

Take-home messages: Primary Care is a rich field for discussing and training humanization. Initiatives towards this goal may have mutual benefit.
10G3 Spirituality in Brazil and worldwide medical curricula

J C Gagliardi Filho*, G H Beraldi, S Gannam, M P T Nunes (University of Sao Paulo, Faculty of Medicine, Sao Paulo, Brazil)

Background: The benefits of Spirituality on medical care are already established, but the new generation of physicians won’t be aware of them except by suitable medical education on this theme.

Summary of work: A literature search, using the keywords “medicine”, “Spirituality” and “medical education”, was carried out in PubMed, SciELO and LILACS databases to identify how Spirituality is been taught in the medical schools in Brazil and worldwide.

Summary of results: A reasonable amount of articles were found about the relationship between Spirituality and health (1420). However, there are limited works studying Spirituality in the medical curriculum, either worldwide (172) or in Brazil (2). 67% of the US and 59% of the UK medical schools already offer Spirituality in their regular courses. Lack of studies, cultural differences and absence of standardization between the programs are difficulties to the consolidation of Spirituality in medical curricula worldwide.

Conclusions: Since evidences of the benefits of Spirituality on health are still growing, its insertion in medical education deserves more attention. However, there is limited literature and research in this area.

Take-home messages: Although Spirituality is an important tool in patient care, few medical schools have it on their curricula.

10G4 How to teach humanity in medical students: A multiple innovation approach

S Supopon* (Medical Education Center, Khon Kaen Hospital, Muaeng, Khon Kaen, Thailand 40000)

Background: “I don’t want you to be only a doctor, but I also want you to become a man”, a 123 years ago quotation of His Royal Highness Princes Mahidol of Songkla, the father of modern medicine in Thailand, inspires us how to make medical students realize humanity in Medicine.

Summary of work: Sixth year medical students, 30-50 per group, had participated in four to seven three-hour activities throughout the academic year. The activities were based on five key elements of humanness—patient-centered care, holistic care, empathy, kindheartedness and mutuality and were arranged in interactive and experience sharing fashions—contemplative learning, dialogue, drawing, reflective writing, volunteer activities, and relaxation training.

Summary of results: Qualitative assessment data were collected by observations, interviews, focus group, written reflection and self-assessment. Majority of students had shown behaviors of humanized care in their practice. The activities were regarded as skill enhancement for caring the actual needs of patients, encouraging them being happy and proud to be a doctor. Moreover, difficulties and frustration during medical practice had been alleviated before their graduation.

Conclusions: Humanity in medicine could be obtained from multiple interactive psychoactive learning sessions.
Take-home messages: Being a man is more important than being a doctor.

10G5  ICARE: Assessing Humanism in Medical Students' Clinical Performance
Ming Lee*, Paul F Wimmers, Cha-Chi Fung (David Geffen School of Medicine at UCLA, Center for Educational Development and Research, Los Angeles, CA, USA)

Background: Although the human dimensions of care have been incorporated into medical education, how students perform in those areas remains unclear.

Summary of work: A 16-item, 5-point Likert scale was developed to assess humanism, with three items each in the subscales of Integrity, Compassion, Altruism, Respect, and Empathy (ICARE) as well as an overall humanism rating. Twenty-nine Class of 2010 students’ recorded performances in an OSCE station featuring a depression case were reviewed and rated by two researchers.

Summary of results: The inter-rater correlation was .78. Cronbach’s alpha was .96. The mean scores of the Respect and Integrity subscales (4.33 and 4.08, respectively) were higher than those of Compassion and Altruism (3.68 and 3.61, respectively), with the mean of the overall humanism rating being 3.57. The ratings were not correlated with the scores of the Patient-Practitioner Orientation Scale or the Jefferson Scale of Physician Empathy.

Conclusions: The scale demonstrated strong internal consistency reliability. Its validity remains to be established. Students’ humanistic performance in a simulated clinical setting appeared to differ from their self-perceived patient-centeredness and empathy.

Take-home messages: While patient-centeredness and professionalism have received good attention in medical education, which lead to better student performances shown in this study, compassion and altruism remain to be emphasized.

10H  Short Communications: The Curriculum

10H1 Universitas 21 and the role of health sciences faculties in achieving United Nations Millennium Development Goals
N Patil*, K Ho, C Voisine, M Perez, L C Chan, G Webb, D Chambers, on behalf of the Universitas 21 UNMDG Group (Department of Surgery, Li Ka Shing Faculty of Medicine, University of Hong Kong)

Background: In order to achieve the United Nations Millennium Development Goals (UNMDG) and its targets for 2015, all communities need to work together. Academic institutions can be an effective partner by contributing through education of health professional trainees, research, and contribution to policy discussion and analysis with policy makers and other partners.

Summary of work: The Universitas 21 (U21) UNMDG initiative is an interdisciplinary project involving faculty and students that aims to develop an educational strategy to raise awareness of UNMDG, for adoption and flexible implementation into the curriculum of the health professional training programs. Faculty from six U21 member universities has developed ten UNMDG case studies together with an educators’ guide and a students’ guide.

Summary of results: At a first stage, this material is being adaptively implemented in the curriculum of a small number of U21 universities, and an evaluation framework has been developed to demonstrate this strategy’s output and contributions to achieving the UNMDG targets by 2015 and beyond. A reflection survey for students was also tested with almost 30 students in Hong Kong and has produced encouraging preliminary results.

Conclusions: Over time, this strategy is expected to lead to an increase in students’ attitude, knowledge, and skills in UNMDG implementation both globally and locally.

10H2 What do nurses expect from newly qualified doctors?
S Gawn*, B Kapur, C Lumsden (North Western Deanery, Medical Education Fellowship, 3 Piccadilly Place, Manchester M1 3BN, UK)

Background: ‘Tomorrow’s Doctors’ (GMC 2009) identified the standards expected of newly qualified doctors (NQDs). Nurses spend a lot of time in the clinical area observing Foundation Doctors. We investigated if their expectations and observations reflect the GMC guidance.

Summary of work: Ethical and SHA approval was granted for the study. Twenty-two nurses of varying experience were recruited. 41 skills and domains recommended in Tomorrow’s Doctors that the researchers considered would be most applicable to nurses’ observations were identified. The participants were asked which of the domains they expected and which they had observed a NQD to be able to perform. Qualitative data was collected regarding the conduct and attitudes of NQDs and analysed using thematic analysis.

Summary of results: Nurses have a low expectation of NQDs abilities and skills. This is not only in regards to perceived competence but also the breadth of skills NQDs possess.

Conclusions: Outside of formal ward rounds nursing staff decide who to consult in the medical team. Lack of knowledge with regards to NQDs skill sets may result...
in NQDs being bypassed in favour of more experienced members of the team.

Take-home messages: Efforts should be made to increase awareness of the GMC’s guidance amongst nursing staff and allied health professionals.

10H3 The problems of introduction of Bologna system in Ukrainian medical education and how they have been dealt with

Iryna Bulakh, Vitaly Moskalenko, Marina Mrouga, Oleandr Volosovets (National O.Bogomolets Medical University, Kyiv, Ukraine; Ministry of Public Health of Ukraine, Kyiv, Ukraine; Testing Board, Kyiv, Ukraine)

Background: Bologna principles have been implemented in higher education in Ukraine in 2005 starting from the 1st year of study.

Summary of work: Ministry of Public Health (MPH) facilitated their implementation within medical education by provision of initial training to faculty members, continuous supervision of problems and monitoring of results. MPH also supported permanent instructional and research group focused on the needs of universities during transition period.

Summary of results: One particular difficulty of implementation referred to cautious or negative attitude of medical teachers towards Bologna process. This article presents the difficulties that Ukrainian medical education faced during the introduction of the Bologna System, results of several surveys and analytical study aimed to identify whether fears of medical teachers are justified and how they have been dealt with during the implementation period.

Conclusions: Implementation of the Bologna System requires a lot of work and is hindered by negative attitudes. Most faculty members form their attitude without a clear idea about what is the Bologna process. The reasons behind their attitude are frequently subjective and caused by limited information.

Take-home messages: Smooth transition to a new system requires intensive preliminary training and advocacy of the system and permanent support.

10H4 Enhancing Professional Development in the Medical Curriculum at Sahlgrenska Academy, University of Gothenburg

M Bjarnegerd, M H Angeres, K Leander, K Manhem, O Nilsson, K S Sunnerhagen, M Wahlqvist (Intern/Resident Council, Sahlgrenska University Hospital, Gothenburg, Sweden; Department of Surgery, Sahlgrenska University Hospital, Gothenburg, Sweden; Department of Public Health and Community Medicine/Primary Health Care, Sahlgrenska, Sweden)

Background: Physicians of tomorrow face high expectations in their professional development (PD) from patient groups and societal demands. However, learning objectives of PD are often hard to implement in medical education. In fall 2009, a strategic task force was formed to improve students’ learning of PD at the medical program in Gothenburg.

Summary of work: During the 1,5 year development process, key inputs of the task force were literature, research performed at our program and international contacts. Five core PD learning areas were identified. Learning objectives, teaching and learning activities and assessment of PD were mapped using Biggs concept of constructive alignment. The task force organised collegial visits with course leaders and head of institutions were also involved.

Summary of results: Core learning areas of professional development include: communication skills and self-reflection, leadership and teamwork, ethical attitude in practice, human rights and gender issues, and a scientific and critical attitude. A proposed PD improvement action plan was accepted by the Academy Board. Five part-time PD process leaders are now employed in a three-year project.

Conclusions: Enhancing students’ learning of professional development requires a research-based and strategic approach.

Take-home messages: In order to meet young MDs’ future challenges, professional development needs to be integrated within medical education.

10J Short Communications: Clinical Skills Training

10J1 Teaching third year medical students advanced cardiac life support skills

R Delport*, BG Lindeque (School of Medicine, Faculty of Health Sciences, University of Pretoria, P O Box 667, Gezina, Pretoria 0031, South Africa)

Background: Skills learning is pivotal in the training of medical students and should be experienced as being meaningful and enjoyable. CPR Guidelines have recently been updated, stressing the importance of early defibrillation. Basic CPR with the use of an AED is taught in the second year of medicine and for the first time 3rd year students were trained to perform actual manual defibrillations during their cardiology block.

Summary of work: Learning was case-based, in small groups, using a real defibrillator and emphasising teamwork. Aspects relating to the lecturer’s instruction and the training session were evaluated with a questionnaire, using a 5-point scale. The X2-test was used to identify factors associated with enjoyment of the training and also with embedded learning principles.

Summary of results: Of the 140 respondents (response rate 60%), 94% said they enjoyed the practical - both the instructor and peers contributing to the enjoyment...
Background: Medical schools aim to develop Physical examination (PE) skills, since they are a core element of physicians’ activities. Two studies were conducted to investigate factors contributing to the acquisition of PE skills (quantity and quality of observed peer performances).

Summary of work: In Study 1, 185 students were assigned to either a single student condition (n = 65) or a multiple students condition (n = 120). They learned and executed a head-to-toe PE. In Study 2, 198 students learned, in groups of 3, a neurolocomotor exam (NLE) for low back pain. After seeing a videotape, students practiced and executed the NLE for analysis of performances.

Summary of results: In Study 1, students who observed a peer performed better than students that did not (84% vs 76%, p < .05). In Study 2, students who had observed a student performed better when the peer was a high performer than a low performer, (81% vs 68%, p < .001).

Conclusions: When learning procedural skills, the observation of a peer’s performance is beneficial compared to only observing a teacher’s performance. Moreover, observing a good peer has a greater impact on PE skill acquisition.

Take-home messages: Groups of students with different ability levels offer optimal learning opportunity for every student.

Background: Gynaecological Teaching Associates (GTAs) are used to teach pelvic examinations (PEs). We compare distress scores of medical students of different ethnic groups, before and after a GTA session.

Summary of work: Population: 323 3rd year, 37% males, 42% ethnic minority. Teaching session with 1 GTA, 1 facilitator. Discussion; DVD showing PE; GTA demonstration with manikin; students practice on manikin; students examine GTA with feedback.

Method: Modified Gynaecological Examination Distress Questionnaire (GyExDQ), 4 point Likert scale, covering students’ comfort with PEs.

Summary of results: Distress scores for White British, Indian and ‘Pakistan with Bangladesh’ groups for palpating abdomen (‘control condition’) before the session: 2.49, 2.42 2.31, 2.74, 2.64 and 2.88 afterwards; inspecting external genitalia: 1.24, 1.17, 0.81 before, 2.25, 2.32 2.38 after. PE: 0.75, 0.76 0.5 before, 2.22, 2.25 2.31 after. Talking to patients while performing examination: 1.19, 1.15 1.13 before, 2.33, 2.39 2.63 after. Differences between groups and all before/after scores statistically significantly different. Detailed statistical analysis on 600 students will be available.

Conclusions: All medical students are anxious about PEs, but Indian and Pakistani/Bangladeshi students have higher distress scores; after 1 GTA session all students are less distressed and the Indian and Pakistani/Bangladeshi student’s scores improve more, reaching the same level as the white British.
Intervention and Control students’ (n=150 respectively).

**Summary of results:** Intervention students spent less time studying than Control students but performed significantly better in the summative OSCE than Control students (F(1, 303) = 3.92, p = .04). The tutors’ scores were predictive of the summative OSCE scores (β =0.99, p = .001, 95% CI 0.97 – 1.1) during the Intervention and the following two years.

**Conclusions:** Structured learning materials, systematic delivery and feedback from dual assessment reduce cognitive load and enable more efficient and effective learning, enhancing clinical skills competence.

**Take-home messages:** Cognitive load theory is useful in the design of clinical skills training programs. This study provides a model for teaching and assessing entire clinical skills curricula.

**10J5 A model teaching session for the hypothesis-driven physical examination**

H Nishigori, K Masuda, M Kikukawa, A Kawashima, R Yudkowsky, G Bordage, J Otaki (The University of Tokyo, Japan; Tokyo Medical University Hospital, Japan; Kyushu University, Japan; Fukuyam Municipal Hospital, Japan; University of Illinois at Chicago, USA)

**Background:** The physical examination is an essential clinical competence for all physicians. Most medical schools have students who learn the physical examination maneuvers using a head-to-toe approach. However, this promotes a rote approach to the physical exam, and it is not uncommon for students later on to fail to appreciate the meaning of abnormal findings and their contribution to the diagnostic reasoning process. The purpose of the project was to develop a model teaching session for the hypothesis-driven physical examination (HDPE) approach in which students could practice the physical examination in the context of diagnostic reasoning.

**Summary of work:** We used an action research methodology to create this HDPE model by developing a teaching session, implementing it over 100 times with approximately 700 students, conducting internal reflection and external evaluations, and making adjustments as needed.

**Summary of results:** A model nine-step HDPE teaching session was developed, including: (1) orientation, (2) anticipation, (3) preparation, (4) role play, (5) discussion-1, (6) answers, (7) discussion-2, (8) demonstration and (9) reflection.

**Conclusions:** A structured model HDPE teaching session and tutor guide were developed into a workable instructional intervention.

**Take-home messages:** Faculty members are invited to teach physical examination in the context of diagnostic reasoning using this structured HDPE teaching model.

**10J6 The Effectiveness of Structured Clinical Instruction Module(SCIM) and Video Training in Accelerating Students’ Skill in Neonatal Resuscitation**

F Erfanian, T Khadivzadeh, J Malekzadeh (Mashad University of Medical Sciences, School of Nursing & Midwifery, Mashad, Iran)

**Background:** Several studies have called into question the ability of graduate medical students to perform neonatal resuscitation competently and applying standard approaches in training neonatal resuscitation has been recommended. This study was conducted to compare the effect of SCIM and video training on students’ skill in neonatal resuscitation and compare it with a control group.

**Summary of work:** In this randomized controlled trial 48 eligible MSc and BSc neonatal nursing, midwifery and anesthesia students were randomly allocated in three groups SCIM, Video training (VT) and control. In VT after a lecture, a video about neonatal resuscitation was presented then students repeated the video. In SCIM after a lecture students in 6 groups rotated through 6 stations, trained and practiced under supervision of 6 instructors about Initial Steps, PPV, Intubation, Chest Compressions, Medications and management of advanced resuscitation. Workshops were based on NRP and lasted 6 hours for two groups. Before and after the workshop all students participated in a 7 station OSCE.

**Summary of results:** In posttest both groups (VT,SCIM) had significantly better performance than the control group but SCIM demonstrated a marked improvement compared with the VT (VT=173.6±15.3, SCIM=202.97±16.6, p<0.001).

**Conclusions:** SCIM is an effective and new method in training neonatal resuscitation.

**Take-home messages:** The use of SCIM in enhancement of other clinical skills must be considered and assessed.

**10K Short Communications: Social Networking**

**10K1 The influence of social networks on students’ performance**

J Hommes*, B Rientes, W de Grave, G Bos, A Scherbier, L Schuwirth (Maastricht University, Department of Educational Development & Research, The Netherlands)

**Background:** Current theories about optimal learning highlight the social aspect in the learning environment. As learning does not stop outside the (tutorial) groups, social relationships or “networks” with fellow students might increase performance directly. Earlier research
demonstrated the essential role of centrality – quantity and quality of relationships – denying possible confounding factors e.g. motivation. Our study thus explored the relative influence of these confounders compared to centrality.

Summary of work: The relational information was obtained from the first-year medical undergraduate students (n=301) through self-reported digital surveys. Three types of social networks were assessed: friendships, relations from whom information was received and to whom they gave information. Students also completed the Academic Motivation Scale and the College Adaptation Questionnaire. Performance was defined as students’ performance on the course examination.

Summary of results: 281 students participated in the study. Centrality in the intense friendship network (beta=10.1), giving information (beta=11.0) and receiving information (beta=29.4) all increased performance, independent from motivation, integration, sex and previous performance.

Conclusions: Strong social networks are associated with increased performance. Although replication is needed, it seems that these networks between students seem to be more powerful in explaining learning differences than the more classical educational psychology measures such as academic motivation.

10K2 A study of veterinary students’ use of and attitude toward the social networking site, Facebook

Background: Facebook has been identified as the preferred social-networking site among post-secondary students. Repeated findings suggest post-secondary students practice high self-disclosure on Facebook. Specifically, research evaluating medical trainees found a significant proportion of students posted content deemed inappropriate. Lack of discretion in posting content can have significant repercussions for aspiring professionals.

Summary of work: This study examined veterinary students’ use of and attitude toward the social networking site, Facebook. A total of 633 out of 784 students (81%) enrolled at 3 veterinary colleges across Canada completed the online survey.

Summary of results: 78% of participants indicated their Facebook profile accurately represents who they are; however, 36% of respondents felt veterinary students should not be held accountable for unprofessional postings. Controlling for the general awareness of consequences predicted an additional 2.2% of the variance in disclosure on Facebook (β = -0.22, p < 0.001). Completing the survey resulted in 26% of respondents indicating they planned to change their approach to using Facebook.

Conclusions: Understanding students’ use of and attitudes toward social media, such as Facebook, reveals a need, and provides a basis, for developing educational programs to address online professionalism.

Take-home messages: Educational programs addressing online professionalism should include attempts to raise students’ awareness to consequences.

10K3 Developing a ‘Network Of Veterinary ICT in Education’ (NOVICE) to support informal lifelong learning

Background: Web 2.0 tools including wikis, blogs and social networks are increasingly used by healthcare professionals. NOVICE, an EU funded project led by five veterinary schools, aims to develop a Web 2.0 professional network to support informal, lifelong learning of veterinarians and students.

Summary of work: Focus groups with veterinarians and students compared activities in face-to-face verses online communities and determined benefits of, and barriers to, participation. These findings, together with an investigation into software options, guided the development of an online professional network and research into its ability to enable informal, lifelong learning.

Summary of results: Veterinarians and students are members of both face-to-face and online communities. They report similar barriers to participation in face-to-face communities, principally distance and cost, while online communities cause concern about security and information reliability. Benefits of communities included keeping up to data and professional networking. Elgg, an open source social networking platform, was selected to support these needs. Within four months of its launch, the NOVICE network has nearly 500 members and over 40 special interest groups.

Conclusions: NOVICE has the potential to support veterinary informal, lifelong learning through online collaboration, discussion and exchange of information internationally.
Take-home messages: Web 2.0 provides opportunities and challenges for the informal, lifelong learning of healthcare professionals.

10K4 Can YouTube Help Medical Students in Learning Surface Anatomy?
Samy A Azer (Medical Education Department, College of Medicine, King Saud University, Riyadh, Saudi Arabia)

Background: In a PBL curriculum, most medical students research the Internet for information for their “learning issues”. Internet sites such as “YouTube” have become a useful resource for information. This study aimed at assessing YouTube videos covering surface anatomy.

Summary of work: A search of YouTube was conducted from 8 to 30 November, 2010 using research terms “surface anatomy”, “anatomy body painting”, and “bone landmarks”. Relevant videoclips have been identified and related URL recorded. For each videotape the following information collected, title, authors, duration, number of viewers, posted comments, and total number of days on YouTube. Videos were evaluated on the basis of technical, content, authority and pedagogy.

Summary of results: A total of 57 YouTube videos were identified, analysis revealed that 16 (28%) of the videos provided useful information on surface anatomy, mainly on the shoulder, knee, spine, and foot, whereas 72% were not educationally useful, have technical problems or not in English language. The total viewers of all videos were 355,498. Useful videos were viewed by 22% of total viewers. No correlation was found between number of viewers and educational usefulness of a video. Most useful videos were created by professional bodies or clinicians.

Conclusions: Currently YouTube is an inadequate source of information for learning surface anatomy.

Take-home messages: More work is needed from medical schools and educators to add useful videos on YouTube covering this area.

10K5 Social media and the medical profession
D Maor*, K Austin*, R Fielke*, M Bonning, S Mansfield, S Morrison, A Perry, H Stephens (Australian Medical Association - Councils of Doctors in Training, 42 Macquarie Street, Barton ACT 2600, Australia)

Background: The professional standards of doctors and medical students form the cornerstone of patient care. They are taught and assessed from early medical school and re-emphasized throughout medical training. Application of these professional standards is rapidly expanding into new mediums and the use of social media by medical students and the profession is growing rapidly.

Summary of work: A guide was released in 2010 for medical students and doctors in Australia and New Zealand that explores the various risks to personal integrity, doctor-patient and doctor-colleague relationships, and future employment opportunities posed by online social media. It was distributed to more than 20000 junior doctors and medical students to build their understanding of the challenges to professionalism these new media entailed.

Conclusions: The guide was endorsed and distributed by health jurisdictions and training bodies, signaling a desire to protect staff and students from social media missteps. The broad support for, and acceptance of, the guide demonstrates the need for such tools to be propagated in other settings.

Take-home messages: We have created practical guidelines to assist doctors and medical students to enjoy the online world, while maintaining professional standards.

10L Short Communications: Multi Mini Interview

10L1 MMI: does it give a plus to predict academic/clinical performance?
C Bourdy1*, R Gagnon2 (1Université de Montréal, Faculté de Médecine, Undergraduate Medical Education, Montréal, Canada; 2Université de Montréal, Faculté de Médecine, Centre de pédagogie appliquée aux sciences de la santé, Montréal, Canada)

Background: MMI are mainly used to evaluate non-cognitive abilities. It is said they correlate with clinical performance during medical training in a better way than GPA or long interview.

Summary of work: At Université de Montréal Faculty of Medicine, we introduce MMI in 2008. There were ten 10 minutes stations framed on CanMeds competencies. We have administered the MMI only on candidates with university degree. The college students had a long interview.

Summary of results: We collect academic information on 60 candidates who have done the MMI and 190 who had not done it. We compare the GPA, academic and clinical performance with the results of either the MMI or the long interview.

Conclusions: The worries seen on the MMI were compared with the clinical evaluation after the rotation. The MMI seem to correlate with a better clinical performance.

Take-home messages: The MMI seem to predict more accurately the interpersonal abilities of the candidates.
10L2 An evaluation of the psychometric properties of student and staff-assessed Multiple Mini Interview scores
Adrian Husbands*, Jon Dowell* (University of Dundee, Division of Clinical & Population Sciences & Education, The Mackenzie Building, Kirsty Semple Way, Dundee DD2 4BF, UK)

Background: The Multiple Mini Interview (MMI) is one of the primary means of assessing non-cognitive skills for medical school admissions. Dundee uses current medical students in addition to staff to assess candidates and views their contribution favourably. However there are some who question the use of students.

Summary of work: This research aims to evaluate the psychometric properties of student and staff scores. A 10-station MMI was conducted in both 2010 and 2011, with 5 interactive (almost entirely student-assessed) and 5 traditional one-to-one (exclusively staff-assessed) stations. Data on 477 candidates was analysed for differences between the performance of staff and students. Based on the 2010 results double marking was introduced in the January 2011 MMIs on both station types and this will be analysed and presented.

Summary of results: Overall reliability in 2010 was .69. The reliability of scores from both station types was comparable. Mean interactive station scores were less than one-to-one station scores, with students making more use of the full range of the rating scales. It appears students may be more hawkish and more effective scorers than staff.

Conclusions: Students appear to perform at least as well as staff on MMIs, so their use can be justified.

Take-home messages: Students can be a valuable asset to MMIs.

10L3 Using Situational Judgement Tests and Multiple Mini Interviews to select Australian general practice trainees
V Carr1, F Patterson*1, C Roberts2, J Togno3, R Coote4
1Work Psychology Group, Ashbourne, UK; 2University of Sydney, Medical School, Sydney, Australia; 3Beyond Medical Education, Bendigo, Australia; 4General Practice Education and Training Ltd, Canberra, Australia

Background: A Situational Judgement Test (SJT) and Multiple Mini Interview (MMI) were introduced to select candidates for Australian General Practice (GP) training. This is the first postgraduate selection process to combine a SJT and MMI. We report on the development and evaluation of the SJT and its relationship with the MMI.

Summary of work: The SJT and MMI focused on non-cognitive selection criteria (e.g. problem solving, professionalism, communication, organisation). SJT items were developed by trained subject matter experts and a separate panel provided expert consensus on answers. The MMI comprised 4-5 stations each lasting 8 minutes. 345 candidates completed both assessments during live selection.

Summary of results: The SJT showed a high level of internal reliability (α=0.91) and 94% of items performed successfully in differentiating between candidates. The SJT showed significant positive correlations with all MMI stations (mean r = 0.47) and referees’ reports (r = 0.30), providing good evidence of criterion-related validity. The majority of candidates rated the SJT as relevant, appropriate and fair.

Conclusions: This study builds upon evidence from UK General Practice and other specialties demonstrating that SJTs provide valid and effective selection instruments for postgraduate training. This study uniquely combined a SJT and MMI; results indicate that this could provide a robust combination of instruments for postgraduate selection.

10L4 An Analysis of a Veterinary School MMI: How well do scores predict future student performance?
K Hecker*, J Norris, T Beran, T Donnon (University of Calgary, Faculty of Veterinary Medicine, Calgary, Canada)

Background: The reliability and validity of MMI scores for admissions requires further investigation. We explored the relationships between admission scores and performance in the first two years of veterinary school.

Summary of work: Applicants from the 2008 and 2009 admissions cycles (n = 214; female = 79.40%; mean age = 23.78 years, sd = 4.00) participated in a 7 station MMI, an essay station, and provided grades for required courses and best two undergraduate years. Those admitted (n=58; female = 72.40%; mean age = 24.74; sd = 4.56) took basic sciences, clinical and professional skills courses in their first two years.

Summary of results: There were no significant differences in admissions performance between the 2 applicant pools (all ps = n.s.). In coming academic performance correlated with performance in the basic sciences and cumulative yearly grade point averages(r range = .32 to .55, p < .05). MMI and essay performance were significantly correlated with performance in the professional skills course (r range = .27 to .34, p < .05). Range of restriction calculations increased these correlations (r range = .37 to .45, p < .05).

Conclusions: Performance in the MMI was correlated with performance in a professional skills course which suggests that MMI measures communication ability.
Take-home messages: This study provides preliminary predictive validity evidence of at least verbal fluency measured during the MMI process.

10L5 The reliability of standardized actors for the evaluation of candidates in simulation-based multiple mini-interviews for medical student selection
Louis-Charles Moreau*, Laura Easty*, Meredith Young, Lisa Kagan, Saleem Razack (McGill University, Centre for Medical Education, Montreal Canada)

Background: Applicant performance evaluation by standardized actors (SA’s) has not been previously reported on in the setting of multiple mini-interviews (MMI’s) for medical student selection. We compared the reliability of evaluations made by SA’s vs. expert evaluators (admissions board members) in this context.

Summary of work: Expert Evaluators and SA’s rated student performance on a 5-item, 7-point modified Likert scale (5th item always being a ‘global suitability for medicine’ rating). Reliability of both SA’s’ and Experts’ ratings was examined using generalizability theory (Spearman rank (ρ)).

Summary of results: Mean station scores correlated positively between the two evaluator groups (r=.71, p<0.0001). The two evaluator groups ranked applicants similarly (p = 5.4, p<0.01). Experts were more reliable than SA’s in both station specific questions (reliability 4 station specific questions: Expert: 0.17, SA: 0.11) and global ratings (reliability 5th item: Expert: 0.17, SA: 0.10). SA’s agreed with Experts for upper quartile global ratings (reliability 5th item: Expert: 0.17, SA: 0.11) and were more reliable than SA’s in both station specific questions (reliability 4 station specific questions: Expert: 0.17, SA: 0.11) and global ratings (reliability 5th item: Expert: 0.17, SA: 0.10). SA’s agreed with Experts for upper quartile ranking for 44 applicants (vs. 67 for the Experts).

Conclusions: In multiple mini-interviews, scenario standardized actors show significant agreement with expert evaluators on applicants’ performance and rank.

Take-home messages: These data support the use of standardized actors in the evaluation of applicants for selection for entry into medical school using multiple mini-interviews.

10M2 What are primary care doctors’ needs in relation to developing as a preceptor for undergraduate medical students?
C Hyde*, L Allery (1University of Manchester, Community Based Medical Education, Manchester, UK; 2Cardiff University, School of Postgraduate Medical and Dental Education, Cardiff, UK)

Background: Enhancing students’ learning environment through faculty development for preceptors, offers a practical solution to assuring and improving undergraduate medical education in primary care. Little is known about what primary care doctors perceive as their needs in developing as preceptors.

Summary of work: A total of 15 individual, face-to-face, semi-structured interviews were performed at a large UK medical school. Primary care preceptors working within a variety of primary care settings were purposively sampled. Data were analysed using an inductive thematic approach, informed by workplace learning and social-cognitive theory.

Summary of results: Four key themes emerged as needs 1) understanding and developing the role of primary care preceptor 2) enhancing the tutoring environment 3) orientating students to primary care medicine 4) understanding the programme and student. Resources perceived as meeting needs were: tutors experiences of teaching and learning; dialogue with students; contact with the University and learning from peers.

Conclusions: Preceptors perceived needs were socially bound and included leadership and management.
competencies, and developing their identity as a preceptor. Social contact with students, the University & peers enabled preceptors to develop.

**Take-home messages:** Primary care preceptors’ needs are complex, embedded in and determined by their social context. Perceived needs, and resources for meeting needs, provide a potential focus for faculty development.

10M3 Mentors Also Need Support - A Study on Their Difficulties Over Time
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**Background:** Mentors have been recognized as an important element in the personal and professional development of young medical students. However, few investigations aim to understand their development, needs and difficulties.

**Summary of work:** In a qualitative exploratory study, mentors of University of Sao Paulo Medical School (FMUSP) were interviewed. Their perceptions about the difficulties experienced over time and the resources used to address them were investigated.

**Summary of results:** For many mentors, difficulties are related to initial doubts about the role, frustration with the students adhesion and the overload of daily tasks. To address such difficulties, mentors use external resources (the program coordination, the supervision and the other mentors’ experience) and their own life experience and personal way of dealing with situations. Some mentors did not perceive difficulties for them or for students.

**Conclusions:** The difficulties perceived by FMUSP mentors seem to be part of the Mentoring nature developed in the context of medical training. However, unlike other mentors, FMUSP mentors do not feel the lack of continued support, once this is regularly provided in the structure of the program. The “difficulty in perceiving difficulties”, presented by some mentors, demands further investigation for better and greater understanding.

**Take-home messages:** Instead of focussing on burnout, we could better focus on engagement and on which job resources this generation needs to stay engaged, and committed to work and organisation.

10M4 The influence of different job characteristics on burnout and work engagement. A study among young veterinarians

N.J.J.M Mastenbroek1, E Demerouti2, A.D.C Jaarsma*1, P. van Beukelen1, A Scherpier2 (1Utrecht University, Faculty of Veterinary Medicine, P.O. Box 80163, Utrecht 3508TD, The Netherlands; 2University of Technology, Dept. Industrial Engineering & Innovation Sciences Human Performance Management Group, Eindhoven, The Netherlands; 3Maastricht University, The Netherlands)

**Background:** Veterinary practitioners have an increased risk of mental health problems. Especially women and younger vets are at risk (Gardner, 2006). Looking towards the future (with more women entering the veterinary profession, the entry of a new and different generation, and the transition problems of young vets), it is important to know the levels of wellbeing of this age group, and how it is influenced by job characteristics.

**Summary of work:** The present study uses the Job Demands-Resources model (Bakker & Demerouti, 2007) to examine these relationships. A total of 865 professionals (73% females and 27% males) returned a tailor-made theory-based questionnaire. Differences caused by career paths, gender and age were examined.

**Summary of results:** The results show, that the level of burnout does not deviate from the norm group. The degree of work engagement is lower, than that of the norm group. Important factors which influence engagement are autonomy, the opportunity for professional development, support of colleagues, feedback from work. For both, burnout and work engagement, there are significant differences between career paths.

**Take-home messages:** Instead of focussing on burnout, we could better focus on engagement and on which job resources this generation needs to stay engaged, and committed to work and organisation.

10N Workshop: Making Your Mark: How To Create Effective PowerPoint Presentations

J LaBrin*1, V Chopra2, P Grant2, C Warren-Marzola3 (1Vanderbilt University, USA; 2University of Michigan, USA; 3HMG, USA)

**Background:** Every educator formally presents information through multimedia in their career. Despite this almost universal experience, few have received formal guidance on effectively translating their message into audiovisual presentations. This oversight is important as delivering an effective presentation is a learned skill that is central to delivering a succinct and thorough message.
**Intended Outcomes:** This workshop will train participants to: 1. Define the central thought and content of their message; 2. Identify a target audience using 1-2 distinct sentences; 3. Discuss presentation structure through the nuance of layout using a ‘slide blocks’ concept; 4. Illustrate the elements of effective slide design; 5. Identify and implement multimedia to enhance their message; 6. Design a sample presentation that is tailored to a specific audience.

**Structure:** The workshop will be composed of interactive exercises focusing on the elements outlined above in teaching basic skills of presentation and Powerpoint slide creation. We will demonstrate and teach unique approaches to delivering content using multimedia rather than words, using experiential activities where small groups will acquire hands-on training in presentation design. Concluding presentations will highlight the skills necessary to tailor slides to various audiences.

**Who Should Attend:** Trainees, clinicians, and educators at all stages who desire to improve their presentations.

**Level of workshop:** Beginner.

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**100 Workshop: How to search, retrieve and repurpose medical educational resources: the mEducator project approach**

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**Background:** The mEducator project (www.meducator.net) has created a metadata scheme for describing educational material/resources which contains properties that describe not only the resource itself but also its associated educational aspects (such as educational objectives, learning outcomes, pedagogical models, assessment methods and user interactions) by combining folksonomies and controlled vocabularies.

**Intended Outcomes:** Participants will learn about the role of metadata in medical education, and how to create metadata for their own educational material by using freely available and purpose-built editors. They will be able to tackle IPR issues for such material, repurpose material of others and enrich a variety of highly attractive, up-to-date learning resources to fit their own needs. Participants will be able to use/access (through a hands-on session) two content sharing platforms and understand their relative strengths and weaknesses.

**Structure:** The session will begin with a short presentation introducing participants to contemporary digital pools of medical education resources. A range of material will be covered from usual lecture slides to videos, clinical cases, virtual patients, anatomical traces, and serious medical games. Participants will then split into two groups and access such material through the aforementioned platforms; each group will attempt to repurpose material under different scenarios, while discussing the IPR issues and be given tips relating to resource creation and authoring, as well as, searching and retrieving material with assistance from the presenters. Finally the groups will feedback on the above processes and will highlight their strengths and weaknesses.

**Who Should Attend:** Medical educators, Clinicians, medical professionals and students; learning technologists and informaticians.

**Level of workshop:** Beginner.

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**10P Workshop: Using theory in medical education research**

J M Wagter\(^1\), R Stalmeijer\(^2\)*, S Kitto\(^3\)* (\(^1\)Medical Centre Alkmaar, Foreest Medical School, The Netherlands; \(^2\)Maastricht University, Dept. of Educational Development and Research, The Netherlands; \(^3\)Wilson Centre, University of Toronto, Canada)

**Background:** Many researchers starting off in the field of medical education are from a medical background and not yet familiar with appropriate theories and ways to apply them in research design and methodology. This workshop will introduce participants to sociological, psychological and educational theories relevant to medical education research.

**Intended Outcomes:** This workshop aims to make participants aware of the necessity of using a theoretical framework when conducting research. This workshop will demonstrate to participants the utility of theory informed medical education research. On completing this workshop, participants will have gained valuable insight into the ways that the appropriate use of theory can improve the quality, generalizability and transferability of their own research into medical education activities.

**Structure:** The workshop will include interactive plenary discussions and small group work. The group work will focus on the analysis and discussion of diverse examples of theory applied to medical education research. In small groups participants will discover what different effects a theory can have on formulating research questions, analyzing and
interpreting data and the framing and discussion of results.

Who Should Attend: The workshop is aimed at participants who are planning to do research in the field of medical education, but have little or no experience with conducting research in the field.

Level of workshop: Beginner.

10R  Mind maps for thinking and creativity in medical education

W Pryor (Royal College of Pathologists of Australasia, 207 Albion Street, Surry Hills, NSW 2010, Australia)

Background: Mind mapping has been called the 'Swiss Army Knife of the brain' with a myriad of personal and professional applications. Wendy Pryor, a trained mind map instructor, has found mind maps to be powerful aids for learning, teaching, research, and to support clinical reasoning and patient management. They were invaluable as planning and analytical tools for her recently completed PhD.

Intended Outcomes: Participants will be inspired by the work of enthusiasts, learn to construct hand-drawn and computer-generated mind maps, and explore possible applications for their own practice.

Structure: Wendy will share her experience as a catalyst for participants to generate their own creative ideas and fun using provided paper, coloured pens and demonstration software. This will be a highly interactive hands-on workshop with opportunities for individual and team work. Participants are strongly encouraged to bring a laptop computer and some of their own coloured marker pens if possible.

Who Should Attend: Anyone who likes to explore creative ideas.

Level of workshop: Beginner.

10X  Posters: Interprofessional Education /Teamwork

10X1  Building teamwork skills through wikis in an interprofessional education course

J Tegzes*, S Aston, S Mackintosh, V Finocchio (Western University of Health Sciences, College of Veterinary Medicine, Pomona, CA, USA)

Background: During the second phase (year 2) of an interprofessional education (IPE) program students from six health sciences professional programs work together in small groups to develop team-based skills. Almost all interactions among students occur asynchronously through online wikis. At the end of the course, students come together for face-to-face interactions for the first time, but after having already formed a functioning team online.

Summary of work: Students receive course content through online resources that include literature, narrated powerpoints, transcripts of the powerpoints, and video vignettes. They may freely choose how to learn the content from these options. Assessment of content and collaborative skills is by means of a wiki that the students participate in groups of five. In the wiki they must collaborate as a team and comment on the teamwork skills needed to resolve a challenging patient care issue.

Summary of results: Though students were initially uneasy with developing wikis, they quickly learned how to navigate them successfully, and more importantly, how to collaborate through them.

Conclusions: Teamwork and collaboration skills can be learned and practiced through online wikis.

Take-home messages: Wikis are an effective tool for online collaborations.

10X2  What Happened to all that Teamwork when students get to Clinical Environment?

Sandy Cook*, Sok Hong Goh (Duke-NUS Graduate Medical School, Singapore)

Background: Duke-NUS Graduate Medical School introduced Team-based learning (TBL) in 2007 to deliver their pre-clinical curriculum. The attitudes about TBL and team learning have been very positive in the first year, but we wanted to explore how those attitudes about teams changed once entering the clinical clerkships.

Summary of work: A 19 question, Team Experience Survey (TES), likert-type survey (5=highest), validated by Parmelee et. al (2009), was used to measure the students attitudes on TBL's impact of team learning. This survey was administered to 48 first year medical students completing their pre-clinical courses as part of a program evaluation process and repeated the next year after they have completed their clinical postings.

Summary of results: We compared their pre-clinical and clinical experiences longitudinally for Class of 2012. While overall high in both years when compared to the Parmelee results, the TES clinical results were generally lower than pre-clinical year, and significantly lower on professional development subscale.

Conclusions: Overall, our students are very satisfied (scores >4) with the team process for both pre-clinical and clinical experiences, but the clinical teams did not appear to be viewed as helpful for working with others.

Take-home messages: These data suggest we need to work more on the development of teams and peer evaluation in the clinical years.

10X3  Teamwork for clinical educators in residency training
Background: Residency training is a team responsibility of clinical educators. The aim of this study was to examine how these teams succeed in delivering and managing postgraduate medical training.

Summary of work: This qualitative study used principles of Grounded theory. Data collection took place using focus group discussions. The data were analyzed with Atlas T, using the tool of thematic networks.

Summary of results: Saturation was achieved after 6 focus groups, including 50 clinical educators. We identified seven teamwork themes. 1) The clinical educator is more passionate about clinical expertise, than about knowledge of education and teamwork. 2) The residents need to know the shared clinical educators' expectations, which are now mostly unclear. 3) The role of the principal educators is not clear to himself nor to his team members. 4) The subjects of discussion are the performance of residents and the division of the learning tasks. 5) The structure of formal meetings are obvious. 6) The clinical educators realize the importance of feedback, but they found it hard to give. 7) The clinical educators feel pressure to be accountable for team performance.

Conclusions: This study presents seven interdepending teamwork themes. We recommend to understand and establish the dynamic of these themes. We assume that strengthening educational and teamwork expertise positively influence teamwork.

10X4 Trauma team emotional regulation

P Musaeus (Aarhus University, Center for Medical Education, Aarhus, Denmark)

Background: Research has addressed emotional labor and emotional socialization amongst health professionals, but less is known about team emotions. This presentation is about team emotional regulation defined as team members' appropriated organizational norms resulting in the mediation of emotional experience and communication e.g. about how emotions ought to be expressed or suppressed.

Summary of work: This paper is a case study of emotions in the trauma team using semi-structured qualitative interviews and participant and simple observations from the trauma ward.

Summary of results: Trauma team members are expected to deal with traumas in a professional and emotionally calm manner. When conflicts between team members occur they are handled outside the trauma room. The study identified two analytic categories: The intra-team level (between team members) and extra-team level (towards patient and patient's family).

Conclusions: Team training should supplement the traditional CRM communication principles with training in critical thinking and awareness of how emotional work is unevenly distributed in the team across professional disciplines, organizational norms and finally how interdisciplinary hierarchy organizes emotional work.

Take-home messages: Much team communication deals with emotions yet emotional communication is often overlooked in team training. Team emotional communication needs to be trained in interdisciplinary medical teams in order to produce effective teams.

10X5 Has five years of team training in non-technical skills improved trauma team performance in our University Hospital?

M Hultin*, H Hedberg, M Härgestam, T Söderström, M Thorstensson, C Brulin (1Umeå University, Depts of Surgical and Perioperative Sciences; 2Dept of Nursing; 3Dept of Education, Umeå, Sweden; 4Swedish Defense Research Agency (FOI), Linköping, Sweden)

Background: For five years our emergency ward has trained non-technical skills using trauma scenarios in a simulator environment. Reflection-on-action was accomplished by 60 minutes video-facilitated structured debriefing. The aim of this study was to explore whether teams trained in non-technical skills are more efficient in the management of severely wounded patients.

Summary of work: The standardized trauma patient scenario started with an ambulance crew being called to a location outside the hospital. Patient care was followed from the site of trauma, in the ambulance and in the emergency room. When the hand-over was finished, the condition was worsened. All ambulance crew and trauma team communication were recorded, synchronised in F-REX and key events time-logged. Nineteen teams with 144 participants were included in the study.

Summary of results: 56% of the participants had trained non-technical skills. 78% of those with non-technical skills training, and 62% of those without previous simulator based training, estimated themselves to have appropriate training for the task. The time from the induced worsened condition until the trauma team had assessed airways, breathing, circulation and disabilities were 74±39, 104±45, 172±85 and 223±194 s respectively. No significant effect on the medical performance on basis of previous training in non-technical skills could be detected. Further video analysis is required to more deeply understand the links between teamwork and medical performance.
Conclusions: Trauma team training in CRM principles improves the self-confidence in trauma teams, but not the medical performance.
Take-home messages: Improved non-technical skills might be difficult to translate into improvements in technical skills.

10X6 Crawl, walk, run: teaching clinical teamwork skills to pre-clinical students
I Shekhter*, J S Sanko, L F Rosen, D J Birnbach (University of Miami - Jackson Memorial Hospital Center for Patient Safety, Miami, FL, USA)

Background: It is important to expose medical students to simulation-based teamwork training before they start clinical rotations. However, their lack of medical knowledge and clinical skills presents a challenge in designing a simulation activity anchored to a clinical situation.

Summary of work: We designed a sequence of activities for incoming third-year medical students that culminate in a clinically anchored simulation experience. On the first day of a week-long patient safety course, to acclimate the students to the simulation environment, we set up a simulated patient room with purposely placed errors in the chart, physical setting, and on the patient. The students were asked to inspect this “room of horrors” and identify risks to the safety of the patient. On the second day, to illustrate basic teamwork skills, we asked teams of students to put together fifty-piece puzzles in a short period of time. This task required leadership, delegation of tasks and role clarity, situational awareness, and clear communication. Lastly, the students proceeded to a clinical simulation exercise where a team had to manage a rapidly deteriorating patient in respiratory distress, followed by debriefing.

Summary of results: The students were well prepared for simulation training and gave the curriculum high marks.

Conclusions: A low-key simulation activity and non-clinical team exercise enhance the effectiveness of simulation-based team training.
Take-home messages: Pre-clinical medical students need to be primed for simulation-based team training.

10X7 Trust: A key ingredient of interprofessional care – An interim analysis
C Yu*, H Halapy, R Wong (Keenan Research Centre in the Li Ka Shing Knowledge Institute of St. Michael’s Hospital, Toronto, Canada; Division of Endocrinology & Metabolism, St. Michael’s Hospital, Toronto, Canada; Faculty of Medicine, University of Toronto, Canada)

Background: While interprofessional collaboration can improve health outcomes, studies in diabetes care have been lacking. Little is known regarding how interprofessional education can foster interprofessional collaborative practice. Our objective was to develop, implement and evaluate a 2-year, multifaceted interprofessional outreach program on diabetes for interprofessional Family Health Teams (FHT).

Summary of work: We used Graham’s “Knowledge to Action” framework to design our intervention and study. We used mixed-methods to investigate factors affecting interprofessional learning and collaboration, and the impact of our intervention on interprofessional collaboration. Individual interviews were conducted; all interviews were audi-taped and field notes were kept of all sessions. Narrative analytic techniques were employed.

Summary of results: We piloted this program on 2 FHTs. Qualitative analysis was done mid-program on 8 interviews (3 physicians, 2 nurses, 1 dietician, 1 social worker and 1 pharmacist). Five themes impacting a clinician’s engagement with an interprofessional approach to care were identified: 1) trust in other health care providers; 2) perceptions of team engagement; 3) segregation of responsibilities; 4) power relationships; and 5) finances.

Conclusions: Perception of team member’s competence and being “on the same wavelength” contributed to trust, and were cited as crucial to enabling collaboration. While revision of professional roles was also highlighted, concerns regarding professional autonomy and financial impact were identified.
Take-home messages: Educational strategies that may promote collaboration include delivery of knowledge resources, trust-building exercises, assessment for common team mentality and revisiting responsibilities.

10X8 Perceptions of Academic Staffs of the Faculty of Medicine Universitas Indonesia on Interprofessional Education: Identification of Best Formats in Indonesian Context
Ardi Findyartini*, Dianta Soemantri (Department of Medical Education, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia)

Background: Interprofessional education (IPE) enables the development of teamwork skills among students; hence, facilitation of future health professionals collaboration. Despite the implementation of this approach in some countries, we argue that further adoption of this in Indonesia requires deliberate preparation in order to identify how IPE is best implemented. Research addressing how academic staff of the Faculty of Medicine Universitas Indonesia (FMUI) perceive the interprofessional education is therefore required.

Summary of work: This cross sectional study used the Indonesian version of Readiness for Interprofessional Learning Scale (RIPLS) which was further adjusted for
academic staff. All academic staff from 33 departments in FMUI were invited to participate by completing the 18 item questionnaire distributed on-line and off-line.

**Summary of results:** The preliminary result from current responses reveals that most academic staff have positive perceptions about IPE. The academic staff also suggest that the objectives of IPE should be well defined prior to determination of the best formats of implementation in FMUI.

**Conclusions:** Academic staff perceive the interprofessional education in most suitable forms will encourage students’ professional development, including communication and teamwork skills.

**Take-home messages:** Examination of academic staff’s perceptions on IPE can be facilitated by the administration of RIPLS – academic staff version. This step is deemed important prior to the implementation of IPE in the health professions education institution.

**10X9 How to achieve the development of a continuing inter-professional development strategy for community social pediatric professionals**

**Background:** Community social pediatric (CSP) relies on inter-professional collaboration, family network and “empowerment”. An innovative approach was implemented for developing a continuing inter-professional development (CID) strategy in this new field.

**Summary of work:** A strategy was developed integrating a vision, a mission, a goal and a plan of action that rely on a common base for all CSP professionals. A theoretical basis, core values, competencies, expected behaviors where identified and translated into a CID portfolio. The latter was used to develop a CID continuum concept.

**Summary of results:** The advantage of this approach is to have an integrated CID strategy based on the desired practice. It allows experts from various professions in this new field of CSP to agree on the same CID portfolio and to contribute to the implementation of a CID continuum concept that support and influence the training of physicians and other professionals.

**Conclusions:** A partnership between Médecins francophones du Canada and Fondation du Dr Julien, fostered the contribution of CSP experts to develop a strategic plan that translates in a CID continuum. It aims at facilitating expertise sharing, skills improvement and capacity building in the field of CPS for an inter-professional global practice based on the international convention on the rights of the child.

**10X10 Interprofessional Education For Better Health – Strategic Organization and Development**

**E Broberger**

**Background:** Karolinska Institutet, the only university in Sweden with a purely medical orientation offers more than 25 undergraduate and master programmes leading to professions in health care and medicine. Interprofessional education has been growing since 1998, when Clinical Training Centres and Clinical Trainings Wards were established at the four university hospitals in the Stockholm area. This development has been due to the work of pioneers and enthusiastic teachers and health care professionals.

**Summary of work:** The Board of Higher Education has taken a further strategic step in strengthening interprofessional education. The overall aim is to promote collaboration between students and teachers across study programmes and to prepare students to become competent members in future interprofessional teams providing high-quality and secure health care.

**Summary of results:** For this purpose, the Board of Higher Education has taken two major steps: (1) established a drafting committee with the commission to develop and implement interprofessional learning activities in all programmes; (2) founded Centre for Clinical Education with the purpose to develop interprofessional education in health care settings.

**Conclusions:** The aim of the presentation is to present the strategic organisation, actors involved and the methods for development, implementation and coordination of interprofessional education and learning at Karolinska Institutet.

**Take-home messages:** Strategic organization at university level promote Interprofessional development and implementation.
collaboration. The present study was undertaken to evaluate the validity of this tool.

**Summary of work:** We conducted 3-day interprofessional training practice (IPTP) in a local community. IPTP was conducted as follows. IPCAT is designed to clarify basic views and knowledge of individual students about interprofessional collaboration by presenting tasks of case assessment with a narrative approach. The responses to IPCAT were analyzed and evaluated by multiple teachers of varying specialties, and were finally scored for comparison and further analysis.

**Summary of results:** In the subsequent application of IPCAT to 24 students in 2 sessions (before and after IPTP), significant changes in data after IPTP from the pre-IPTP data were revealed.

**Conclusions:** The results of IPCAT in the present study indicate that students tend to become more careful in making judgments as they learn more about other professional fields. The finding of this tendency seems to reflect the capability of IPCAT to symbolize the views of students, because IPCAT is designed to illustrate the way of thinking by individual students in a certain direction.

**Take-home messages:** IPCAT is designed as a tool for hierarchical qualitative evaluation with a narrative approach, making use of case assessment.

**10X12 Implementation of multiprofessional training of teamwork and communication for undergraduate nursing and medical students**

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(Uppsala University Hospital, Clinical Skills Centre, Uppsala, Sweden)

**Background:** Traditionally, the curricula for undergraduate education programmes in nursing and medicine emphasise theoretical knowledge and practical skills. The importance of multiprofessional teamwork and non-technical skills for effective and safe work in health care is now increasingly recognised. The well established CRM concept (Crew Resource Management) deals with those non technical skills. However, multiprofessional training of non-technical skills is not yet an essential element of undergraduate health care studies.

**Summary of work:** The clinical skills centre at Akademiska sjukhuset and the medical faculty’s committee for undergraduate studies, Uppsala University, co-operated to introduce simulation-based teaching of teamwork and communication skills for all final year students of the nursing and medical undergraduate programmes. Coordinating two well-filled and established undergraduate curricula took one year of planning and many compromises.

**Summary of results:** During autumn 2011 58 medical students and 90 nursing students are scheduled for 19 fullscale simulator sessions a 3 hours in multiprofessional groups with 8 participants per group. After an introduction to, and discussion of, CRM theory all students will participate in two simulated scenarios with following debriefing. Training will be evaluated with questionnaire and group discussion.

**Conclusions:** It is possible to implement a new time and resource consuming multiprofessional training and coordinate two educational university programmes when working together and convinced by a concept.

**10X13 Interprofessional collaboration on an internal medicine ward: A qualitative study of role perceptions among nurses and doctors**

*V Juge*, *K S Blondon*, *S Cullati*, *P Hudelson*, *F Maotre*,  
*N V Vu*, *G L Savoldelli*, *M R Nendaz*  
(1 Unit of Development and Research in Medical Education (UDREM), Faculty of Medicine, University of Geneva, Switzerland; 2 Division of General Internal Medicine, University Hospitals, Geneva, Switzerland; 3 Quality of Care Service, University Hospitals, Geneva, Switzerland)

**Background:** Interprofessional collaboration between doctors and nurses contributes to the quality of teamwork and patient care. This collaboration depends on shared perceptions of each team member’s role. The aim of this study was to describe and compare doctors’ and nurses’ perceptions and expectations of one another’s roles, in general and in situations of interprofessional collaboration.

**Summary of work:** Study participants included volunteer residents (16) and nurses (16) of the General Internal Medicine Division at the Geneva University Hospitals. We conducted individual interviews to determine participants’ perceptions of doctors’ and nurses’ professional roles. Additionally, a written questionnaire was administered to the participants, which explored their reciprocal role perceptions in 10 clinical vignettes. Transcripts were analyzed according to grounded theory and thematic analysis.

**Summary of results:** Preliminary results suggest the presence of a gap between nurses’ and doctors’ perceptions and expectations of one another’s roles. There was a mutual lack of understanding about the specificities of each profession. Such representations may influence the quality of their collaboration and affect patient management.

**Conclusions:** Doctors and nurses lack shared notions of interprofessional collaboration.

**Take-home messages:** Doctors and nurses understand and conceptualize each other’s roles differently. Interprofessional training initiatives should foster a shared vision of interprofessional collaboration and understanding of each other’s roles and responsibilities.
**10X14 A model for interprofessional primary care oral health training**  
*J Bowser, M Deutchman, B Potter, A Glicken*  
(University of Colorado, Anschutz Medical Campus, Aurora, Colorado, USA)

**Background:** The burden of oral diseases and disorders is significant and yet little time is devoted to these topics in medical education and practice. Dental caries is the single most common chronic childhood disease. Periodontal and gingival diseases are common in adults. Striking disparities in dental disease, by income and other measures, exist in children and adults. We engaged in an interprofessional oral health workshop involving physician assistant (PA) students and dental students.

**Summary of work:** An interprofessional lab experience supplemented an introductory lecture, pairing PA students with dental students. Students performed exams and fluoride varnish application on each other under the supervision of the dental students. Pre and Post surveys assessed student knowledge and attitudes about interprofessional training and the role of oral health in primary care.

**Summary of results:** The first year of descriptive data indicates this experience improved student knowledge of oral pathophysiology and the oral-systemic connection, oral examination skills, and understanding of the role of primary care in the provision of oral health.

**Conclusions:** Primary care providers are well positioned to educate and motivate patients to take preventive steps to minimize oral disease. An interprofessional experience in oral health training is an effective strategy for teaching these skills.

**Take-home messages:** Oral health can be easily and effectively integrated into a medical curriculum and our dental colleagues can play a valuable role in this process.

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**10X15 Medical and nursing students working together – making teamwork alive**  
*L Salminen*¹, *H-M Leino*², *P Kääpä*² (¹University of Turku, Faculty of Medicine, Department of Nursing Science, Turku, Finland; ²University of Turku, Faculty of Medicine, Medical Education Research and Development Centre, Turku, Finland)

**Background:** Care of patients is teamwork between different health professionals. In teamwork the ability for cooperation, positive attitudes, appreciation and understanding of the other professions are emphasised.

**Summary of work:** The purpose of this study is to evaluate medical and nursing students’ teamwork skills during a clinical training period and to describe the experiences of the students themselves, their clinical teachers and patients. The data were collected by a pre- and post-training questionnaire from the students and by interviewing the students, clinical teachers and their patients after the training period.

**Summary of results:** The preliminary results showed that students evaluated their own teamwork skills as good both initially and after the exercise. The duration of the training, a two-week period, was considered too short. Clinical teachers noticed that communication between team members improved during clinical training. Patients described the discussions with students of the teams useful.

**Conclusions:** Our data show that multiprofessional teamwork increases collaboration and communication between medical and nursing students. Appreciation of members of the other professions may be reflected in improved patient care.

**Take-home messages:** Teamworking skills should be taught and learned already during the basic studies.

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**10X16 Jornada Universitária da Saúde: a model for community work based on transdisciplinary action by undergraduate health professionals**  
*A K M Mourão*, *G H Risso*, *S S A Gannam*, *M P T Nunes*  
(School of Medicine, Universidade de Sao Paulo, General Clinics Department, Sao Paulo, Brazil)

**Background:** Our university’s extension activity combines theory, practice and research, establishing a dynamic link between university and society. Jornada Universitária da Saúde (JUS), a transdisciplinary project, was born by student initiative to return to society the public investments in their professional educational.

**Summary of work:** Over three consecutive years, 70 undergraduate students from Nursing, Medicine, Physiotherapy, Nutrition and Speech and Occupational TherapiesSchools worked under academic supervision and active local participation in order to identify problems and develop interventions for a specific community.

**Summary of results:** Focusing on health promotion and education, JUS created work-teams to attend the community specific needs and to contribute to local initiatives. Based on past JUS experiences and both epidemiological and field research with local representatives and the community, six interdisciplinary work-teams were created: Children, Teenagers, Populations at Risk (pregnant, elderly, mental or physical disabled), Rural Labors, Home Visit and HealthCare Institutions Support.

**Conclusions:** JUS brought early interdisciplinary practice linked to sociocultural aspects to students, allowing them practical knowledge application in elaborating sustainable projects. It empowered community to seek solutions for their own issues.
Take-home messages: JUS led students to identify patients and community needs liked to their sociocultural context and developed interdisciplinary teamwork skills.

10X17 Development of an inter-professional educational course utilising virtual patients and practical skills training for advanced pediatric emergency training: Step II – pilot study of course design
R Lehmann*, F Stute, M Hornberger, A Simon, M Haag, J Meyburg, K Tegtmeyer, B Tänshoff, G F Hoffmann, S Huwendiek (Center for Child and Adolescent Medicine, Department for General Pediatrics, Heidelberg, Germany)

Background: Pediatric emergency care presents a unique challenge. There are indications where significant deficiencies and uncertainties can arise even during emergency care provided by health care professionals. The Heidelberg Center for Child and Adolescent Medicine is developing an inter-professional blended learning concept, consisting of Virtual Patients, online discussions, and practical training for physicians and nursing staff. In contrast to student training there is little data concerning the use of blended learning in continuing medical education, particularly inter-professional training.

Summary of work: The development of the project is based on the 6-Step Approach by Kern et al. for developing medical curricula. Last year we presented the needs assessment of our targeted learner groups at AMEE 2010. As a result of this, we will present the development of the first virtual patient case (CPR) and hospital-specific treatment guidelines.

Summary of results: A pilot study will be presented at the conference.

Conclusions: While physicians reported a greater need for increased training concerning procedures and algorithms than did the nursing staff, the latter placed greater value on improving team communication. This is influencing the development of our first course module that we will evaluate.

Take-home messages: Blended learning as an integrated teaching concept combining e-Learning and practical training seems a worthwhile concept, which allows for optimal individual preparation and practical training in teams.

10X18 How do medical and nursing students perceive each others’ professions, and how much does interprofessional education influence these views?
J Krepski*1, C Woolf2, C S Baker1 (1Barts and the London School of Medicine and Dentistry, Centre for Medical Education, London, UK; 2City University, Department of Language and Communication Sciences, London, UK)

Background: Students from the health professions can have stereotypical views of one another. Interprofessional education (IPE) has the potential to change attitudes and perceptions by countering prejudices and stereotypes. The aim of this study is to discover whether IPE is able to change these views and if so why.

Summary of work: In 2007/2008, first year graduate medical and nursing students participating in an IPE course completed a Role Perception Questionnaire (S Mackay, 2004) at the start and end of the year. This was to gauge their views of doctors and nurses roles and allowed any changes to become evident. In 2010/2011, first year students were enrolled into focus groups, to get an in depth view of their beliefs and if they changed through the year. Students from the 2007/2008 cohort were not enrolled due to practicality and the difficulty they would’ve had reflecting accurately on their first year. Course leads were interviewed to determine how the course was designed and what changes were made between 2008-2011. Questionnaire data was statistically analysed. Interviews and focus groups were qualitatively analysed.

Summary of results: Study is still running and results will be presented at the conference.

Take-home messages: The conclusions derived will be of interest to those implementing and designing IPE courses.

10X19 Medical students’ and medical educators’ perceptions of interprofessional education
GMJUB Salam*2, C Woolf1 (1Barts and the London School of Medicine and Dentistry, Medical Education, London, UK; 2School of Community & Health Sciences, City University London, UK)

Background: Collaboration between healthcare professionals is integral to health care. Interprofessional education (IPE) may increase awareness of the roles that different health professionals fulfil. Students are intended to develop awareness of other roles in the healthcare team leading to a more holistic implementation of medical care. The perceptions that students hold about IPE may impact on the success of IPE within the medical curriculum. This project explored views of students and medical educators towards IPE.

Summary of work: Focus groups were conducted with MBBS year 2 and 3 students. Semi-structured interviews were conducted with academic staff involved in teaching IPE. Topics included...
understandings and perceptions of IPE, experiences of IPE, and suggestions for improvement. **Summary of results:** The project is ongoing. Results will illuminate perceptions of medical students and teaching staff regarding IPE and recommendations for curriculum development. **Conclusions:** This study will help educators and curriculum designers understand the views of students about IPE, how IPE is viewed in the medical curriculum through its implementation and delivery, and will suggest improvements to the IPE component.

**10Y1 Posters: Communication Skills / Patient Safety**

**10Y1 Closing the gaps between traditional and patient-centered history taking**

*S Gannam*, D Ballester* (University Hospital, Department of Pediatrics, School of Medicine, Universidade de Sao Paulo, Brazil)

**Background:** Our school's current curriculum strongly favors traditional history taking over patient-centered communication skills. Aiming to change this, a communication skills training was incorporated to the Pediatric Propaedeutic Course. **Summary of work:** The communication skills training was fully integrated with the biomedical content. It consisted of small group discussions and practical activities. Some students were video-recorded performing a consultation while others observed them using a guide based on the Calgary-Cambridge framework. A trained teacher gave feedback. The course was evaluated through a semi-structured questionnaire and students were assessed through their observations. **Summary of results:** Initially, students couldn’t identify the structure of the consultation, nor the communication skills involved and misunderstood concepts. By the end of the course, they could describe both the process and skills involved and concepts seemed clearer. They reported that the course promoted reflection, led to the recognition of difficulties and strengths in history taking, discussed the doctor-child-family relationship and showed practical ways to improve history taking. **Conclusions:** The current experience achieved its purpose of integrating patient-centered communication skills with traditional history taking and was accepted by students. **Take-home messages:** Despite all difficulties, communication skills can be fully integrated to traditional history taking training.

**10Y2 Communication gaps in teaching pediatric outpatient scenario: A qualitative analysis**

*R Sukienik*, R Halpern, V H Moura, V Bolella (Universidade Federal de Ciências da Saúde de Porto Alegre, Pediatric Department, Porto Alegre RS, Brazil)

**Background:** A method frequently used with interns and residents is the one where the student sees the patient alone, discusses with the preceptor and returns to describe the patient and suggest management strategies. People who advocate this approach highlight the advantage of giving the intern the opportunity to practice “being a doctor”. There is a potential risk of losing necessary information during the transition process. **Summary of work:** We studied 10 outpatient consultations in a pediatric university hospital, where preceptor/student encounters were videotaped and, specifically, the moment when the student concluded the consultation with the family. The data were complemented by an immediate exit interview with family members to check their understanding about the therapeutic plan. Later, a pediatrician independently assessed the encounters to evaluate whether the recommendations generated by the preceptor had been transmitted integrally to the family. **Summary of results:** There was a break in the communication in 8 out of 10 consultations. The information lost occurred at least in one of three different moments during the communication process. **Conclusions:** The study reveals that this teaching method, when used, should be carefully monitored to ensure the effectiveness of communication process. This can lead to a better educational experience and, ultimately, higher quality patient care. **Take-home messages:** The education experience must be focus on assistant care.

**10Y3 Using SBAR to improve confidence in clinical communication amongst medical students**

*R Ahmed*¹, I Ahmed*¹, N Ahmed*¹, S Amin*², H Graham*² (¹London, UK; ²King's College London, School of Medicine (KCLSoM), London, UK)

**Background:** Effective communication between healthcare professionals is vital to patient safety and care, particularly in emergency situations. The standardised communication tool, SBAR (situation, background, assessment, and recommendation) is a concise and informative model for the communication of important clinical information. Research has shown its versatility of use in clinical situations, including patient handovers [2], surgical management [3], and in general medicine. Previous studies have found SBAR to be an effective training tool amongst nursing students [4,5]. This study evaluated undergraduate medical students on their performance using SBAR and whether
they would benefit from structured teaching sessions in using this tool.

**Summary of work:** 25 fourth-year medical students took part in the study. The group participated in a 40 min didactic session about the SBAR communication tool. Following the session, each student participated in a mock clinical scenario. During the scenario, one student was given a vignette with the clinical details of an unwell patient, they were then asked to make a telephone referral to a senior clinician requesting a review. Communication was scored using a standardised mark scheme based on SBAR by their peers. Group discussions were held before and after the teaching sessions to gauge participants’ confidence in taking part in handover.

**10Y4 ‘Students as actors’: an innovative use of role-play teaching**

_S Malappa*, J Wright, N Patani, J Pitkin, R Soobrah (Northwick Park Hospital, Undergraduate Department, London, UK)_

**Background:** The majority of UK medical schools use simulated patients in training and assessment. Traditionally, role-play focuses on students’ communication skills. We aimed to evaluate the use of our role-play method to expand students’ clinical knowledge and improve their history-taking skills.

**Summary of work:** Over 9-weeks, 42 third-year students participated in role-play teaching sessions supervised by experienced tutors. Students created their own scenarios and acted as patients presenting with common medical conditions; their peers performed the history-taking. Feedback questionnaires were distributed post-attachment.

**Summary of results:** All students found the scenarios realistic and believable. 98% agreed that playing the role of the ‘patient’ increased their understanding of clinical symptoms and disease presentation and learnt from watching their peers perform. Most students (98%) found that the debrief sessions enhanced their clinical knowledge. All students agreed that these sessions were a useful addition to learning from ‘real’ patients and had improved their confidence before sitting their clinical exam.

**Conclusions:** ‘Students as actors’ is beneficial as it encourages active participation and improves their clinical knowledge. Moreover, students improve their communication skills, learn from the performance of their peers and experience what it is to be a patient.

**Take-home messages:** This innovative use of role-play teaching enhances both clinical knowledge and history-taking skills.

**10Y5 Communication skills training of postgraduate physicians assessed by video analysis (RIAS): Results of a randomized control trial**

_J Juenger*, J Spang, N Ringel, U Riemann, JH Schultz, W Langewitz, B Buermann (Department of General Internal and Psychosomatic Medicine, University Hospital Heidelberg, Im Neuenheimer Feld 410, 69120 Heidelberg, Germany)_

**Background:** The importance of physician-patient communication has been well established and there is growing acceptance to teach and assess communication skills in medical schools. However, studies assessing the acceptance and effects of communication skills training for hospital physicians are mostly lacking; outcomes reported so far have been non-conclusive. To further investigate the effectiveness of a communication skills training for practicing physicians, we developed a training based upon participants’ needs assessment using focus groups.

**Summary of work:** 40 physicians (20 f, 20 m; age M=33.6, SD=6.74) were randomized in an intervention and a waiting control group using professional and demographic characteristics as stratification variables. The intervention group participated in a 3-day communication skills training, featuring a ward round with simulated patients and nurses and individual coaching sessions. Consultations were videotaped at baseline and after the intervention to analyze communication skills using the Roter Interaction Analysis System (RIAS).

**Summary of results:** RIAS analysis showed a significant improvement in the training group concerning patient-centered communication (M=65.81, SD=47.75 to M=71.33*, SD=29.19, p <.05), increased empathic response (M=.21, SD=.66 zu M=.85*, SD=2.28, p <.05) and the structuring of the physician-patient encounter (agenda M=.08, SD = .35 to M=1.59*, SD=2.81, p <.05).

**Conclusions:** A 3-day intervention for postgraduate physicians can significantly improve patient-centered communication.

**10Y6 University of Zagreb School of Medicine**

Longitudinal Course in Communication Skills

_N Cikes*, G Pavlekovic, S Seiwerth, D Milicic (University of Zagreb School of Medicine, Zagreb, Croatia)_

**Background:** Effective, clear and sensitive communication with patients, relatives, colleagues and other professionals is the essential physician skill. Since formal training in communication skills is required, we introduced a longitudinal undergraduate course that will allow students to start with basic skills and continue along the 6-year study programme practicing specific communication contents related to clinical subjects.

**Summary of work:** Teachers from various departments were invited to participate in the course formulation. After the content of the course for each academic year
was defined, the teachers were assigned to prepare the course materials for the selected topics. The proposals were evaluated in the context of the integral study concept and accepted after discussion.

**Summary of results:** The course design comprises basic communication skills in the first, conducting a medical interview in the second, obtaining informed consent in the third year of study, etc. Specific clinical communication contents associated with relevant clinical subjects are offered in the later study years. Teaching and assessment methods are defined; all younger teaching staff will be educated and included.

**Conclusions:** By integrating communications skills throughout the 6-year curriculum, their practical application in specific clinical situations will be ensured.

**Take-home messages:** Training communication skills should be continuous and progressive, related to specific clinical subjects.

**10Y7 Student reflections on emotions concerning breaking bad news**

A Toivonen*, E Pyörälä (University of Helsinki, Faculty of Medicine, Research and Development Unit for Medical Education, P.O. Box 63, Helsinki 00014, Finland)

**Background:** Breaking bad news (BBN) is an essential communication skill in medicine. It is an integral part of a communication skills course in the 4th study year at the University of Helsinki. In 2010 students reflected a case of BBN in a web-based learning assignment.

**Summary of work:** Students were asked to reflect on and write a description of how they felt about the BBN case. Answers of 117 students who agreed to take part in research were analyzed.

**Summary of results:** The preliminary analysis shows that most of the students reported feeling compassionate but there were differences in their ways of reflecting their emotions. BBN seemed to be an agonizing and unpredictable experience. Students expressed to be unsure about the patient reactions and the reactions of their own. Students reported feeling fear of losing the connection to the patient.

**Conclusions:** BBN is an emotional event to both the patient and the caregiver. It is important to elicit what the students think and feel about delivering difficult diagnosis to patients.

**Take-home messages:** Gaining understanding about students' reflections of BBN is valuable for further development of the communication skill studies.

**10Y8 Video-based analysis of questioning technique during medical classes: perception vs. reality**

S Lee*1,2, Y H Cho2, S J Im1, S Y Baek1, B S Gam2

1School of Medicine; 2Family Medicine Clinic, Pusan National University Yangsan Hospital, Yangsan, South Korea)

**Background:** The aim of this study is to compare the observational data to teachers’ awareness of the questioning technique during medical classes and to investigate students’ responses about the technique.

**Summary of work:** Perceptions data were collected with self-questionnaire for faculties (n=33) and the second year students (n=100). Recorded video tapes were used for observing teachers’ questioning skills during the second semester, 2008.

**Summary of results:** The majority of the teachers utilized some sort of questioning skills in 74.7% of total lectures, preferred open questions, agreed the importance of questioning, and also showed positive opinions to the effect of questioning. They perceived that their usual wait-time is about 10 seconds compared to only 2.5 seconds on video analysis. More lecture-experienced teachers tended to ask more questions in a class. Most students agreed that questioning was useful to maintain classroom control, motivate students to pay attention, and provide repetition.

**Conclusions:** There were some discrepancies regarding using questioning technique between the teachers’ perceptions and reality, although both teachers and students show positive opinions using the technique. Therefore questioning skills during a lecture must be emphasized to teachers.

**Take-home messages:** Questioning skills needs to be improved by about 10 seconds wait-time.

**10Y9 Structured Communication to avoid mistakes – TeamTimeOut in a Swiss clinic**

M Henninger*, A Bucher*, A Kutter (University of Education Weingarten, Media and Education Management, Weingarten, Germany)

**Background:** Communications breakdowns are one of the most common cause for medical errors in the operation room. Improving communication can focus a) on individual skills using communication trainings, b) on team training using simulation bases approaches or c) implementation of structured interventions like for example checklists to make communication more coherent and manageable.

**Summary of work:** Team time out (TTO) as a structured method to improve communication between members of surgical teams is addressed in our study. We investigated the method team time out implemented in a Swiss clinic by interviewing OR team members with a semi structured interview in a field study design.

**Summary of results:** The participants of our study accept the relevance of communication as a factor for medical quality. They see TTO as a useful tool for
improving communication in the OR but only if TTO is implemented in the full WHO format. Related to the question whether TTO has impacts on team structure and hierarchy the participants see a positive potential of TTO too.

**Conclusions:** Condensed the results show the subjective benefit of TTO as a useful tool for improving communication.

**10Y10** Comparative study of opinions of patients, clinical students and clinical faculty members of Babol University of Medical Sciences on patient-centeredness, using PPOS

I Jahanian*, A Mirzaadeh, F Shohi, S Jafari, E Krupat (1Babol university of Medical Sciences, Education Development Center (EDC), Iran; 2Tehran University of Medical Sciences, Education Development Center (EDC), Iran)

**Background:** Doctors' communication abilities are associated with outcomes of medical care such as satisfaction and compliance. According to various studies, two styles of practice are observed: patient-centered and doctor-centered.

**Summary of work:** This analytical study was performed cross-sectionally in our teaching hospitals. We randomly selected 216 patients, clinical students and clinical faculty members. We utilized the Patient-Practitioner Orientation Scale (PPOS), a validated instrument to measure individual preferences towards various aspects of the doctor-patient relationship.

**Summary of results:** Mean caring score of faculty members was 3.72, sharing was 3.10 and total was 3.41. Mean caring score of students was 3.75, sharing was 3.09 and total was 3.42. Mean caring score of patients was 3.87, sharing was 3.45 and total was 3.66. Faculty members and students showed no significant difference in caring (P-value=0.973), sharing (P-value=0.960) and total scores (P-value=0.979). Faculty members and patients showed significant difference in sharing (P-value=0.006) and total scores (P-value=0.008) but not in caring (P-value=0.068). Students and patients showed significant difference in sharing (P-value=0.006) and total scores (P-value=0.009) but not in caring (P-value=0.082).

**Conclusions:** According to this study, the need for curricula that foster patient-centered attitudes among medical students through doctor-patient communication course is emphasized. Our data suggest that such workshops should be programmed for clinical faculty members, too.

**10Y11** Medical Students' Experiences and Attitudes towards Unofficial Interpretation

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**Background:** Language barriers are an issue in medical care around the world. Inadequate training in interpreter skills can undermine the doctor-patient consultation.

**Summary of work:** A 12 item online questionnaire was sent to medical students in the final two clinical years of the MBBS programs. Our survey aimed to investigate whether medical students or others have been used as 'unofficial' interpreters. Students' attitudes towards this practice were also explored, as well as the languages spoken by them.

**Summary of results:** A total of 117 students completed the questionnaire. The survey identified that 33 students had acted as 'unofficial' interpreters using a wide variety of languages, with 15.8% feeling uncomfortable. Students observed 261 instances of 'unofficial' interpretations, worryingly 38 cases involved children as interpreters. Qualitative responses identified many potential issues in accuracy and ethics.

**Conclusions:** Students and other untrained individuals are acting as 'unofficial' interpreters. This survey sheds light on the variety of opinions towards this practice in our student body, and a lack of awareness of best practice in clinical settings.

**Take-home messages:** This unmonitored 'unofficial' interpretation can have huge implications for patient care and safety. However, regulating and utilising the untapped resource of students' multi-lingualism can provide educational opportunities for students and staff, and may improve patient care.
Conclusions: Very few communication assessment instruments in medical education focus on gender. Interest exists in using gender in communication assessment. Gender criteria are yet to be developed.

Take-home messages: Gender is increasingly regarded as a domain in doctor-patient communication. Communications skills assessment instruments’ potential may be improved by clarifying gender sensitive behavior for example by developing gender criteria.

10Y13 ‘Wall-to-Wall’ versus ‘Exemplary’ Counseling - Findings from an Action Research in Denmark
Linda Kragelund (The National Centre of Competence Development, Aarhus University, Copenhagen, Denmark)

Background: The Action Research Project 'Development of Regional Psychiatric Institutions as Learning Environments' addresses staffing problems in the field of psychiatry. It is run with the National Centre of Competence Development and regional psychiatric institutions around Denmark.

Summary of work: The project involves 100 nurses who are mentors for student nurses, 13 education coordinators and a researcher, who is me. The project has four phases: 1) uncovering problems; 2) planning and implementing the action; 3) conducting qualitative content analysis of data; and finally, 4) evaluating the consequences of the project in relation to the development of regional psychiatric institutions as learning environments. Data is generated by the mentors in two focus group interviews, logbooks about their practice, and their observations of each other’s practice. Qualitative content analysis will be applied to the data.

Summary of results: The focus of this paper is primarily on the findings from mentors' observations of their peers’ counselling practice. The counselling approach of Lauves and Handal has been adopted. Our findings indicate that mentors prefer to offer counselling after the fact rather than before or during, and that they prefer 'wall-to-wall' rather than 'exemplary' mentoring.

Conclusions: There is potential for mentors to develop their counselling competence in relation to: the 'counselling loop'; the 'counselling document'; 'Sitting next to Nanny'; and 'exemplary' counselling.

Take-home messages: Reorganising mentors’ schedules in terms of counselling sessions (so that more time is used on pre-counselling and 'Sitting next to Nanny' and less on post-counselling) will optimise student nurses' learning opportunities, during their clinical placement in psychiatry.

10Y14 Sincere Personal Attention in Clinical Practice can Reduce the Number of Medical Errors

Dorothé Vessies*, John Wiering* (University Medical Center Groningen, Groningen, The Netherlands)

Background: In peer-supervision we note that physicians suffer the absence of personal attention and empathy from colleagues. We state that the culture of rationalism in the medical setting causes an increase of errors.

Summary of work: We are writing an article on this subject.

Summary of results: E. Dror (1999) explains that making errors is part of the human brain. It is unavoidable and so it is for professionals. He also states that the human brain functions worse under pressure. Physicians work under high pressure, which is partly due to their way of interacting. Physicians claim to interact rational. Communicating pure rational however is impossible; (Watzlawick). Denying the emotional impact of physicians work and especially the impact of making errors, increases stress among doctors, which in turn increases the risk of making more errors.

Conclusions: Measures to lower the amount of medical errors of course are necessary. But measures alone do not seem adequate. It would help a lot to change the way of dealing with medical errors.

Take-home messages: Discuss the culture of dealing with medical errors and the impact of that culture on the number of medical errors. Discuss the value of giving emotional support to each other in case of medical errors.

10Y15 Adoption of storytelling approach in patient safety education on procedural sedation during endoscopic interventions
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Background: Safety of procedural sedation is an important aspect in endoscopic interventions. An educational project was needed to raise departmental awareness.

Summary of work: Patient safety officers developed a presentation material describing critical points of sedation in Kamishibai-style, traditional storytelling in Japan, based on PowerPoint slides with original illustrations and a vocal script. A safety leader in gastroenterology joined to develop a course comprising of five components; (1) presentation of an experienced case, (2) Kamishibai presentation, (3) brief didactic lecture emphasizing the critical points and available resources, (4) a questionnaire on current practice, and (5) course evaluation.
**Summary of results:** 55 gastroenterologists attended the course. 55 (100%) evaluated the course useful to realize the significance of sedation safety and for safer practice. 51 (93%) wished to participate in similar courses again. No serious sedation-related endoscopic incidents were reported in 2010 (post-course) over two in 2009 (pre-course).

**Conclusions:** Combining Kamishibai-style and factual storytelling is a good challenge to reinforce organizational memory and to facilitate mental and behavioral change of individuals in patient safety education. Provision of materials reflecting clinical environments and support in course planning can help departmental leaders educate the staff.

**Take-home messages:** The integration of Kamishibai-style and factual storytelling for patient safety can be useful and tailored to the needs of departments under limited resources.

10Y16 **Refusal in Reporting Medication Errors from the Viewpoints of Nursing Students in Kermanshah University of Medical Sciences**

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**Background:** Reporting medication errors leads to saving patients' wellbeing and safety and also is counted as a valuable information source for preventing further mistakes in future. The aim of this study was to determine the causes for refusing to report medication errors from the viewpoints of nursing students.

**Summary of work:** All nursing students of Kermanshah University of Medical Sciences were selected to participate in this descriptive cross-sectional study in 2010. Data was collected by the two-part questionnaire after reliability and validity were proved. Data was analyzed by SPSS software.

**Summary of results:** Among all causes under investigation, "fear from reporting consequences" had the highest score among all. From 10 existing items in the domain of "fear from reporting consequences", "fear from evaluation score", and "academic consequences" (78% and 77%), were main causes for refusing to report medication errors. Among 4 items in the Domain of "administrative factors", students had most agreement (71%) with the item of "lack of appropriate feedback following reporting medication fault".

**Conclusions:** Some medication errors are not reported by the students and fear from reporting consequences and administrative factors are two main factors for refusing to report medication errors in nursing students.

With regard to the fact that reporting medication errors could enhance the patients' immunity, nursing instructors should react positively towards the reports of medication errors by nursing students.

10Y17 **Survey prevalence and type of medication errors of nursing students in Kermanshah University of Medical Sciences**

*P Abbasi*, *M Timareh*, *S H Iranfar* (Kermanshah University of Medical Sciences, Kermanshah, Iran)

**Background:** Faculty concentrate on teaching nursing students about safe medication administration practices and on challenging them to develop skills for calculating drug dose and intravenous flow rate problems. In spite of these efforts, students make medication errors and little is known about the attributes of these errors. Therefore, we conducted the study to determine prevalence and type of medication errors of nursing students in Kermanshah University of Medical Sciences.

**Summary of work:** All nursing students of Kermanshah University of Medical Sciences were selected to participate in this descriptive cross-sectional study in 2010. Data was collected by the two-part questionnaire after reliability and validity were proved. Data was analyzed by SPSS software.

**Summary of results:** 44.6% of students made medication mistakes that in most cases (34.9%) occurred once. The majority of errors (11.4%) were in the intravenous infusion speed. Cause of errors respectively (10.8% and 9%) were lack of attention to dosage recorded in cardex and stress of implementing medication orders. Most mistakes had occurred in the medical ward (19.3%).

**Conclusions:** With regard to high levels of medication errors and causes of them in nursing students, clinical training programs should pay more attention to environmental conditions and the process of implementing medication.

10Y18 **Impact of medical education in a foreign language on the communication skills of students in their native language**

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**Background:** Previous studies have shown that non-native English-speaking medical students have difficulties in their oral examination. However, whenever students receive medical education in a foreign language, this might affect their communication skills in their native language.
Summary of work: Twenty four second year medical students participated in two consecutive OSCE counseling stations in English and native language. Students’ scores and SPs’ evaluation of the communication skills were compared between the stations of different languages. Also, students completed a questionnaire about the difficulties encountered while communicating with SPs or real patients in their native language and if they encourage introduction of medical terms syllabus in native language.

Summary of results: Students’ scores on knowledge were similar in native and English language stations (11.5±2 and 12.2±1.3 respectively, P=0.14). Communication skills were significantly lower in the native vs English language station (3.3±0.6 and 4.5±0.6, P<0.001). Sixty two percent of students perceived moderate difficulty while communicating in native language with SPs and real patients. Hundred percent encouraged introduction of medical terms lexicon in native language.

Conclusions: Medical education in foreign language can cause difficulties in communication skills in native language and hence, the introduction in the preclinical curriculum of medical terms lexicon in native language might be beneficial.

10Y19 Impact of early Clinical Skills Training and GPA on the Performance of Third Year Medical students of Ross University

D Sharma, Rhonda McIntyre*, A Williams, P Rickett (Ross University School of Medicine, Picard, Dominica)

Background: The Advanced Introduction to Clinical Medicine department conducts end of semester clinical exams which includes an interview of a standardized patient. History taking training at Ross University is started from the first semester and evaluated by summative examinations. This study examines the correlation for students performing well in the earlier skills training and third year performance along with their GPA.

Summary of work: A review of 158 3rd year student performances in the history taking examination and the correlation with earlier skills examination and GPA was done.

Summary of results: There was only a weak positive correlation for the performance of the high scoring students with a high performance in the earlier semesters. The correlation for the students GPA and performance in the final third year exam was also only weakly positive. Only 58 (36%) of the students received a score of 80 and above in the final 3rd year examination.

Conclusions: While earlier training in history taking was helpful, 3rd year Ross University students require additional training to be better prepared for the clinical skills USMLE step 2 exam. Third year medical students should also be assessed at the beginning of the 5th semester and additional training be provided throughout the semester.

Take-home messages: Interview skills training should continue in the advanced clinical years.

10Z Posters: Simulated Patients / Simulation

10Z1 Effects of a Standardized Patient based Training on the Performance of 4th Year Students during a Preoperative Clinical Evaluation: A Rater Blinded RCT

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Background: Does one 30 minutes teaching sequence given by standardized patient improve the performance of 4th year medical students in a preoperative clinical evaluation with real patients?

Summary of work: With written informed consent 136 students were randomized either to the control (n=66) or the intervention group (n=70). Intervention: each student was individually trained by a standardized patient (SP) for 30 Minutes. Anaesthesiologists assessed students’ preoperative clinical evaluations on real patients with an adapted mini-cex. T-test compared test scores and effect size (Cohen’s d) was computed.

Summary of results: Students in the intervention group (n=70) scored significantly higher compared to control (n=66) regarding their overall impression scores (8.8±0.8 SD vs. 8.3±0.9 SD, p=0.002; effect size: 0.56). They gained also higher scores than the control group with respect to the following aspects: history taking (8.6±1.0 vs. 8.2±1.0, p=0.020), physical examination (8.8±1.1 vs. 8.4±1.3, p=0.113), communication of perioperative management (8.1±1.4 vs. 7.8±1.5, p=0.418), assessment and classification (8.8±1.1 vs. 8.3±1.3, p=0.050), organisation and efficiency (8.5±1.3 vs. 7.9±1.2, p=0.019) and professional behaviour (9.2±0.9 vs. 8.8±1.1, p=0.022).

Conclusions: A single encounter with trained SP improves the performance of students in preoperative clinical evaluation. Remarkably one 30 minute teaching sequence of a non physician revealed a medium effect size on the overall impression.

10Z2 Attitudes and satisfaction of standardized patients participating in large scale OSCE for licensing in Thailand
Background: In 2010, the Council for Medical Accreditation of Thailand conducted 3 OSCEs for 2,172 medical graduates. In order to do so, about 400 standardized patients (SPs) were required.

Summary of work: At the end of the examination days, standardized patients (SPs) were required. In order to do so, about 400 medical graduates. In order to do so, about 400

Summary of results: The respondents consisted of 162 males, 172 females and 9 another sex. Most of them (84.6%) were medical school personnel and 73.6% had experience in being SPs in their institutes. Majority (68.5%) of them wanted to contribute to the universities/country. Other less important reasons were the enjoyment in acting and the payment. Their satisfactions in each aspect were: 98.1% with the administration, 91.7% with time spent in rehearsing, 98.6% with their trainers. They learned from the trainers (98.6%), among their groups (95.9%), from the group meeting with examiners just before the examination (96.5%) resulting in 99.2% confidence in their own capability and 97.8% in their peers’. After the examination, 90.4% were confident in Thai medical standards and 98.1% were willing to be SP again.

Conclusions: Improvement of SPs’ engagement can be done using this information.

Take-home messages: Good administration and care will engage SPs and improve their performance.

10Z3 Views and Perceptions of ‘Patients As Educators’ on their role within medical education at the Sheffield Medical School

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Background: Providing medical students with adequate real patient exposure is a challenge. Sheffield has an extensive ‘Patients As Educators’ (PAE) programme, with 715 volunteers engaged in a range of medical education activities. This study reports their views and perceptions.

Summary of work: Following a literature review and initial focus group, a questionnaire was developed and posted to 715 PAE’s. Domains included: activities undertaken, reasons for involvement, training, student interactions and professionalism. Response options included likert scales, ordering and free text.

Summary of results: The response rate was 61%. Length of involvement ranged from <1 to >6 years (mode 3-4yrs). 70% engaged in a range of activities. 66% felt strongly that participation brought the patient perspective into medical education and that they were giving something back to the NHS (67%). Responses to training were mixed, depending on the activity. The highest response relating to patient care was ‘being treated as an individual’ (78%). Student interactions were rated as excellent (52%) or very good (40%) with students eager to learn (67%). With regard to professional behaviour, respecting patients needs and privacy was highest, followed by effective communication skills and good interpersonal skills.

Conclusions: The PAE evaluated the program positively. The program identified PaE expectations regarding good professional behaviour in medical students.

Take-home messages: PaE program complements the medical curriculum by providing student learning in a safe and controlled environment.

10Z4 The risks and benefits of teaching crosscultural-interviewing with simulated patients

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Background: Even though communication skills training is fairly common in medical education in Germany by now, the ability to deal with diverse cultural backgrounds of patients has not seen sufficient attention. Cross-cultural interviewing was added to the communication skills curriculum in 2006. As a unique approach, the simulated patients (SP) for that project all brought their own experiences as migrants in the German health system to class. It will be discussed, whether their personal concerns jeopardizes their task as SP.

Summary of work: Three different SP cases were developed, each focusing on a different aspect in physician-patient interaction (e. g. language barriers or patient compliance). Results of student evaluation will be presented. Informal interviews with SPs and faculty were conducted.

Summary of results: The following issues will be addressed: Particular methods for recruiting need to be applied. Feedback standards and debriefing strategies should be adapted. The question of blurring boundaries is also pertinent for other groups of SP.

Conclusions: If the specific role of the SP and the method of identification with a character are pointed out to both faculty and students it should become clear that the portrayal of the SP is not less authentic even if their real biography surfaces during feedback.

10Z5 History taking and steps of problem solving process: student self-practice with simulated patient
Varavudh Sumawong*, Suwat Benjaponpitak, Thantip Malaisirirat, Orapan Charoonchay (Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand)

Background: All Thai medical schools teach problem solving theory in third year and each student practises skills with real patient in three clinical years. The student self-practice with simulated patient (SP) is added to fulfill and complete skill learning according to Erby's clinical learning cycle and “knows how” step of Miller’s Pyramid in psychomotor learning.

Summary of work: All (131) 2009 fourth year students were assigned in pairs to practise with each SP. They involved four cases in each reasoning method. They practised forward reasoning method at the beginning of clinical study and backward reasoning method three months later. The steps of practice followed the pattern designed by the Collaborative Project to Increase Production of Rural Doctors (CPIRD), Thailand. After finishing each method, they gave non-verbal feedback.

Summary of results: Majority of students rated the project very useful. However, they rated backward reasoning practice less useful. This might have been because hypothesis-driven process is more complex and needs clinical knowledge, critical thinking and decision making. The evaluation revealed the students applied basic communication skills in focused not more than in screening history taking three months ago.

Conclusions: To provide each medical student practising forward reasoning method prior to or at the beginning of clinical study and later on backward reasoning method with simulated patients is very useful.

Take-home messages: Simulation practice is essential in preparing every skill for every medical student.

Summary of results: Analysis of the evaluations reveals that students have weak emphasis at clinical reasoning skills. SPs are not satisfied with the students’ explanation about the prognosis and less sympathetic attitude.

Conclusions: Japanese medical students do not have enough clinical reasoning skills at 5th year or do not have enough interview skills at complicated situations like second opinion at 6th year. Currently, each student experienced one scenario for clinical reasoning and one scenario for second opinion. We need to increase the amount of training.

Take-home messages: Training with SPs is very useful to develop such skills.

1027 Implementing and Administering a Combined Clerkship Standardized Patient Activity on Women’s Health
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Background: Traditional medical student clerkships reinforce the discipline-specific silo structure. To encourage holistic thinking and demonstrate interdisciplinary working relationships, the Obstetrics/Gynecology (OB/Gyn) and Psychiatry clerkship directors (CDs) developed a standardized patient (SP) activity focused on Women’s Health issues.

Summary of work: Four women’s health scenarios, unique to our students’ SP experiences, are administered to the combined clerkship group every three months. Students interview then receive verbal feedback from each of the SPs. A mandatory debriefing lead by the clerkship directors is held after all students have completed their scenarios.

Summary of results: Students indicate that they appreciate the immediate feedback from the SPs and the CDs with regard to this activity. Evaluation data have been gathered from each group of students.

Conclusions: SP case scenarios that permit overlap of disciplines can be challenging for the SP Program, SPs, and students. Positive student feedback and interesting SP case scenarios compensate for the work involved. The planning and administration of this activity from the student, faculty, and SP educator perspectives will be presented as well as the data collected thus far.

Take-home messages: Two diverse disciplines can come together and produce an activity that broadens students’ clinical thinking regarding discipline specificity. There are challenges and benefits to the SP program as well.

1028 Pitfalls in training of simulated patients (SPs)
– Their response to family history taking
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Background: During the training of medical students in performing a medical interview, it is important for them to learn to take the family history accurately. Our objective was to study whether SPs’ notion of “family” differs from the notion of family in SP trainers and students.

Summary of work: We distributed a questionnaire to SPs and 4th-year medical students to ask about their concept of family and consanguine family. After the OSCE, we asked SPs to perform a self-assessment of how well they gave the family history and how useful training was.

Summary of results: Students and SPs recognized the situation of parents and child living together as a family (100%, 100%). However, they recognized parents of a spouse living together with the spouse’s family (79%, 93%) and married child living apart (39%, 18%) differently. Students gave correct answers on all items, while SPs made errors on consanguine family. A few students and SPs made the mistake that a spouse was consanguine family. Self-assessment of SPs in providing a family history was 3.6, and usefulness of training was 3.6 (scale: 1-4).

Conclusions: The concept of family differed in students and SPs, although there were large variations. Students and SPs sometimes made a mistake in family history.

10Z10 Perception of Medical Students Toward Using Standardized Patients to Learn Effective Communication Skills with Patients
S Sepehr*, R Jaafar (Universiti Sains Malaysia, Department of Medical Education, Kelantan, Malaysia)

Background: The purpose of the study was to determine the perception of second year medical students toward using standardized patients (SPs) to learn to communicate effectively with patients during history taking.

Summary of work: Subjects (21.2+0.6) were 155 medical students (99 females, 56 males). Perception was assessed using a perception scale inventory, a Likert-type scale developed for this study and its psychometric properties assessed. The inventory was administered after each teaching and learning session with SPs. A Chi-square test was used to determine differences in satisfaction levels on the use of SPs in learning effective communication skills during history taking between 115 student observers and 40 interviewers.

Summary of results: No significant differences in perception were found between observers and interviewers on the following: rapport with patients (82.6% vs. 82.5%) (p=0.95), systematic interviewing skills (80.9% vs. 77.5%) (p=0.79), patient interaction (84.4% vs. 90.0%) (p=0.32) acquisition of relevant information (78.3% vs. 87.5%) (p=0.44) and appropriate response to patients (81.7% vs. 82.5%) (p=0.76).

Conclusions: The results of the study showed that second year medical students perceived the use of SPs to be a valuable experience in learning to communicate with patients during history taking.

10Z11 Simulation in teaching of interview techniques
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Background: Communication skills are recognized as a component of a complex set of skills that define clinical
competence. In order to evaluate students’ progress in communication skills, there is a need to develop standardized assessments of these skills. The interview is the cornerstone of psychiatric investigation and the scene for the establishment of rapport and therapeutic engagement.

**Summary of work:** From an educational perspective, the amount of knowledge required to practice safe patient care demands the adoption of a pedagogy that goes beyond traditional didactic teaching. Traditional education relies heavily on linguistic intelligence and rote memorization. As educators have engaged with the task of teaching toward these competencies and devising accurate modes of assessment of their achievement, various new approaches have been utilized. One innovation that has garnered much positive attention, and also some misgivings, is the use of standardized or simulated patients (SPs) actors who stand-in for and portray actual patients.

**Conclusions:** Simulation is an event or situation made to resemble clinical practice as closely as possible. Simulation can be used to teach theory, assessment, technology, pharmacology, and skills. The emphasis in simulation is often on the application and integration of knowledge, skills, and critical thinking.

**10Z12 The effects which simulated classes brought for OT students**
Takaji Suzuki (School of Nursing and Rehabilitation Sciences, International University of Health and Welfare, Odawara, Japan)

**Background:** There is no report about teachers’ vocational rehabilitation which is practiced by using many simulated students in Japanese occupational therapy.

**Summary of work:** The patient of this study is a junior high school teacher, a 50-year-old man with attention/memory disturbances and executive dysfunction after a subarachnoid hemorrhage. I investigated the changes of comprehension and interest of cognitive dysfunction for 36 third grade OT students during their attendance at the simulated classes. The questionnaire was carried out by using Visual Analogue Scale. For practices of the teacher’s vocational rehabilitation, 7 times simulated classes were carried out by OT students who participated as simulated junior high school students.

**Summary of results:** The image and comprehension of cognitive dysfunction increased and deepened by observing the patient’s attention/memory disturbances and executive dysfunction. The interest in cognitive dysfunction increased, and an understanding of the role of occupational therapy deepened. Continuation of the teaching methods in such a form was approved although it was not a regular class.

**Conclusions:** Experience gained by OT students from playing an essential role for the patient is effective through attending simulated classes in which a real patient participated.

**10Z13 Addressing Core Competencies for Health Care Professionals Involved in Disaster Medicine – A Novel Curriculum**
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**Background:** In France, a new law makes it possible for health care professionals to be part of a special health reserve unit and respond to national or international disasters.

**Summary of work:** Based on lessons learned from previous disaster missions, our University has created a training program for professional health care providers. This curriculum is unique and is focused on practical hands on learning.

**Summary of results:** In order to identify the required competencies needed in order to provide health care in a hostile environment, we created a large scale 3 day and 3 night simulated scenario which focuses on environmental adaptation (sleep deprivation, unsafe conditions, fatigue, and stress). We monitored participant behavior and interdisciplinary interactions during this simulation.

**Conclusions:** Emotional stability, sociability, self-discipline, management skills, and adaptability were strong predictors of a health care professional’s ability to successfully complete missions in hostile environments.

**Take-home messages:** Efforts should be made to raise awareness of the importance of practical training and preparation before sending voluntary health care professionals to the scene of a disaster.

**10Z14 Improving assessment and management of critically ill patients through simulation training - an appreciated part of the internship at Sahlgrenska University Hospital**
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**Background:** At the Sahlgrenska University hospital, a large part of the clinical rotations are placed within the emergency department. It is therefore important to maintain competence regarding the management of critically ill patients.

**Summary of work:** Interns at Sahlgrenska University Hospital undergo a three-day course with the goal of improving management of critically ill patients. While focused on medical/practical knowledge, the course also involves training in leadership, communication and cooperation. This is achieved by means of lectures, seminars and simulation-training. The course is
evaluated by the participants in order to assure high quality.

Summary of results: Interns find the course to be valuable for preparation of duty in the emergency department, and for development of their professional role. Individual and direct feedback from the course facilitators is of great importance for enhancing the learning process. Many interns develop an interest for education in emergency medicine and undergo an additional course in order to become supervisors for simulation training, and participate in simulation training for both interns and medical students.

Conclusions: Medical knowledge, leadership-, communication- and cooperative skills are improved through simulation training leading to better management of critically ill patients and increased patient safety. Personalized feedback seems to be of great importance for enhancing the learning process.

10Z15 Parameters for succeeding with multiuser simulations on multitouch surfaces

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Background: We present current results of SimMed, an ongoing interdisciplinary project developing a simulation with game mechanics on an interactive multitouchtable. The project’s intention is to support the transfer from theoretical knowledge to practical skills without compromising a patient’s health. Participants will have the opportunity to test the current version.

Summary of work: Main issues of the project are to understand what makes the interaction with the virtual patient natural and to create an environment that leads to immersion, realistic situations and thus to maximum transfer. In order to evaluate the usability and whether the targets described above are met, users from the targeted audience are observed using the engine, interviewed and asked to answer a questionnaire.

Summary of results: The results are very encouraging. Transfer and immersion are in concrete connection to usability and game play. Users for instance experience real psychological and physical stress. We found, that users treat the virtual patient very much like a real patient, although not all functionality is implemented yet.

Conclusions: In order to achieve good results in transfer, learners need to be able to interact realistically with a realistically acting virtual patient.

Take-home messages: Simulations in medical education can do much good, provided they are done properly and consider the demonstrated parameters.

10Z16 A pilot study of a learning needs assessment tool for simulation-based medical education

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Background: Simulation in clinical learning is becoming increasingly commonplace and has been shown to provide excellent opportunities for safe and effective learning. The aim of this study was to develop a generic learning needs assessment tool to evaluate the awareness, utilisation, resource allocation, curriculum integration and faculty development of a clinical department in regards to simulation-based education.

Summary of work: Utilising a Best Evidence in Medical Education systematic review and following exploratory interviews with key stakeholders in medical education and simulation, items to investigate the effective use of simulation in medical education were drawn up. To validate the quality and reliability of the questionnaire it was sent to the clinical tutors of 12 major specialties at a single institution.

Summary of results: 4 tutors failed to return the completed questionnaire. The questionnaire was found to have good validity and reliability. Item-subscale Spearman’s rho correlation coefficient reached significance for all likert-type responses, and Cronbach’s alpha demonstrated adequate internal consistency at 0.593. Qualitative components also suggested satisfactory content validity.

Conclusions: Utilising this instrument to measure a clinical department’s current use of simulation-based education should serve as a tool to stimulate further development, and quantify any change in educational practice that occurs following its implementation.

Take-home messages: A new questionnaire to develop simulation-based medical education in a clinical department has been developed.

10Z17 Simbase: A European Project for Promotion of ICT Enhanced Simulation Based Learning in Healthcare Centres

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Background: The explosion in the use of simulation in the past decade requires the generation of a good guide for decision makers in the field of health and
education at all stages of training of health professionals.

Summary of work: 7 countries are participating. There will be a pilot for each formative stage. After the literature review and lessons a model of impact assessment and a guide for policymakers will be offered.

Summary of results: Piloting design for each training period and a first draft impact assessment model.

Conclusions: To move more swiftly in the proper use of simulation technology and, in general, resources for training are essential to collaboration between different actors and between different countries.

Take-home message: Simulation, but for results.

10AA Posters: Curriculum Evaluation

10AA1 Ask the Audience: Comparing Online-Evaluation versus TED-Evaluation
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Background: In commercial and political contexts TED-polls are widely spread to quickly gain a global insight into society’s attitude towards a certain topic. However, in scientific and educational environments TED-polls are seldom introduced to collect evaluation data. The aim of our study is to compare results of our weekly online evaluation with data collected by TED-evaluation in terms of their response rate and the teachers’ and students’ attitude.

Summary of work: These analyses are based on three different data sources. The first one includes data of our weekly conducted online-evaluation. The evaluation forms are filled in by second year medical students. The second source contains data of a TED-evaluation. Finally, we will measure the attitude towards the online- versus TED-evaluation of all involved lecturers and participating students by a questionnaire. We apply two sided t-tests to detect differences in students’ contentment by response rate and attitude of lecturers and students towards both evaluation concepts.

Summary of results: The data will be collected during the summer term 2011.

Conclusions: We assume that TED-evaluation enhances the active participation of students and professors on faculty improvement processes in medical curricula. Thus, the contents of medical curricula can be adapted to the needs of both teachers and students more efficiently.

10AA2 Does the same undergraduate medical curriculum, delivered via two distinct parent institutions, result in graduates with measurably different attitudes and skills?
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Background: July 2011 will see the graduation of the first cohort of medical students educated by Lancaster University (n = 32). However, whilst these students have completed all of their five years of study at Lancaster, they have followed the University of Liverpool’s medical curriculum. This first graduating cohort provides a unique opportunity to see if the Lancaster-based students have different attitudes and skills compared to their Liverpool-based counterparts. An increasing number of institutions around the world are delivering medical education across more than one site, and the impact that an individual setting may have on students is of importance to medical educators.

Summary of work: The overall aim of this work is to explore the question “Does the same undergraduate medical curriculum, delivered via two distinct parent institutions, result in graduates with measurably different attitudes and skills?”. Full ethical approval will be obtained from both universities before starting the study. This study will use a quantitative approach, utilising three well-established measurement tools to measure the following: 1) Doctor-patient relationships – Patient-Practitioner Orientation Scale (PPOS); 2) Communication skills – Communication Skills Attitude Scale (CSAS); 3) Learning environment – Dundee Ready Environment Measure (DREEM); 4) Exam performance – written and clinical exam (OSCE) results. Students in their final year of study at Lancaster will be recruited using an opportunistic strategy that will aim to capture all students. A representative cohort from the final year at Liverpool will also be recruited for comparison.

10AA3 Obligatory Institutional Student Evaluation in Clinical Pathology (CP) subject in medical school/UFMG/BRAZIL: Is there consistency in the results?
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Background: In our School, it is mandatory that the students evaluate themselves, the current subjects and teachers before they could ascend to the next grade.
Summary of work: To assess consistency of student evaluation for CP (+grade subject/medicine/UFMG/BRAZIL), we have examined 159 Likert scale-based questionnaires (groups A/B/C/D).

Summary of results: Only 50% of C-group members completed all phases of the questionnaire and they attributed themselves the lowest grades. Despite this, a positive correlation was found between learning acquisition perception and the evaluation index of the subject (p=0.006; PC=0.970). A-group presented the highest evaluation indexes, with positive correlation between self-evaluation and the subject’s positive aspects (P>0.05; PC>0.890). This group also had the highest evaluated teacher. All the students considered CP-topics very important, 92.3% said they studied more than the average and 92.3% considered the program reached its objectives. Among the groups, a positive correlation was observed between self-motivation and learning perception (p=0.02; PC=0.976). Only 68.3% considered the assessment process "good/very good", a fact probably related to the distinct evaluation tools experienced.

Conclusions: This evaluation showed consistency and indicated that motivated students seem to learn better and that good teacher performance is associated with improving learning.

Take-home messages: Even obligatory, institutional student evaluation consists in a good tool to manage and improve medical undergraduate learning.

10AA4 Undergraduate teaching feedback in a district general hospital

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Background: According to the GMC, as doctors we have a duty in providing good medical practice which includes teaching and training. The aim of this audit was to improve the quality of teaching provided to senior medical students by evaluating the available teaching methods at Ayr hospital.

Summary of work: A full cycle audit looking at 36 students who were asked to complete feedback questionnaires anonymously at the end of each teaching block between August and December 2010. They were asked to grade (from 1 to 5) each of quality, content and organisation of teaching. They were also asked to leave comments.

Summary of results: 36 feedback forms were returned. The results were improved from 80 to 95% satisfaction in both quality and content of teaching and 70 to 91% in organisation. Comments for poor feedback were given due to cancellations of teaching, too many students were attending clinic, some tutorials were too advanced, insufficient bed side teaching provided and the lack of revision tutorials. These comments were acted upon leading to improved results.

Conclusions: This audit shows that it is important for the teaching to be flexible and adjustable to accommodate the students need for learning.

Take-home messages: Students’ feedback is essential in providing better education.

10AA5 Dental Students’ Evaluation of The Quality of Practical and Clinical Training and Assessment in Damascus University

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Background: The Faculty of Dentistry in Damascus University is in the process of reforming its educational curriculum to achieve international accreditation. No data at present is available regarding students’ opinions on the quality of their practical and clinical training and assessment. Thus, the current study addressed this gap as a vital step in the reforming process.

Summary of work: Using a mixed quantitative and qualitative method, data were collected from 1900 dental undergraduates distributed across the five years.

Summary of results: In the practical and clinical training aspect, only 56% of the students stated that they were aware of the learning objectives and only half of the students (52%) reported that they were not given examples of good clinical practice. 73% of the students expressed a need for additional training. In the practical and clinical assessment aspect, 48% of the student considered the assessment process unfair, due to the lack of objective and explicit assessment criteria (46%) and the variability of standards used by assessors (55%).

Conclusions: There is a strong need to improve the quality of practical and clinical training and assessment in the Faculty of Dentistry, and any reform process must include capacity building in the teaching and assessment of clinical skills.

10AA6 Optimization of the Brussels Clinical Evaluation tool BRUCE 1.0

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Background: In the Master programme of Medicine at the Vrije Universiteit Brussel, the internships play an important role. In 2009-2010, BRUCE 1.0 was developed as a new student based evaluation instrument of the educational performance of clinical
professors and the clerkship rotations in general, this in
close dialogue with the students.
Summary of work: From February 2010 till December
2010, all students of the 5th, 6th and 7th year of
medical school were requested to fill out the
evaluation forms for every rotation they completed.
One year after, the tool itself is evaluated. Quantitative
analysis consisted of verification of compliance and
statistical processing including factor analysis.
Qualitative analysis is realized by a survey and an
interview with a selected group of volunteer medical
students about the relevance and clarity of the
questions.
Summary of results: Optimization to BRUCE 2.0
includes a more concise construct of the clerkship
rotation questionnaire, with reduced number of
consistently positively formulated questions
eliminating bias and are scored on a Likert scale.
Finally, an online version will help increasing
compliance and ease of processing and feedback.
Conclusions: An optimized, more concise version of
BRUCE 1.0 is needed for good feedback, compliance
and improvements.
Take-home messages: The emphasis on student
involvement in designing and improving evaluation
tools in our university is deemed fundamental as
students are closest to the practice, feel involved and
become empowered.

10AA7 Students’ attitudes toward medical learning:
A cross-sectional analysis in Taiwan
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Department of Education, Taichung, Taiwan

Background: Contemporary curricular innovations in
Taiwan medical education focus on balancing
knowledge, attitude and skills, for example, by
promoting self-directed learning, problem-solving skill
and enrolling more medical humanity courses. For
continuing the improvement, it is important to know
Taiwan medical students’ attitudes toward current
medical learning.
Summary of work: A total of 245 students from year-1
to year-6 of six medical schools in Taiwan responded to
a 5-point-Likert questionnaire including 25 items of six
factors formulated by students’ focus group with
experts’ validation. Exploratory factor analysis (EFA) as
well as the correlation analysis between factors and
student seniority were conducted.
Summary of results: The results of EFA are consistent
with the 6 factors originally proposed in the
questionnaire. Four factors showing significant
correlation with student seniority include “negative
attitudes toward medical humanity courses”(r=0.35,
p=0.000), “negative attitude toward PBL”(r=0.30,
p=0.000), and “attitude toward self-directed
learning”(r=-0.25, p=0.000), “external motivation for
medical student”(r=0.17, p=0.006).
Conclusions: The results showed the students had
significantly unfavorable attitudes toward PBL, medical
humanity courses and self-directed learning strategies
through the years in medical school and they were
more oriented to external learning motivation.
Take-home messages: The reason behind their
unfavorable attitudes through years of medical study
may be an important clue for further curricular
innovation in medical education.

10AA8 Using text messages to collect quality
assurance data from students on Clinical placements
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Background: Medical students on clinical placements
are taught using facilities and tutors external to the
University. In order to assess the effectiveness of the
placements there is a need to improve methods of
collecting quality and timely feedback from students.
Feedback completed by the student at the time of the
placement is more likely to accurately represent any
issues and allow these to be addressed before further
placements take place. This study reports on a method
of using mobile phone technology to collect instant,
quality and detailed feedback from students on clinical
placements.
Summary of work: This study compares the feedback
obtained from two groups of 2nd year students. One
group of students were sent a series of 5 questions by
text with each response prompting the next question.
The second group were sent a email directing them to
web-based form to answer the identical questions.
The results presented will compare the response rates for the two groups, the
quality of feedback obtained and discuss the issues.
Summary of results: The results presented will
compare the response rates for the two groups, the
quality of feedback obtained and discuss the issues.
Conclusions: The study demonstrates that students
engage with this method of supplying feedback and it
can provide a useful source of timely qualitative
feedback.
Take-home messages: Immediate and meaningful
feedback from student placements can be obtained
using text messaging.

10AA9 Twelve years of biomedical-psycho-social
profile based curriculum in medical schools at
Sapienza University of Rome
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Relucenti1, R Heyn1, P Gallo2, A Lenzi2, E Gaudio2, L
Frati1 (1Faculty of Pharmacy and Medicine; 2Faculty of
Medicine and Psychology; 3Faculty of Medicine and
Dentistry; Sapienza University of Rome, Italy)
Background: In order to develop a biomedical-psycho-social profile in medical students, a fully integrated undergraduate curriculum (BPSC) was set up since 1999.

Summary of work: BPSC considers: 1) vertical and horizontal integration between basic and clinical disciplines saving their individual assessment; 2) early clinical exposure (ECE) in the hospital and community settings during the first 3 years; 3) course on translational research methodology during the last 3 years (excellence course); 4) parallel longitudinal course (medical scientific methodology and medical humanities) which spans each of the six years including epistemology, history of medicine and humanities, communication skills, clinical methodology, management and epidemiology, bio-ethics and forensic medicine. Its explicit vocation to integrate the curriculum is supported by linking it to ECE and clinical clerkships (hospital/community) in years IV-VI.

Summary of results: Sapienza students’ anonymous questionnaires of last 5 years revealed a mean percentage satisfaction of 82.3±13.5. Examining the curricula of all Italian medical schools, over 80% have adopted our curriculum in the last academic year.

Conclusions: Students’ positive feedback further supported the adoption of our curriculum in most Italian medical schools.

Take-home messages: This kind of plan represents a real laboratory of curricular innovation.

10AA10 Do clinical clerks and residents have the same perception of the quality of a clinical workplace?
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Background: In 2007 our Medical School introduced the Activities Coaching Context-questionnaire in order to measure the perception of educational quality of clinical clerkships and residencies (Deketelaere, 2010).

Summary of work: All workplaces with a response of at least 6 clerks and 6 residents over a period of 3 years ('07-'10) were selected. Given the low response rate of residents, the analysis was restricted to internal medicine and surgery. An independent sample t-test was carried out, meeting the underlying assumptions.

Summary of results: Four out of nine surgery workplaces had a significant difference in the perception of educational quality. No significant differences were found for internal medicine.

Conclusions: Taking into account the limitations of this analysis (bias in selection of large teaching hospitals, low response rate of residents, choice of disciplines), one can conclude that for internal medicine clerks and residents have a similar view on the quality of the workplace, whereas for surgical workplaces, results were more differentiated. In order to better understand why, an analysis of the qualitative comments should be carried out.

Take-home messages: The assumption that a hospital with high scores on its clerkship program consequently has similar scores on its residency program is incorrect. It is therefore important to assess the quality of all clinical programs.

10AA11 Performance Evaluation of Heart Hospital Affiliated to Tehran University of Medical Sciences Based on Baldrige Excellence Model
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Background: Today, organizations are willing to achieve quality as a source of competitive advantage. Therefore, their performance evaluation and quality improvement is essential.

Summary of work: The study aimed to evaluate Performance Evaluation of Heart Hospital affiliated to Tehran University of Medical Sciences Based on Baldrige Excellence Model. Performance was evaluated by two types of Baldrige questionnaire (i.e. process and result criteria). Six process criteria (Leadership; Strategic Planning; Focus on Patients, Other Customers, and Markets; Measurement, Analysis, and Knowledge Management; Workforce Focus; and Process Management) with 12 sub-criteria, were evaluated based on four factors of Approach, Deployment, Learning, and Integration. Results criteria with six sub-criteria were evaluated based on four factors of performance level, rate and breadth of performance improvement, comparative and benchmark data, and relevance of evaluation result scales.

Summary of results: Heart hospital obtained 145/21 scores (26/40 percent) out of a total of 550 points in process criteria, and 90/37 scores (20/08 percent) out of a total of 450 points in result criteria. Studied hospital obtained the highest score in Measurement, Analysis, and Knowledge Management 28/1 scores (31/22 percent). In Sum, the hospital obtained 235/58 scores (23/55 percent) out of 1000 points.

Conclusions: Scores obtained by hospital showed the first level of excellence.

Take-home messages: Baldrige model provides lessons for those hospitals that have already started quality initiatives and organizational learning.

10AA12 Assessment of Estimated Workload Through Student Evaluation
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Background: Allocation of credits to different courses at the University of Niš Faculty of Medicine was done according to the non-modular, mathematical model. The number of credits for each course was expressed as student workload time, with one credit being equal to 27 hours of work.

Summary of work: Student workload assessment involved 178 students of the second year, who assessed the first year workload, and 175 third year students, who assessed the second year workload.

Summary of results: Most of the students in both groups thought that the estimated time was sufficient for completing individual courses (79.2-97.4% second year students; 67.7-93.8% third year students, the ranges depending on the individual courses in both groups). In further analysis, only the students who found the work time to be insufficient were considered. In students’ opinion, the causes of insufficient time were as follows: 1) too extensive course programs (lots of information), 2) inadequate textbooks (too extensive and insufficiently clear), and 3) insufficient knowledge acquired at active teaching classes (poor teaching methodology).

Conclusions: Optimal student workload can be achieved by the following: 1) designing and deliverance of realistic programs, 2) critical review of the existing textbooks, 3) employment of new, more effective, teaching and learning methods.

Take-home messages: Continual student evaluation of workload by way of questionnaire can be a useful tool in designing study programs, aiming to realize their outcomes.

10AA13 Do medical graduates perceive that their knowledge and abilities result from their school’s curriculum? The Greek experience

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Background: Several studies have shown that preregistration house officers feel not well prepared for their jobs. We present the views of medical graduates and whether their knowledge and abilities come from their school’s curriculum.

Summary of work: The “I CAN!” questionnaire consists of 105 closed questions, the last of which is “I owe my medical knowledge and abilities to the curriculum of my medical school”. It was distributed to graduates from the seven medical schools in Greece during 2009-2010 graduation periods. Participants stated their level of agreement on a six point Likert scale. Question mean scores (QMS) were calculated.

Summary of results: A total of 512 questionnaires were returned, in which 504 responded to this particular question. Of them 5.4% absolutely disagreed, 6.9% disagreed, 17.3% rather disagreed, 31.0% rather agreed, 27.6% agreed and 11.9% absolutely agreed. Thus, those who generally disagreed were 29.6% as opposed to 70.4% who generally agreed (2.4 times more). The total QMS for all schools was 60.8% (95%CI: 58.6% to 63.1%).

Conclusions: Medical graduates immediately after graduation attribute their medical knowledge and abilities in 60% to their school’s curriculum.

Take-home messages: Medical graduates attribute their medical knowledge and abilities in 40% to factors other than their school’s curriculum. Which are they?

10AA14 Clinical evaluation structure based on nursing and midwifery students’ and teachers’ experiences in school

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Background: This study explored the most important elements of clinical evaluation structure based on academic students’ and teachers’ experiences in Nursing and Midwifery school in Mashhad university of Medical Sciences in 2010.

Summary of work: This study was conducted using phenomenological approach and purposeful sampling. Data were gathered through unstructured interviews with 10 teacher students of nursing and midwifery diisiplines in 3 universities. The students passed at least one clinical course and obtained their scores. Data analysis was performed using Collizy method.

Summary of results: Extracted themes were allocated into 3 categories that include 1) need to have an evaluation tool box because of need to plan for execution of a multi-dimentional evaluation; 2) concepts related to evaluator including abilities, rating behaviors and biases in evaluation; 3) concepts related to student including moral reactions, real and deceptive behaviors and experienced expectations during clinical evaluation.

Conclusions: This study findings can be applied in designing and administrating evaluation programs and suggest the use of holistic evaluation models and approaches instead of existence structured tools.

Take-home messages: This study findings applied in developing an instrument for evaluating the programs that evaluate students clinical practices and also in teacher training programs on clinical evaluation to improve their clinical examinations.
10AA15 Viewpoints of Students towards Educational Services Quality (expectations and perceptions) in Rafsanjan University of Medical Sciences (2008-2009)

Hamid Bakhshi*, Abdollah Jafarzadeh† (†Rafsanjan University of Medical Sciences, Medical Education Department, Rafsanjan, Iran; *Immunology Department, Faculty of Medicine, Rafsanjan University, Iran)

Background: The first basic step to determine in developing quality improvement programs is the service quality gap and adopting strategies to overcome or reduce the gap. This study aimed to evaluate the students’ perceptions about quality gap in educational services of Rafsanjan University of Medical Sciences.

Summary of work: This descriptive cross-sectional study was carried out on 310 students in Rafsanjan University of Medical Sciences, with random sample selection in academic year 2008-2009. A questionnaire based on the SERVQUAL instrument, which proved to be valid and reliable, was used for data collection. Five dimensions of educational services quality were assessed by this questionnaire. After collection of questionnaires from the students analysis was done using spss/16 program. For statistic analysis, descriptive and analytic statistics tests were applied.

Summary of results: Result showed there was a significant and negative difference in quality gap between five service dimensions (81.60%). Reliability and Wholeheartedly dimension had low quality gap average (-1.40 ± 1) and sensible dimension had high quality gap average (-1.80 ± 1.20).

Conclusions: It is recommended to reduce theses gaps, and workshops will be held on how to service customers and communicate with them and also workshops to increase technical skills of staff. Physical environment and educational facilities will be improved and more resources allocated.

10AA16 Students’ views on a revised curriculum in a medical faculty in Sri Lanka

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Background: The Faculty of Medical Sciences, University of Sri Jayewardenepura was established in 1992 & conducted a traditional subject based curriculum. To emphasise integration of basic and clinical sciences, minimize overlap of subject content and to make learning more student-centered, the curriculum was reformed. The new curriculum was implemented in 2007.

Summary of work: The revised curriculum consists of system based modules with horizontal & vertical integration, conducted in three phases: Phase I - basic sciences, Phase II - para-clinical subjects and Phase III being purely professorial appointments. As a preliminary study, student feedback at the end of each module in Phase I was analysed.

Summary of results: Majority of students strongly agreed that modules were well organized and felt they received a good understanding of the subject. 98% expressed overall satisfaction with the learning experience. The workload was thought to be appropriate by 91% though 7.4% felt it was too heavy. In selected modules the students found the hospital visits and clinical skills development activities useful and interesting.

Conclusions: The majority of students find the system based integrated curriculum acceptable. However, some aspects received negative responses and need further evaluation.

Take-home messages: Student feedback is vital in assessing a curriculum.

10AA17 Perceptions and suggestions of 2nd professional MBBS students about their teaching and learning process: An analytical study

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Background: If the needs of the students are considered while carrying out teaching, the process of teaching-learning can be made effective.

Summary of work: A questionnaire based analytical study was done to know the perceptions and suggestions of 2nd professional medical students about various aspects of their teaching and use them for improvement.

Summary of results: Students found pharmacology and pathology most relevant but difficult subjects. They found it difficult to synchronize and integrate the different subjects. They found tutorials and group discussions more useful than lectures and seminars and suggested to cut short the duration of the lecture. They advocated the judicious use of power point along with the conventional method of teaching. They wanted some multiple choice questions to be included in the tests and in the final exams. They wanted some sessions on career counseling and wished the effective implementation of the mentoring system.

Conclusions: The suggestions obtained from the students, if addressed effectively, can improve their learning and produce better health care professionals.

Take-home messages: Students’ feedback can be crucial in medical education

10AA18 Ophthalmology Teaching at Undergraduate Level
Background: It is difficult to be sure of the effect of the amount and type of specialty teaching in medical schools.

Summary of work: This project gives some insight into the undergraduate teaching of ophthalmology. A survey was performed among Foundation doctors and 246 completed questionnaires were obtained.

Summary of results: 31.6% of respondents were taught for > 5 days (recommended by International Council of Ophthalmology). Factors that significantly increased confidence in ophthalmic knowledge were: 1) being taught for recommended time or longer; 2) being taught in a clinical setting and 3) doing a special study module in ophthalmology. 28.1% of respondents found their undergraduate ophthalmic teaching adequate.

Conclusions: Students having received more teaching were more confident in their knowledge and more likely to perceive the teaching as having been adequate. The amount of ophthalmic teaching was below international recommendations in > 65% of cases.

Take-home messages: 1. Student perception of teaching and confidence in knowledge improve with increased teaching time. 2. Ophthalmology is often under-taught at undergraduate level.

10AA20 A Survey on the Approval and Attitude of Learners toward using Crossword Puzzles in Examinations

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Background: Creativity in test designing that gains the approval of those being assessed is one of the skills of assessment; one of these skills is the use of crossword puzzles as an assessment tool in educational examinations.

Summary of work: This cross-sectional descriptive study was conducted in the first semester of 2010 in courses such as parasitology, operation room, and mind health nursing. The approval rate and the attitude of students toward crossword puzzles in exams using a researcher designed questionnaire was gathered and then analyzed by the SPSS version 18 statistical software.

Summary of results: 31.6% of students were in favor of replacing fill in the blanks and matching questions with crossword puzzles. Considering the significance of using this method in exams (55.1%), increasing critical thinking (42.9%), and reciting (43.9%) chose much and very much. Concerning remembering and association of definitions, others (33.7%) chose moderate.

Conclusions: Replacing the fill in the blanks and matching the words questions with crossword puzzles leads to the increase of creative and critical learning of learners. Research units announced their approval of using this method, therefore, the application of crossword puzzle is recommended in compression examinations.

10AA21 Comparison of PBL and traditional teaching method

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Background: In the learning programs two methods are seen, first student-based learning and the second one teacher-based learning. In the first method the main role is taken by students. In general PBL is a active learning method and focuses on general scientific problems. In PBL, learning is based on the presentation of one question which is used to follow two aims, solving the problem and learning while solving the presented question. There are still a lot of challenges in the substitution of traditional methods with PBL. In this study we decided to introduce PBL as an effective learning method by comparison of students’ embryology mark with these two methods.

Summary of work: 40 medical students of 87 and 40 medical students of 88 were selected and after the similarization of groups from the gross score aspect, during one term for the first group we chose the traditional method and for the second group we chose PBL. The evaluation was taken based on the final scores and analyzed statistically with SPSS software.

Summary of results: With the help of T-test for 2 independent groups, results show that according to the average of 87 medical students (13.23%) and the average of 88 medical students (15.54), the difference of these values was significant (p-value<0.05). This means that the learning method used for the second group was more effective than the learning method used for the first one.

Conclusions: In the PBL learning method students take a leading role. The method promotes thinking and prevents from memorizing concepts.

10BB Posters: Clinical Teaching 3

10BB1 Take a closer look – Increasing awareness of correct hygienic behaviour using an interactive educational film
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Background: Nosocomial infections are a major issue in hospitals around the globe. There is still a need for improvement of correct hygienic behaviour on the ward by all medical professions.

Summary of work: We created an educational film of a routine ward-round containing amongst other flaws most common mistakes in hygienic behaviour made by medical staff. In preparation of their first ward-rotation all third-year-medical students at LMU Munich watch this movie. They are requested to document any false behaviour they recognize. Afterwards students analyze the film regarding hygienic issues and receive a detailed introduction in correct hygienic behaviour. At the end of their ward-rotation students are asked to individually analyze another filmed ward-round (comparable scenery, same hygienic mistakes, different actors) in their team-communication-seminar to see if awareness of correct hygienic behaviour has increased. A control group rotates differently within the curriculum, watches the films in contrary order and is therefore doing the second analysis without having gotten the intervention.

Summary of results: Data acquisition will be completed in June. Results will be presented at conference.

Conclusions: Whether our intervention will lead to an increased students’ awareness of correct hygienic behaviour on the ward remains to be seen.

10BB2 An "Introduction to Theatres Workshop" as a teaching tool for medical students
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Background: Attendance in operating theatres has long been part of medical school curricula. This can be an intimidating environment for medical students and a lack of understanding of basic etiquette can be problematic for theatre staff as well as a risk to patient safety. Our aim was to design and deliver a workshop that could be validated as an introduction to operating theatres.

Summary of work: Input from questionnaires sent to consultant surgeons and medical students were used to develop a workshop teaching plan. This workshop was delivered to medical students undertaking a surgical placement and their feedback was collected.

Summary of results: Consultant surgeons and medical students had similar opinions on what should be included in the workshop, however current standards were perceived differently (mean difference 2.25/10). The majority of students agreed that the workshop was useful (87% rated the workshop as ≥7/10) and met the learning objectives (99% ≥7/10). 84% stated that they had increased confidence following the workshop (≥7/10).

Conclusions: Initial student feedback has been very positive. Success of the workshops will be assessed by both subjective and objective outcome measures.

Take-home messages: Theatres can be intimidating for medical students. This workshop aims to provide a basis for students to maximise their learning opportunities in theatre.

10BB3 Chest X-Ray Interpretation by Medical Students: A Comparison between the Traditional Instructions versus Integrated Instructions, Uttaradit Medical Education Center


**Background:** Uttaradit Medical Education Center changed the medical curriculum from discipline-based to integrated instructions. This caused the integration of radiology with other clinical subjects. This study aimed to compare whether the previous and new instructions make any differences on medical students’ knowledge and skills.

**Summary of work:** Former curriculum, adult chest x-ray (CXR) was taught for 12 hours. The latter, 3-hour course was integrated into the subject of Health Disease of Adults and Elderly. Ten CXR conditions were used to examine interpretation competency of the students. The mean scores of both groups were compared using independent t-test.

**Summary of results:** There were 55 students; 27 from the former and 28 from latter curricula. Age, sex and GPAX in the pre-clinic years between the two groups showed no difference (p = 0.293, 0.912, 0.198 respectively). The former group had statistically higher scores regarding descriptive and total scores than the latter one (30.5 vs. 24.0, p < 0.001 and 48.8 vs. 40.3, p < 0.001 respectively).

**Conclusions:** Limited time for the adult CXR learning in the integrated curriculum affected their knowledge and competency. Immediate feedback of the results to stakeholders is needed for prompt adjustment of teaching and learning as well as the curriculum.

**Take-home messages:** Integrated curriculum is being done with real patients encountering real situations. However, learning times and chances are unpredictable and uncontrollable. Without a close curriculum monitoring evaluation, it is not possible to guarantee a full success of the integrated learning method.

**10BB5  Semiology course: A change in the process of education**

*M Momen Heravi*, El Fakharian, B Zamani *(Kashan University of Medical Sciences, Kashan, Iran)*

**Background:** Semiology is one of the most important courses which medical students are exposed to. Considering the importance of history taking and clinical examination prior to beginning of hospital training, we decided to change the process of education.

**Summary of work:** Training of semiology took place as a one month course for 52 medical students in their 4th year. It was done with oral presentation in the laboratory using a manikin, movies and bedside teaching as well as history taking and physical examination in different wards. Evaluation was carried out with MCQ and OSCE tests. The viewpoints of the students were collected with Likert score and analyzed statistically.

**Summary of results:** The rate of satisfaction about implementation of the course was high. The opinion of medical students about the effectiveness of this course was: history taking 65%, physical examination 60%, clinical skills 56.3%. The viewpoints of students about this change was: Before implementation of course: good 46.5%; relatively good: 38.2%; bad: 8.8%. After implementation of course: good 71.9%; relatively good: 6.3%; bad: 6.3%; very bad: 15.6%.

**Conclusions:** Emphasis to practical education associated with theoretical education and use of skill lab facilities caused satisfaction and increased effectiveness of participants of this course.
10BB6  The self-judgment of medical graduates on their attainment of clinical skills in undergraduate and postgraduate phases of studies
M Krupinski*, B Guzik, M Job, M Nowakowski (Jagiellonian University Medical College, Medical Education Department, Cracow, Poland)

Background: In Poland 6-year medical studies are followed by a mandatory one-year postgraduate internship. The aim of the survey was to assess the phase of training when students or graduates obtain an ability to perform independently specified clinical skills.

Summary of work: 198 young doctors, who had just finished postgraduate internship were presented the questionnaire survey with a list of 41 clinical skills specified in the outcome standards. They were asked if they attained an ability to perform them independently during the undergraduate studies, internship, or not at all. 142 replies were returned.

Summary of results: Majority of responders indicated: 16 skills as adequately gained during the undergraduate studies, 12 skills were claimed to undergo some improvement during the internship, 13 skills were reported as not achieved after the total training.

Conclusions: Although the total level of clinical skills attainment was far from satisfactory, effectiveness of the practical training during medical studies slightly exceeds effectiveness of the internship phase.

Take-home messages: Efforts have to be undertaken in order to improve the practical training of clinical skills.

10BB7  Evidence Discovery, Microteaching and a Clinical Librarian on an Education Ward Round in ITU
M Kerr1, M Hamer1, R Dulai2, B Prathiba3, R Cox1 (1East Kent University Hospitals NHS Foundation Trust, Knowledge and Library Services, Education Centre, Kent and Canterbury Hospital, Canterbury CT1 3NG; 2East Kent University Hospitals NHS Foundation Trust, ITU, William Harvey Hospital, Ashford, UK) (Presenter: M Patel)

Background: A clinical librarian attends the weekly ITU education ward round at William Harvey Hospital. Case-related questions, topics and research queries are addressed by rapid delivery of published evidence for same-day discussion in education meetings. Teaching and support is also provided in a journal club setting.

Summary of work: Subsequent tutorial discussion is supported by evidence discovery by the clinical librarian who also delivers a microteaching segment on appraisal skills during a facilitated journal club tutorial. This develops trainees’ skills in critical appraisal and interpretation of research statistics, supporting analysis and discussion of evidence used in the session.

Summary of results: Questionnaire and impact assessment will determine how the Clinical Librarian’s participation improves evidence-based practice and appraisal skills amongst trainees. Measures will include confidence in accessing, assessing and assimilating reliable published evidence, appraisal skills, search skills. The structured programme addresses specific curriculum areas, whilst relating to current cases and patients in ITU.

Conclusions: Evidence-based practice within the curriculum benefits from support in resource discovery, appraisal and information skills, and the use of current cases mapped to curriculum combined with tutorial and microteaching maximises relevance and impact.

Take-home messages: Clinical librarian support adds value to educational activities and increases trainees’ skills set within the curriculum.

10BB8  Review of the learning opportunities for students on a prehospital care programme in a UK medical school
D Goodsmann, M Ahmad* (Harrow, UK)

Background: The Prehospital Care Programme was introduced at Barts and The London Medical School in 2008, and aimed to give medical students an insight and understanding into prehospital care. The programme links the medical school with the London Ambulance Service (LAS) and the London Helicopter Emergency Medical Service (HEMS). placing students from MBBS years 2-5 with mentors from these services during a series of working shifts.

Summary of work: Whilst on shift students complete a Student Report Form, this is then discussed and signed off by their mentor. We have analysed these forms, to review the learning opportunities and clinical exposure offered by the programme.

Summary of results: We divided up our analysis into 6 categories: Number of shifts and cases, Speciality, ABC management. Clinical skills and record keeping, Drug knowledge and Communication skills

Conclusions: The programme enables students to see patients before any diagnosis or treatments have been given, and through this they are able to gain insights into how patients present, pre medical processes or interventions. Furthermore our research shows that the programme meets many of the objectives set out by the General Medical Council’s ‘Tomorrow Doctors’ (2009).

Take-home messages: We thought that attendees at your conference would be interested in learning about it, and what its potentials are as it has been immensely popular at our medical school. We have also had much interest from medical schools in the UK, looking to develop similar programmes, and believe that presenting at your conference would serve well to create a baseline for other potential schemes or processes.
10BB9  Outcome of the needlestick injury prevention measure education among medical students
T Dhearapanya*, S Wattanasiririchaigoon, P Pumila, V Mahasithiwat, K Chansiri, N Laopupksin (Srinakharinwirot University, Faculty of Medicine, Bangkok, Thailand)

Background: Needlestick injury is an occupational health hazard involving healthcare workers (HCWs) of every level. Especially medical students, the least experienced medical personnel who impose the greatest risk of an accident in their clinical study at Maha Chakri Sirindhorn Medical Center, a base hospital serving Faculty of Medicine, Srinakharinwirot University. Unexpected yet preventable exposure leads to deadly blood-borne viruses such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV). Therefore the education and training of the prevention measures are essential in order to reduce the needlestick injury incidents.

Summary of results: Percentages of students who had been exposed to needlestick injuries per year declined continuously after education on prevention measures was introduced. Numbers of incidents were recorded, tracked and compared for a period of three years.

Summary of work: A study was conducted in classes of clinical year medical students, the newest group of all the medical personnel working in the hospital. Prevention measures regarding handling, recapping and safe disposal of needles and sharps are trained along with post-exposure protocol instruction. Summary of results:

- Preliminary data - n=70. Final analysis will be conducted when n=100.
- Conclusions: Dependent on the results.
- Take-home messages: Probable take home message: "Medical students lack knowledge of the reliability of elements of the respiratory examination. There should be more emphasis on teaching the evidence-based elements of the examination and this should be reflected in assessment."

10BB10 The Reliable Respiratory Examination
M Newnham*, R Mukherjee1, E Jones1, D Wall2 (1Heart of England NHS Trust, Birmingham, UK; 2University of Birmingham, Centre for Research in Medical and Dental Education, Birmingham, UK)

Background: The respiratory examination is often taught in a traditional way, rather than based on evidence. An essential component of the respiratory clinical examination is that it is precise. The reliability of the examination is a fundamental element of this precision. Previous research has shown that Physicians are not adept at knowing the reliability of elements of the respiratory examination. This may also be reflected in their teaching. Aims: To establish medical students’ knowledge of the reliability of different elements of the respiratory examination.

Summary of work: A cross sectional questionnaire survey of clinical medical students (years 3-5) was undertaken. The questionnaire assessed the reliability of different elements of the respiratory system using a 5-point Likert scale. The results of the perceived reliability of different elements of the respiratory examination will be compared with Cohen’s kappa coefficient values.

Background: Since 2005, the dyadic-formal mentoring program had been implemented in Ped. Dept., BMEC. This research was aimed at studying the medical students’ opinions towards the mentoring.

Summary of work: We conducted cross sectional study in 4th-6th year medical students in the academic year 2010 using questionnaires [Cronbach’s Alpha reliability=0.899; 5 levels Likert scale] to survey their opinions about mentoring.

Background: Our findings demonstrate that our mentors are not only career mentors but their mentorship also covers different models such as apprenticeship, cloning, nurturing and friendship models.
Take-home messages: Mentoring is obviously an important tool for career advancement of the medical students.

10BB12 Medical students lose their competence in clinical skills not applied on real patients: Results of 2-year cohort study

S Mamakli1,2, MK Alimoglu1, E Gurpinar1, M Aktekin2 (2Akdeniz University School of Medicine, Department of Medical Education, Antalya, Turkey; 1Akdeniz University School of Medicine, Department of Public Health, Antalya, Turkey)

Background: The aim was investigating loss of competence (LoC) in clinical skills of medical students with predictive factors, and determining efficiency of refresher training on skill retention.

Summary of work: The second and third-year students (n=170 and 160 respectively), who gained skills of blood pressure measurement, taking pulse and body temperature in the first year of school, were asked to perform these skills. Their performance was scored over 100. Socio-demographic characteristics and variables possibly effective on LoC were determined. Next year, 159 third-year students received refresher training and sit for an OSCE. OSCE scores were used to explore refresher training efficiency on skill retention.

Summary of results: LoC was significant in all skills. Multiple regression analysis revealed “performing the skills in real life” was the unique predictor of LoC for all skills. “Gaining the skill before medical school” predicted LoC in blood pressure measurement and taking body temperature. “Time” and “gender” were predictors for loss of blood measurement skills. “Restudying the same year” predicted LoC in taking body temperature. “Time” and “gender” were predictors for loss of blood measurement skills.

Conclusions: In time, LoC occurs in clinical skills of medical students.

Take-home messages: LoC can be compensated by refresher training and real life applications.

10BB13 Unintended consequence of a morning board round

M Patel*, K Hunjan, A Dewar, A J R Morris, B V Prathibha (William Harvey Hospital, Kennington Road, Willesborough, Ashford TN24 0LZ, UK)

Background: Clinical experience is vital for medical students as they prepare for their role as junior doctors. In order to maximise this, they often roam the wards looking for pointers from junior and senior doctors for experiential learning and any patients who would be good sources to learn from. Traditionally, this has been through word of mouth. Morning board rounds were introduced in our trust to improve team working and co-ordinated patient care. We describe an unintended consequence of this which has resulted in a better system for experiential learning.

Summary of work: The morning board rounds consist of a combined multi-disciplinary meeting with all groups of professionals, including medical students, doctors, nurses, therapists and social workers. All patients are discussed at the meeting with an emphasis on improving communication and patient care. It was observed that this also provided a fertile ground for the team to learn together and we have introduced the involvement of the Clinical librarian once a week. It has also served to provide a database of in-patients with good signs who are willing to volunteer for teaching and learning sessions. This serves as an up-to-date information centre for students.

Conclusions: Improvements in education can be hidden in all service changes.

10BB14 Improving educational practices: art professionals collaborating with health teams

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Background: The Pedagogic Education of Preceptors is directed by Health and Educational policies. It aims to understand and practice a) many methods on health education, b) recognize education as specific knowledge and c) knowledge production. The last aims to extend pedagogical competence, develop individual and collective projects, qualify the Residency and consolidate Continuing Education.

Summary of work: We sought partnership with Grupo Roda Gigante, which merges doctors and clowns. The group has an artistic-educational proposal aimed at health promotion in hospitals and building, together with the community.

Summary of results: The initial approach included workshops for looking, listening, relating exercises in a space of partnership. During the second workshop, preceptors and residents exercised, through games, values of trust, partnership and leadership. At last we focused on different perceptions of the hospital routine, in which the preceptors were blindfolded, wearing different uniforms, on gurneys/wheelchairs or listening to stories in the hallway.

Conclusions: We found that artist-educators helped to build a community of practice and collective production spaces, where commitment, emotion, listening, creativity and responsibility were experienced through relationship between participants.
Take-home messages: As continuing education, the experience of artists in qualification of health professionals is a potent strategy for teacher development, rescue of virtues and improvement of suitable communication in healthcare.

10BB15 Laparoscopic or Open Surgery: The benefit to medical students
G Ridiough*, P Stather, H Cheshire (Northampton General Hospital, Northampton, UK)

Background: Surgical teaching must begin at an early stage in training, with theatre time a beneficial activity for students to learn anatomy, observe operative technique, and gaining teaching time with the consultant. With an increasing amount of laparoscopic surgery being performed, this survey aimed to determine student opinion regarding their training benefit between open and laparoscopic cases.

Summary of work: A prospective survey of 32 medical students from Leicester University.

Summary of results: All medical students had observed open procedures, with 91% scrubbing in, and 78% assisting. All students had observed laparoscopic surgery with 53% scrubbing in, and 34% assisting. 75% of students felt that open surgery gave better understanding of the anatomy of the case. 59% of students reported receiving more teaching in open cases, and 59% felt they could follow the operation better in open cases.

Conclusions: The majority of students feel that they gain greater benefit from observing open compared to laparoscopic surgery. Surgeons should ensure that students are taught during laparoscopic cases, and that they can follow the procedure.

Take-home messages: Ensure that students are involved with laparoscopic cases in particular to improve their anatomy and operative knowledge.

10BB16 The ‘Funky Foam Heart’ – an innovative way to teach medical students about congenital heart disease
E Bradshaw (ST7 Paediatrics, Northern Deanery, UK)

Background: Teaching students congenital heart disease (CHD) in a small hospital can be challenging. It’s a topic that students find difficult and real cases are rare. Many students expect a degree of fun in their learning. I therefore introduced the ‘Funky foam heart’ (FFH), a tool designed to help students visualise and grasp the concepts of CHD.

Summary of work: The study aimed to explore student opinion on whether the FFH was a useful tool for learning. Data was collected using 2 methods: a questionnaire using a 5 point Likert scale and free text and an informal group discussion with doctors.

Summary of results: 18/20 students completed the questionnaire. The recurring theme was that students had previously found CHD confusing but the FFH helped understanding by allowing visualisation and discussion. All students felt it was an enjoyable tool which supported learning. The group discussion led to suggestions that the FFH could be used with trainee doctors and not just students. Similar foam tools could be developed for other body systems.

Conclusions: Results suggest students find the FFH a useful tool for learning. However this study is limited by the small number of students involved.

Take-home messages: The FFH seems to reinforce the notion that participative learning is fun and effective; however one should not underestimate the power of seeing real cases of CHD.

10DD Secrets of Success 8

10DD1 ‘Playing around’ - Development of a video game to support medical and patient education in pediatrics
E Bassilious*, F Mahmud*, A Dubrowski2, A Schwartz2, C Kamin3 (1The Wilson Centre, University of Toronto, Toronto, Canada; 2The Hospital for Sick Children, Toronto, Canada; 3The University of Illinois at Chicago, Department of Medical Education, Chicago, USA)

Short description of innovation: Video games promote experiential learning by providing opportunities for experimentation in a safe environment. We have created a video game addressing numeracy skills, the ability to understand and apply numbers to daily life, for use by adolescent patients with diabetes and medical students in endocrinology.

What will be demonstrated: This video game is based on a popular internet game. Using tools analogous to diabetes management skills, players need to maintain the energy in a power station. This replicates the level of decision making necessary for managing blood sugar levels in multiple situations. Audience members will have the opportunity to play this game.

What is particularly interesting about the innovation/How it could be implemented: The use of video games in education is limited. Our game addresses diabetes management skills without bringing the disease to the forefront. This is particularly appealing to adolescents with a chronic disease. Furthermore, this experiential learning is attractive to medical students eager to practice managing patient blood sugars in “real-time”.

The game can be played on any computer and can be made available in clinic waiting rooms. Data on its use can be tracked for feedback to learners and for correlation to health outcomes.
Why participants should come to the demonstration:
Video games are popular and should be explored as a method for enhancing patient and medical student education.

10DD2 Interactive Video: A Novel Concept to Enhance Physical Examination Skills
N Uebelhart*, P Cooles, I Toussant (Ross University School of Medicine, 630 U.S. Highway 1, Suite #500, North Brunswick, NJ 08902, USA; Ross University School of Medicine, Picard, Dominica, West Indies)

Short description of innovation: These are interactive videos in which medical students observe a scripted physical examination task, and click on the screen whenever a mistake is observed. When an error is identified, a brief explanatory comment appears. There are approximately 15 mistakes in each 3 to 4-minute video.

What will be demonstrated: A computer will be used to display the video.

What is particularly interesting about the innovation/How it could be implemented: These are fun and entertaining exercises which students enjoy as they attempt to find the next mistake. This activity is also competitive; a tally at the end of the program records how many errors were successfully identified.

Why participants should come to the demonstration: This is a novel approach to teaching physical examination skills that many institutions may be unaware of. This method can be easily adapted to each institution’s needs and mode of teaching.

10DD3 Annotated videos as an adjunct to teaching topics in clinical sciences
K Premkumar*, N Cowie, C Coupal, K Boechler (University of Saskatchewan, B103 HSc, 107 Wiggins Road, Saskatoon, Canada S7N 5E5)

Short description of innovation: As enrollment in undergraduate medicine soars, curriculum planners are finding shortfalls in introduction of timely clinical teaching cases, availability of clinical teachers and in standardization of clinical experience for all students. While medical simulation fills this need, it is at the cost of scheduling large classes into small groups along with the difficulty in recruitment of clinicians for debriefing.

What will be demonstrated: We have developed a software that enables teachers with limited computer experience in programming, to insert training videos into a template that is linked through cue points to questions, answers, library articles, web-based reference material and other media such as videos, pictures and sound files.

What is particularly interesting about the innovation/How it could be implemented: Using this annotated video player (AVP), we scripted training modules that include communication and teamwork, physical examination and problem-based learning cases. Each module enables a self-directed learner to view the video, submit answers to programmed questions, receive immediate feedback, and link to other media to provide a comprehensive learning experience.

Why participants should come to the demonstration: In this presentation, the AVP will be showcased and lessons learned discussed.

SESSION 11: PLENARY

11A From 'Knowledge Transfer' to 'Knowledge Interaction' - changing models of research use, influence and impact
Huw Davies (University of St Andrews, UK)

How can we better understand the relationships between the knowledge created from – or informed by – research, and its subsequent use, influence and impact? This presentation will explain different models of ‘research use’ and explore their implications. Its emphasis will be on the role of theoretically-informed social research and its potential application in healthcare policy, management and service delivery. It will help explain some of the complexities of knowledge creation and use, and will suggest some of the practical ways in which research-based knowledge might better inform policy and practice in healthcare.

Huw Davies is Professor of Health Care Policy & Management at the University of St Andrews, and formerly Director of Knowledge Mobilisation & Capacity Building for the UK NIHR ‘Service Delivery and Organisation’ national R&D Programme. His research interests are in service delivery, encompassing: evidence-informed policy and practice; performance measurement and management; accountability, governance and trust. Huw has published widely in each of these areas, including the highly acclaimed Using Evidence: How Research Can Inform Public Services (Policy Press, 2007).

11B Uncovering Evidence and Understanding its Complexity
Simulation in healthcare education continues to grow although research demonstrating its sustained effect on learners and impact on patient care in this is still in its infancy. The continuing mission of the Best Evidence Medical Education (BEME) review group on simulation research is to further clarify and better understand the complexity of features and uses of healthcare simulations that lead to most effective learning.

S. Barry Issenberg is Professor of Medicine and Assistant Director of the Gordon Center for Research in Medical Education at the University of Miami Miller School of Medicine. His career focus has been in the development, implementation, and evaluation of simulation-based training systems. Dr. Issenberg also chairs the Topic Review Group on Simulation for the Best Evidence Medical Education (BEME) Collaboration.