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Introduction

The sixth annual International Medical Education Leaders Forum (IMELF) was an opportunity for leaders in medical education from more than 13 countries to come together to share innovation and learning, discuss issues and challenges, and consider possible next steps and/or opportunities for advances in postgraduate medical education and continuing professional development.

Over a full day of plenary sessions, roundtable and group discussions, participants in this year's event deliberated competency-based medical education and its effect on training and assessment, as well as the impact of technology and other modernized processes on learning and education. Engaging and interactive, several small-group forums were held on themes selected in discussion with the 2013 IMELF registrants that represented broad and cross-border topics of interest:

- I. Competency-based accreditation
- II. Competency-based assessment
- III. Generational issues
- IV. Learning environment: Innovative approaches
- V. Providing feedback
- VI. Revalidation/Recertification
- VII. Training: Innovative approaches

IMELF is an invitation-only event hosted annually by the Royal College of Physicians and Surgeons of Canada. It is geared towards leaders in medical education at the CEO, President and dean levels in sister organizations and medical education institutions across Canada and around the world.



Chaired by Linda Snell, MD, FRCPC, Professor of Medicine, McGill University, and Royal College of Physicians and Surgeons of Canada CanMEDS senior clinician educator

Speakers: Nick Glasgow, Markku Nousiainen and Linda Snell.

The basics of competency-based medical education (CBME) and why we should change

Dr. Snell opened the session by asking those in the room – “What do you think about CBME?” While responses were mixed, this informal poll confirmed broad support among delegates for CBME, but ongoing challenges related to its implementation. Many of these challenges stem from the adoption of the four basic principles of CBME, which necessitate significant deviation from the time-based approach dominantly in use in Canada. These are

1. a focus on outcomes,
2. an emphasis on the abilities needed by the graduate,
3. a de-emphasis on time, and
4. a promotion of learner-centeredness.

While there is little disagreement about the value of CBME, the question of how to adapt current systems to match this approach looms large. Dr. Snell argued that there is a great need to embrace CBME to meet and overcome some of the challenges facing medical practice worldwide and suggested that thinking of CBME as a spectrum of approaches may help settle some of the commonly-cited concerns surrounding its deployment.

Challenges in the practice of medicine and criticisms of the medical education system

There are numerous challenges facing medicine worldwide, both the practice of medicine and medical education, which are driving a reevaluation of the medical system. These include

- Safety and quality: Patient safety and quality are being emphasized, leading to new expectations.
- Knowledge explosion: Medical knowledge is exploding and the way of managing knowledge is also drastically changing, affecting the way people do and should maintain their competence.
- Technology explosion: The volume of technologies available requires constant learning and implementation of new techniques, etc.
- Resources: A universal challenge.
- Workload: Affects both trainees and physicians in practice.
- Team practice: Team-based practice has been popularized, requiring physicians to take on new roles.
- Globalization: The movement of people requires planning to ensure doctors have the needed skills in a variety of jurisdictions/locations.

- Social responsibility: How best to serve patients and society?

Running parallel to these challenges are changing demands from the public in what they desire from their physician. Today's patients want access to high-quality, safe care, but also a doctor who is compassionate, a good communicator, ethical, professional and competent. In essence, they want the three "A's": Affability, availability and ability. Patients are also becoming better consumers of medicine because of the Internet, which has granted them better access to information on illness and on doctors. This, Dr. Snell argued, has fueled several criticisms of medical education as it is currently constructed:

- It is inefficient, too long and may not be focused on the needs of learners or of the program.
- There is a tension between service and education/learning that requires rebalance.
- Not all trainees receive the same training experiences — are they equally competent?
- Medical education may be too dehumanizing or too focused on disease and biomedical sciences, at the expense of other skills.
- Medical education is still very knowledge-centric and needs to find better ways of managing that information.
- Who are we training? There are inherent strains in the generalist versus specialist practice debate.
- Ultimately, medical education may not fully prepare graduates for practice or meet society's needs.

Dr. Snell argued that a competency-based approach to medical education can help quell some of these criticisms and ensure graduates are competent in all domains (e.g. technical skills, as well as communication, teamwork, time and patient management, etc.) and it is therefore leaders in medical education's responsibility to society, to themselves and to the profession itself to adopt CBME.

CBME is coming; how to plan

The concept of CBME is not new. Dr. Snell reviewed several definitions before defining the end goal – competence – as an "array of abilities, knowledge, skills and attitudes across domains and aspects of performance within a context." Competencies must be considered within a stage of training, be multidimensional and flexible to change over time and with new experiences and settings. CBME is oriented towards preparing trainees for the effective practice of medicine, to meet patient and societal needs. To do this, a focus on outcomes over process is important. Competency-based curricula and processes should therefore emphasize not just skills and attitudes, but their synthesis into observable behaviours/competencies (e.g. a hierarchy of competencies over learning objectives).

CBME is an approach to the design, implementation, assessment and evaluation of programs using competencies as a framework. To frame a competency-based program, one must consider the abilities needed of a graduate and work backwards from there.

There are six steps to planning competency-based education:

- Step 1: Identify the needs of graduates, in the context of their disciplines.
- Step 2: Explicitly describe competencies and their components.
- Step 3: Develop milestones of achievement, or stepping stones, to reach competence.
- Step 4: Select educational activities, experiences and instructional methods.

- Step 5: Select assessment tools to measure progress along the milestones.
Step 6: Program evaluation.

Dr. Snell cautioned against creating competencies at too granular a level, which would make them unworkable, as well as planning in some other, non-competency-based learning to help mitigate the risk of simply training technicians whose ambition ends with achievement of the listed competencies. She also suggested that creating an aspirational “mastery step” for trainees, that many will never attain, may be another effective way of safeguarding the quest for excellence.

Is CBME the end of time?

Dr. Snell's takeaway message was that competencies and competency frameworks could and should inform the basis of training for medical learners, in particular at the postgraduate level, but not solely (she noted that these frameworks also have merit at other stages of development, such as at the undergraduate level and in continuing professional development).

The benefit of competency markers within a CBME framework is that they provide clear goals for learners, as well as for teachers. While challenges and concerns with this approach exist, she believes they can be addressed — in particular if a spectrum of approaches for competency-based design is considered. Ultimately, learners learn at different rates and in different ways. Dr. Snell encouraged attendees to consider time as a resource, rather than the outcome itself. Emphasis should be on progression and whether or not graduates achieve competence. She proposed that flexibility in terms of time within a program might make some curricula more efficient, engaging and learner-centered, thus enabling individuals to adjust at their own pace.

Nick Glasgow, BHB, MBChB, MD, FRNZCGP, FRACGP, FACHPM, Dean, Medicine and Health Sciences, and Dean, Medical School College of Medicine Biology and Environment at the Australian National University in Canberra, Australia

Dr. Glasgow's presentation considered the policy-governmental dimension of CBME with the question

- What might people who manage health services/facilities or policy-makers in positions of influence in the government think of as a management or policy response to competency-based developments in medical education?

Increasingly, policy-makers and individuals who manage health services have an interest in medical education and Dr. Glasgow illustrated some of these connecting points with two examples that showcased, for instance, how restricting the kind of health professionals who can prescribe or administer medication (currently only physicians and some registered nurses) can have clear and direct impacts on patients' access to care — a public issue and therefore of concern to government. Such policy-related debates only become heightened in light of current international concerns that include a shortage of health professionals, changing burdens of disease, changing demographics, changing mixes of specialties needed to meet society's needs, constantly evolving technologies, and so forth. In Australia, Dr. Glasgow added to this list challenges in the provision of care to Aborigines, as well as related rural and remote care disparities — all aggravated by a system of publicly and privately shared health costs.

To help manage these issues, the Australian government set up Health Workforce Australia several years ago to model the country's health personnel. This modeling identified macro-level issues and needs, and findings from the report suggest that there is a great need for action in training, geographic distribution of professionals, staff retention and immigration, if Australia is to meet future demands for health care. So while there is a sufficient supply of doctors in the short-term, there remains serious mal-distribution of them across the country and a different mix of specialists available than what the population/community needs. An effective solution will require collaboration between government and medical education to, for example,

1. Increase supply: Most solutions are education and training-related (e.g. to increase numbers you need more places in programs; shorter training times impacts current medical education; changing the skill mix requires thinking differently about curriculum; and changing health professionals' scopes of practice and strengthening generalist skills requires different kinds of training).
2. Reduce demand: An important part of this solution is related to health literacy, health promotion and disease prevention. This necessitates enhancing community capacity for self-care.

Interest in CBME: Policy-makers versus medical educators

Dr. Glasgow explained that policy-makers are particularly interested in CBME because it defines what you need and focuses on work-readiness. Policy-makers also like that it specifies the outcomes-required, has the potential to reduce training time (time is variable) and aligns standards with community expectations and social reality. In medical education, there is a tendency towards additional scholarly debates and dialogue on CBME related to concepts and the meaning of words like "competence." When bridging the scholarly environment with those outside of it, there is the potential for a great deal of confusion and misunderstanding. It cannot be taken for granted that both parties are talking about the same things and this is a real challenge. Using the example of Australia's Health Education and Training Institute's (NSW Health) recently-released online modules of competencies for workers, Dr. Glasgow cautioned that it is important to recognize that the competency discussion can very easily get mixed up with discussion of compliance and capabilities.

Dr. Glasgow concluded with several questions for further consideration, focused on whether or not educational and training programs are one and the same, or if there is a difference between education and training; he also questioned who controls medical education curriculum and if educational literacy should be considered alongside health literacy.

Markku Nousiainen, MD, MSc, FRCSC, Associate scientist, Holland Orthopaedic and Arthritic Centre, University of Toronto

Dr. Nousiainen has been running the competency-based curriculum (CBC) at the University of Toronto (UofT) for the past two and a half years of the program's four year history. This program was the brainchild of Richard Reznick, MD, FRCSC, who convinced the leadership behind the orthopedics program to participate in a pilot study running CBC in parallel to their regular stream. The results of this pilot are being carefully watched by the medical education community in Canada and Dr. Nousiainen provided an overview of how this program was constructed and implemented, as well as results and lessons-learned.

CBME, as defined for the Toronto program: A training process that results in proven competency in the acquisition and application of skills and knowledge in medical practice that is not simply dependent on the student's length of training or clinical experience.

Steps of program implementation

To introduce the CBC pilot stream, a four-step development plan was implemented:

Step 1: Held brainstorming sessions with key stakeholders to determine how they could make this curriculum work in Toronto; leveraged input from colleagues in the UK who had begun using a similar model several years previously, as well as consulted scholarly research.

The brainstorming sessions resulted in several clear goals: (1) accelerate trainees' skill-acquisition through intensive use of skills labs and simulation-structured practice; (2) diminish unproductive time (the argument here was that the time-spent on auxiliary rotations tends to be service-based — e.g. admissions, charts, blood work — not educational; with the Royal College's approval, they removed all rotations from the CBC learners' training that did not directly relate to Orthopedic Surgery); (3) ensure CBC trainees have the same amount of pre-op and post-op work as regular-stream residents and the same amount of call; (4) ensure the CBC training produces surgeons not technicians; (5) develop comprehensive and appropriate evaluation methods; (6) transition to a curriculum that is not time-based and where trainees progress from a training module only when that objective is achieved; and (7) promote longitudinal retention of skills.

They also wanted to employ best practices from the literature such as working in motor-skills development; emphasizing deliberate practice with frequent feedback that is personal, constructive, summative and formative; and having a small teacher-to-learner ratio, with targeted teaching and appropriate evaluations.

Step 2: Developed objectives to satisfy the Royal College's criteria for training.

Bill Kraemer, MD, FRCSC, program director at the time the CBC was being developed, determined that Orthopedic Surgery training in Canada could be broken down into 21 distinct modules based on the CanMEDS Roles, each with clearly-defined objectives. They developed an overall curriculum map that placed these modules within phases of skills acquisition and knowledge. The first-phase modules teach trainees the basic skills and knowledge they need. Once CBC trainees meet the "milestone" of passing Phase 1, they move to Phase 2 that builds on those basic skills and then Phase 3 that puts it all together.

To reduce paperwork and administrative burden, the UofT's CBC focuses on assessing only three, main, relevant CanMEDS Roles per module. One of these is always the Medical Expert Role, but the other two choices are at the discretion of the module leader. Displaying the overall curriculum map, Dr. Nousiainen showed that there is a fairly even distribution horizontally and longitudinally of the teaching and assessing of the different CanMEDS Roles within different modules, across the different phases of training. Each module also has its own curriculum map that specifies the learning context and what general learning outcomes, goals and objectives are expected of the Role(s) being assessed. This map also details the teaching and learning strategies that will be used and what overall evaluation method or tool will be employed to determine a competency.

Step 3: Developed evaluation tools.

To manage potential faculty burnout, the CBC program established two evaluation points: halfway through training and at the end of training. The midpoint evaluation helps trainees and teachers assess how things are progressing, focused primarily on the achievement of Medical Expert competencies and whether the trainee is on track for the final evaluation.

Step 4: Determined how to implement this curriculum within the context of their program (practical considerations).

After getting organized and mapping out the curriculum, it was time for implementation. Funding for this stage was supported through a grant from the Ministry of Health and Long Term Care services. Even so, and in spite of evidence that the CBC is highly-effective, they encountered a number of practical challenges with this approach:

- Resource intensive: The CBC resulted in increased costs for skills labs, cadavers, training courses, staff, etc. There were concerns with potential burnout, workload increased more than was projected and this required recruitment of extra teaching staff from the community to offload some of the work.
- Scheduling issues: Residents learn at different rates, so if they were expected to pass a module but were unable to, they had to stay and finish; this led to issues with rescheduling, additional workload, etc.
- Flexibility of the trainee: CBC trainees have to be more proactive and flexible; they have to travel to other hospitals, work with multiple surgeons and sometimes share clinical work amongst peers (this required highly-developed professionalism).

Update on the first cohort of residents

There are currently 14 residents in the CBC program. The first cohort of three students who started in 2009 have either finished or are close to finishing the program; the second cohort are just completing it and the third cohort is moving at the same pace as the others. Two of the first three trainees passed the CBC in three years and eight months of training and took the Royal College exam last spring and passed [N.B. when the Royal College approved the UofT's original proposal in December 2008, they agreed that CBC residents could sit for the Royal College exams when they were ready, regardless of time spent in training — a significant exception]. The third trainee from the first cohort is taking additional time to work on a few modules, flexibility that was built into the CBC.

Dr. Nousiainen concluded by reiterating his belief that CBC is an effective and novel way to train residents and offered to share their program's learning and documentation with anyone interested. The UofT's Division of Orthopedics recently decided to transition to a CBC program-wide, using a hybrid model that will frame competency-based learning in a time-based structure, due to the practical considerations discussed.

Group discussion

Much of the discussion focused on Dr. Nousiainen's presentation, such as selection criteria, average time to complete a module, necessary staff support/resources and what was meant by a hybrid model. Dr. Nousiainen explained that the first cohort of students was randomly selected; later, a selection committee was convened. While overall training time was reduced, there was no minimal time recorded. Part of the need for additional staff was due to jealousy from the regular-stream residents, which required placement in different hospitals to reduce conflict. The hybrid model will leverage the program's historical data, mapping out new timelines using the same curriculum and assessment processes. The cost issue came up numerous times and delegates agreed that making best use of scarce resources is a valid concern, especially since costs are often shared among numerous parties and changes in government impact funding. The need for learner insight was also discussed and it was suggested that robust feedback from numerous sources and face-to-face meetings to discuss objectives, especially at the start of training, can help manage this issue. Finally, skills transferability/program transfers in CBC scenarios, tailored to specialty-specific training, were highlighted as important considerations as CBC is developed.

Concurrent sessions

1100-1230

- I. Technology-enabled learning
- II. Reformation of surgical education and training

I. Technology-enabled learning

Chaired by Jennifer Alexander, MB BS, MHP, Executive officer, Royal Australasian College of Physicians

Speakers: Sally Davies, Ali Jalali, and Jonathan Sherbino.

Ali Jalali, MD, Professor of Anatomy, University of Ottawa

Social media is extremely popular and has a big population of users who spend hours each day on these sites. Dr. Jalali explained that there are a number of reasons why leaders and medical educators should care about social networks, most notably to avoid missing things that are relevant to their practice.

- As leaders, it is important to be aware/manage both your digital shadows – the things others say/post about you online – and your digital footprints – what you post about yourself (social accountability). There is also a great potential to reach others via social media (health advocacy). Consider the possibility of impacting the public's health literacy by weighing in and steering online health discussions that are based on misconceptions.
- As medical researchers, it is important to disseminate your work. Dr. Jalali advised that social networking sites, as well as open access to journal content, can help increase promotion. Ultimately, he believes the best way to disseminate research is to create a website and organize everything in one place. At a minimum, medical educators should have a LinkedIn account, which Dr. Jalali described as a "professional Facebook" or online résumé where you can control the content. In contrast, Facebook is more personal. On Facebook, it is best to protect your personal identity and if using professionally, to create a Facebook page (public or private) that can be shared, but that is separate to your personal account. Twitter is also a great site for making connections/gathering information, but must be filtered correctly (e.g. by using and searching hash tags).

Dr. Jalali concluded with several practical/ethical considerations for social media use in medical education, such as choosing your tool of dissemination wisely (e.g. not everyone has high speed internet or access at all, so a streamed video might not be accessible to all students). You also cannot assume that students know how to use social media (e.g. privacy settings, etc.) so some basic principles should be taught. If you are going to disseminate others' work and articles, you must take into account copyright. Finally and perhaps most importantly, there is no privacy online. If you do not want others to see it, do not put in online. The bottom line, according to Dr. Jalali: technology is a great tool, but just a tool; do not let it distract you from patient health care.

Jonathan Sherbino, MD, FRCPC, Associate professor, Division of Emergency Medicine, Department of Medicine, McMaster University and Royal College CanMEDS clinician educator

Dr. Sherbino spoke of social media as a community: engagement and interactions that are not bound by geography or who is in the room. In contrast to Marshall McLuhan's infamous statement "the medium is the message," Dr. Sherbino argued that the medium is not the message, rather a tool that will allow medical educators to engage learners and carry out their core mission of training the next generation of doctors. Following from that, he explained that information and learning are not transferred, they are constructed. Social media changes the construction of knowledge into a social construction process where we effectively leverage the power of technology to connect to a community of people who share a common interest. We learn from each other, engage with each other and advance ideas in new, interesting ways — technology allows that transformation across boundaries. As such, the medium is not the punch line, but it is important in terms of what it allows us to do.

Using Bloom's taxonomy of levels of learning, Dr. Sherbino explained his second point, which was that social media (and these social constructions) can help us move from lower to higher order learning. Social media and technology can enable educators to maximize the skills and content of their content experts, and to maximize the exposure of their learners by archiving content and engaging and nurturing learners to reach these higher levels of learning. Dr. Sherbino shared an example of his own classroom where students watch the lecture at home outside of the classroom and are quizzed before entering the lecture theatre. Knowing where students are in their learning and having them reach a minimal threshold of knowledge via the power of social media, means that the time in the classroom can be focused on moving learners to deeper knowledge. Social media is therefore useful in unleashing the content expertise of content experts — information that will continue to be relevant — which is a very effective return on investment for organizations.

Sally Davies, MA MB, BChir, MSc (MedEd), FRCP, FLSW, Regional Specialty Advisor, Cardiff University

There are many challenges ahead for leaders in medical education, most of who come from the baby boomer generation and who must contend with the changing realities of Gen X, Y and Z's (so-called "millennials"). With exponential growth of knowledge and information, it is becoming more and more important to know how to access and prioritize the right information. Dr. Davies shared two examples of projects undertaken in Wales to try and take advantage of new technology: the online portfolio and the I-Dot project at Cardiff University.

- Every doctor in Wales now uses an online portfolio to track learning for the purposes of revalidation. This has been very successful. Physicians see the progress of their activities over their five-year cycle, giving them a real sense of achievement.
- I-Dot was conceived as a way for all physicians to have all the information they need at their fingertips, bedside. While now counted as a success, there were obstacles and a great deal of effort that went into the uptake of this project including the need to buy licenses for access to the program from physicians' personal mobile devices and to get uptake, increase awareness and knowledge of the program among younger generations of physicians.

Adding another dimension to the story, Dr. Davies also explained that today's patients very often seek their own health advice online and then challenge their doctor and his/her

treatment plans. Are we training physicians to deal with this new reality, she asked. So, while social media is a wonderful innovation, there are several challenges embedded in its use to contend with, such as confidentiality issues, personal/professional divides, ethics and professionalism.

Group discussion

Discussion centered on how social media can best be leveraged for relevant learning and skills development, as well as the possibility of utilizing massive open online courses to distribute knowledge more broadly, to stay relevant and deliver content in more of a competency-based way versus a time-based way (e.g. social media allows for the delivery of core content at a time that is convenient to the learner). The use of social media and online tools like ePortfolios were determined to be essential for competency-based evaluation, with the caveat that online tools can never replace real experience and a caution that trends should not be adopted just for the sake of being current. Fit for purpose is crucial. Another interesting dimension of social media that was discussed was that social media may change the rights of passage in learning and traditions of the profession, so this is another important consideration. Social media's prominence among patients must also not be undervalued. Technology is shifting the asymmetry of information between doctors and patients. On the positive side, technology can help patients learn about health issues properly, using critical appraisal. One delegate also suggested that CanMEDS Roles and new competencies must be considered within a social media context and associated new challenges, such as to the notions of professionalism and the Health Advocate Role.

II. Reformation of surgical education and training

Chaired by Ken Harris, MD, FRCSC, Executive director, Specialty Education, Royal College of Physicians and Surgeons of Canada

Speakers: Doug Hedden, Ajit Sachdeva and Stephen Tobin.

Dr. Harris opened this session, reflecting that while we are doing a good job in surgical education, we could do better. He distinguished between training technicians, which is not the goal; rather, physicians with added skills. There are numerous challenges within the global, surgical community such as new medical knowledge, duty hour restrictions and new gadgets that impact surgical practice. Can we still provide good training, he asked. Simulation is expensive, exposure to the operating room is competitive and linking these trends to continuing professional development, he noted that few surgeons end up practising exactly what they were taught, which has implications for competency-based assessment.

Stephen Tobin, MB BS, FRACS, FRCSI, FRCS, *Dean of Education, Royal Australasian College of Surgeons*

Dr. Tobin began his presentation with an overview of the history and purpose of the Royal Australasian College of Surgeons (RACS) and its important role in ensuring excellence in surgical education and practice. There are a number of issues with current surgical education and training (SET) at both the undergraduate and graduate levels, related to the structure of training, the need for a more sophisticated trainee selection process, improved supervision-feedback loop and the need to ensure quality assessment and an adequate volume of trained educators/supervisors. There is also a need to train not only competent but confident surgeons. To tackle this, the RACS has created online tools, such as eLearning modules, online links, resources and presentations for pre-vocational use (J-Doc). In addition, they are creating numerous self-assessment tools for in-program use, such as an ePortfolio. New Fellows need particular support at the transition points, such as matching to positions, pursuing overseas work, private practice or post-Fellowship. The RACS SET reformation is grounded in the community and in meeting community needs. Ultimately, it could lead to better quality applicants, selection and supervision; to a Fellowship examination that better measures competent practice; and to more support in the transition to the workplace and for lifelong learning through an ePortfolio and other tools. The road to get there will require a more robust evidence-base and evaluation measures, good supervision and support for supervisors (who will help motivate trainees), competency-based assessment on tasks that are relevant to surgical practice and greater leadership in regards to surgical education both at home and internationally.

Ajit K. Sachdeva, MD, FRCSC, FACS, *Director, Division of Education, American College of Surgeons*

Bringing an American perspective, Dr. Sachdeva reviewed some of the challenges in transitions during surgical education — from medical school to residency and from residency to independent practice. Focused efforts on smoothing these transitions, as early as possible, is central to achieving the best outcomes and he gave an overview of several efforts by the American College of Surgeons' (ACS) Division of Education to assist in this

regard. These efforts include online simulation curriculum; illustrative videos, images and information on OSCE stations; resources for surgical skills development; and modules for clinical and non-technical skills. Dr. Sachdeva acknowledged that there are numerous deviations in the training and experiences of surgical residents and many struggle to gain the confidence or competence needed for independent practice. In 2012, the ACS hosted a National Invitational Conference on Transition to Practice in Surgery and from that, decided to focus more attention on a transition to practice program to support residents in honing their skills. This program is currently being piloted at several medical schools in the United States. In summary, Dr. Sachdeva reiterated that innovative education and training needs to be an integral part of efforts to enhance the quality and safety of surgery. Furthermore, a special focus needs to be directed at these transition points — these are key to achieving the best outcomes. Organizations around the world should share their knowledge and collaborate together to take advantage of all the possibilities ahead.

Doug Hedden, MD, FRCSC, Walter Stirling Anderson Professor and Chair, Department of Surgery, University of Alberta

Dr. Hedden tackled the issue of resident duty hours (RDH) and whether restrictions improve training and patient safety. He focused this discussion on the findings from the national consensus study on resident duty hours that was recently released by a consortium of nine Canadian organizations including the Royal College of Physicians and Surgeons of Canada. What that study found is that there is no clear evidence to support that academic performance is positively or negatively affected by RDH, but human resources for health is affected. There is substantial variation in resident training models and no one number fits all. That said, duty periods of more than 24 consecutive hours without sleep should be minimized and efforts should be made to enhance safety. One way to begin to address this is CBME. CBME will define the competencies that an individual must demonstrate to be considered a surgical specialist and the CanMEDS 2015 project will outline specialty-specific milestones, in addition to new content in areas such as patient safety and interprofessionalism. This will help shape assessment that will be more specific and tailored to training. Dr. Hedden outlined the Royal College's high-level transition plan to CBME, noting the common challenges of faculty buy-in, manpower, funding and the risk of faculty burnout given the need for more frequent and focused assessments and fluctuating completion timelines. Dr. Hedden closed his talk by touching on post-residency training (fellowship training) and the lack of uniformity, unknown rigor and the need to balance generalist care with the observed tendency of current residents to super-specialize. To balance this, he noted that training should be more personalized and said that the Royal College AFC (Diploma) programs may help bring some consistency to the attainment of new core competencies, emphasizing that they are supplemental not replacement competencies.

Group discussion

Group discussion considered whether the wrong trainees are being selected into surgery and whether there is a place for more procedural, skills assessment or assessment of other competencies during the selection process. The group seemed to consider this a slippery slope in terms of where you draw the line; many surgeons learn these essential skills in training – is it a disservice to exclude them from the opportunity? For example, the University of Toronto's orthopedics program counters this skill imbalance using a boot camp at the start of training. This has proved effective. A provocative question was asked as to whether current surgical education is being done for the betterment of the profession or for the betterment of society. Calls for greater mentorship were well-received and the need to consider the geographical needs of different countries (e.g. training the right people for the right environments), training for practice and supporting transition into practice.

Small-group sessions dominated the afternoon, followed by report-back and discussion with the full assembly of IMELF delegates. The conversations spanned top issues in medical education and professional development, anchored in a CBME context.

I. Competency-based accreditation

Facilitator: Anne-Marie MacLellan, Director, Medical Education Division, Collège des médecins du Québec

Summary of roundtable discussion

This group discussed how assessment should be performed for a competency-based program, as well as whether or not current standards can be leveraged in this shift:

- **Program assessment:** Accreditation of competency-based programs should be based on program assessment and done in a graded way; the program should be assessed in an initial phase and then again later, when it is fully-established with a full capacity of residents (e.g. when outcomes can be measured). The focus of assessment should be on evaluating the outcome — physician practice — not on less dependable and smaller outcomes leading up to that point.
- **Defining milestones:** A competency milestone should be clearly-defined with a clear objective and mission. Since the idea in competency-based curriculum is to train physicians for the community, there should be wider stakeholder input from patient-organizations, policy-makers, medical educators and other organizations so that relevant milestones can be defined, rather than a narrow vision to produce subspecialists.
- **Start with current standards:** It would be useful to use the current standards of accreditation that colleges/organizations use, and identify areas of improvement and recommendations and see to what extent current standards can be applied to competency-based programs, and go from there.
- **Generalizable standards:** The standards in a competency-based program should be generalized and scopes of practice, as well as differences between communities/countries, should be considered when a standard is developed.

Group discussion

A first question considered whether current accreditation processes might hinder innovation. The response suggested that this is likely not the case since innovation, such as CBME, runs parallel to program evaluation in real life and evaluation standards are constantly being reviewed, so they do not seem to hinder progressive change. On the issue of why program accreditation scores are not congruent with students' examination pass/fail rates it was determined that this is because accreditation is not only based on exam success, but on a range of other factors.

II. Competency-based assessment

Facilitator: Ajit Sachdeva, Director, Division of Education, American College of Surgeons

Summary of roundtable discussion

Competency-based assessments face several challenges, such as bridging the ideal with the pragmatic, and the need to consider a place for both formative and summative assessments:

- **Pragmatic vs. ideal:** Much of this discussion came out of the Toronto competency-based pilot presentation, which highlighted that there is a difference between the ideal competency-based assessment and what can actually be provided in the “real-world” environment where resources such as faculty are limited. When ushering in competency-based curriculum, it will be important to listen and respond to faculty throughout the process.
- **Summative vs. formative:** Both summative and formative assessments require rigor, reliability and validity; but there are differences in how they are perceived by the trainee. For example, this may be a particular area of concern for surgeons, moving from a close relationship with an apprentice whom they get to know very well over a period of time, to becoming a more distanced/impartial observer.

Group discussion

Questions focused on whether there is enough interaction between medical schools before the postgraduate level, to provide that continuum of competency-based learning as well as the resource-intensiveness of competency-based assessments. Referencing the Toronto example, the number of evaluators needed would not be feasible in resource-poor environments. These are areas that require further research and debate.

III. Generational issues

Facilitator: Leona Walsh, Professional Support Manager, School of Postgraduate Medical & Dental Education, Cardiff University

Summary of roundtable discussion

A number of pertinent themes were teased out during this roundtable session, which centered on the differences between generations of physicians and how that impacts their approach to work, their use of technology and even what they desire out of medical education:

- **Digital professionalism** (e.g. students’ view of their lives online vs. in public): Older generations of physicians may see themselves as physicians 24/7; younger generations see a divide. A greater number of younger physicians are on social media and in a sense create split personal/professional identities. Moreover, they feel the right to disguise their lives outside of medicine.
- **Processing information and education** (e.g. info-memorizers vs. info-managers): Younger generations of doctors have access to apps etc., so memorization is less of a focus. For them, it is more about knowing how to get the information they need. In other words, they have access to everything; they just need to know how to get it.

- **Flattening hierarchies:** Levels of authority are not recognized to the same extent in younger generations. For example, the term “boss” no longer makes sense. For them, you can still be friends with the people you report to.
- **What the medical profession actually means:** Not only (or no longer) just a dedication to service, medicine is also seen by younger generations as a sort of game/hypercompetitive process that they have won. This may create some degree of entitlement attitudes.
- **Work/life balance:** Especially in terms of their relation to duty hours, younger generations of physicians want to work less. This may be due in part to the “lessons-learned” from older generations who believe they did it wrong and who want younger physicians to have a better life-balance than they had.
- **Desired flexibility and adaptability in medical education:** Younger generations want more flexibility in their medical education system. Medical classes now have students entering programs with multiple degrees. Having collected that education, these students have different skill sets that may influence how they ultimately want to practice medicine (e.g. scopes of practice; perhaps their goal is an administrative position). Different inputs lead to different outputs.

Group discussion

Questions centered on the place of gender in these discussions, generational differences in approaches/understandings of professionalism and the role of technology in driving this generational gap. Ultimately, the promotion of understanding and respect among colleagues of different cultures and generational brackets is paramount and institution-based documentation, such as a Professionalism Act, may help manage some discord.

IV. Learning environment: Innovative approaches

Facilitator: Sally Davies, Regional Specialty Advisor, Cardiff University

Summary of roundtable discussion

Discussion focused on defining what an educational environment is and who/what should be its constituents. The group identified the latter as patients, motivated learners, trainers, the environment itself (within which learning is conducted), good culture and an emphasis on both clinical and nonclinical skills. From that, they came up with four innovations and reflected that a lot of their innovation recommendations were actually reinventions of what they feel has been lost:

- **Get back to the patient:** The patient should be involved as part of the learning environment, to give their feedback to the trainee, to talk about their comfort level with the examination and to share their idea of an ideal patient environment. Reclaiming the “art of medicine” necessitates the involvement of both patients and trainees.
- **Set standards for supervisors:** Several countries (e.g. Sweden, UK and Ireland) have standards for educational supervisors; to undertake this role, they must be trained in how to supervise, how to undertake assessments and how to give feedback. This group advocated extending that requirement to make sure that all trainers are able to do their role, motivated to do their role and able to motivate learners.

- **Revisit the space for learning:** Physical space for education and teaching has disappeared in many institutions and teaching hospitals (e.g. that room on the ward where trainers could sit down with trainees to talk in private). An ideal learning environment requires excellent physical space where that learning can take place.
- **Provide the resources for learning:** An aspect of any learning environment is its resources, including access to simulation, enough computers and the ability to look things up in the moment, so as to not to lose the immediacy of learning.

Group discussion

No additional topics were raised in the group discussion, merely the clarification of a couple of points and added support for reformed learning environments.

V. Providing feedback

Facilitator: Chris Watling, Associate Dean, PGME, Western University

Summary of roundtable discussion

For the purposes of discussion, the group defined feedback as information about learner performance, particularly, information with a purpose. They determined that feedback would become even more important in CBME, due to an increased need for regular, formative assessment, to help learners progress to specific milestones.

- **Characteristics of effective feedback:** These tend to be universal and regardless of the context, feedback is valued when it's timely, clear and specific, credible and associated with the development of an action plan (e.g. not just identifying a problem, but providing directions to address it).
- **Support for the feedback recipient:** To date, most of the attention has been directed to teachers and how to support them in delivering valuable feedback; while important, it is also important to consider the recipient of that feedback and how educators can help them integrate and act on it, and not disregard it.
- **Feedback culture:** There are calls for the development of a feedback culture in a lot of the medical education literature. As a first step, it is essential to understand what this means and then determine what is needed to bring it about. Some ideas include
 - Normalizing critical feedback so that it becomes relatively comfortable to give and expected to receive.
 - Increasing the credibility of feedback through regular and routine observation of performance and within the setting of a trusting relationship between teacher and learner.
- **Striking a balance between feedback and assessment:** One important consideration is that the characteristics of good feedback may not always be good for assessment (e.g. credibility and trust is higher when there are only one or two supervisors who provide feedback and follow-up, but if the number of supervisors is low, it may reduce reliability in assessment).

Group discussion

There was rich discussion on this topic. Questions centered on the differences or similarities between peer-to-peer feedback and supervisor-to-learner feedback, the link between feedback and self-reflection, cultural barriers to feedback exchange, written versus verbal feedback, the importance of how feedback is delivered and whether students should provide feedback on their teachers. Responses to these questions suggested that whether peer or supervisor, the credibility of the person giving feedback is the most important aspect of the exchange. There is also a need to help learners manage and make something of the feedback they receive. In terms of cultural factors, this is an underexplored research area but could perhaps be managed somewhat by tailoring feedback around a strong teacher-to-learner relationship. Written feedback may be a barrier to assessors being completely honest, since it goes on the learner's record. Given a power imbalance between teacher and learner, it can be difficult to gather student assessment of their teachers. Anonymity may encourage responses, but could also cause it to be disregarded (e.g. lack of credibility).

VI. Revalidation/recertification

Facilitator: Roger Strasser, Dean and CEO, Professor of Rural Health, Northern Ontario School of Medicine

Summary of roundtable discussion

Two common questions surrounding revalidation/recertification are why do we have to do this and what meaning does it have? The group agreed that it is important, in a Canadian context, to defend the right to self-regulation, to ensure safe practice, meet public expectations and be legally defensible. Everyone should be part of this process (e.g. regulators, certifying bodies, employers and the physicians themselves) but the driver would likely be whoever holds the most power. Since assessment of performance is crucial, physicians must have access to resources such as knowledge databases, 360 evaluations and more in-depth assessments from peers and/or patients. They must also review their scope of practice throughout their careers. On the question of how often should assessments be done, the group did not reach a consensus. Further discussion is also required on the tools needed to remediate/rehab physicians who do not maintain their skills and competence.

Three imperatives

1. Revalidation/recertification is required and is important for credibility with society/public.
2. It should be performance or evidence-based.
3. It should be less bureaucratic, which could be done if it is better integrated into physicians' practice.

Group discussion

A first question asked how to revalidate a physician whose scope of practice has changed from what they were certified in. A possible solution given was to use peer assessments and review their personal track record. A second question asked about licensure. Without maintenance of licensure, do maintenance of certification programs alone assure the public of a safe physician? One suggestion on how to manage this is to perhaps create a more collaborative approach between certifying boards/colleges and the regulators, nationwide.

Many conflicts stem from issues of professionalism. How do you assess roles outside of the Medical Expert Role? Maintenance of competence programs and 360 evaluations may help. It was also highlighted that rural practitioners are perhaps at a disadvantage in maintaining their range of skills, an issue that needs to be reviewed more closely.

VII. Training: Innovative approaches

Facilitator: Kevin Imrie, Chair, Education Committee, Royal College of Physicians and Surgeons of Canada

Summary of roundtable discussion

Stemming from a free-range discussion, this group came up with a list of five areas where innovation can occur:

1. **Simulation:** Move away from the idea that it has to be hi-fidelity and towards accessible simulation that can take place in just about any rotation and used for technical skills and team development, as well as formative/summative assessments.
2. **Asynchronous learning:** This is important as there are many different learning environments, learning needs and types of learners.
3. **Digital education:** This allows people to learn when they have time and helps manage the resident duty hours issue because learners can continue to learn at their leisure. These tools could be leveraged to have nontraditional teachers teach different skillsets, and to develop best practices and a best lecture series that can be shared online.
4. **Distributive education:** There needs to be more learning in communities where a lot of the care is taking place. This will help meet societal needs and it is important to expose learners to these environments.
5. **CBME continuum:** Embrace the idea that it has to be across the continuum and should probably start prior to the selection of medical students/residents. Efforts should be made to decrease the time in chairs and when in the classroom, curriculum should be interactive.

Some concerns with streaming in early career choice also came up, especially in CBME when milestones are very specific to a specialty. The group determined that more discussion is needed on how to facilitate change into different specialties and the transferability of skills. A need for mentorship for practising physicians was also considered, for example to retrain or learn new technologies.

Group discussion

A caution that was voiced was the potential to overuse simulation labs and risk removing learners from real life contexts; people might be very good with simulators, but unable to communicate effectively with patients. It was agreed by all that simulators can help, but should not replace real patient experiences and be used only as an adjunct and preparation for real interactions. Other benefits of simulation that were discussed include its ability to help bridge cognitive-skills gaps and the theory and practice of medicine (e.g. see one, simulate 101 and then do one). It also helps fill the gap of knowledge delivery with team-based practice.

IMELF 2013 was an opportunity for partnering organizations in medical education to gather and discuss trends, concerns and opportunities in postgraduate medical education and professional development. A focus on competency-based medical education dominated this year's program, and sparked innovative thinking as well as highlighted common challenges and several important areas for consideration as this new approach is further developed and implemented at a program-level in the years to come. Andrew Padmos, MD, FRCPC, CEO of the Royal College, closed the meeting by thanking delegates for their active participation, generous sharing of local perspectives and overall engagement. He also reflected that the presence of familiar faces year-after-year is a great feature of IMELF that helps to enrich discussions and fuel enduring, collaborative thinking.

Links to 2013 presentation slides

Plenary session on competency-based medical education

- Linda Snell: [Click here](#).
- Nick Glasgow: [Click here](#).
- Markku Nousiainen: [Click here](#).

Concurrent session on technology-enabled learning

- Ali Jalali: [Click here](#).
- Jonathan Sherbino: [Click here](#).
- Sally Davies: [Click here](#).

Concurrent session on reformation of surgical education and training

- Stephen Tobin: [Click here](#).
- Ajit Sachdeva: [Click here](#).
- Doug Hedden: [Click here](#).

