The International Conference on Residency Education

La Conférence internationale sur la formation des résidents

Residency Rediscovered: Transforming Training for Modern Care

La résidence renouvelée: transformer la formation en santé pour une médecine contemporaine

CONFERENCE ABSTRACTS  |  RÉSUMÉS DE LA CONFÉRENCE

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2015 International Conference on Residency Education /
La conférence internationale sur la formation des résidents 2015

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Admissions: Selecting residents
Les admissions : sélection des résidents

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Trends in the Canadian diagnostic radiology residency match

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Interest in radiology as a career choice has changed, however there is limited data in Canada to support this speculation. The aim of this research was to evaluate application trends and assess the competitiveness of radiology as a specialty.

Data published by CaRMS from 1996-2014 were extracted and analyzed. Pearson correlation co-efficients (r) and p-values were calculated for all major time-trends.

The number of radiology positions has increased with a strong positive correlation over the last 19 years (r=0.91, p<0.001), while the number of applicants has increased with only a moderate positive correlation (r=0.49, p=0.03). The ratio of positions/applicant (measure of competitiveness) indicates that radiology was the most competitive in 2003, with a ratio of 0.58. After 2003, it fluctuated from 0.70-0.95, with the highest (least competitive year) being 2009. The highest percentage of applicants who ranked radiology as their first choice discipline was in 2003 at 6.5%; a non-significant negative trend was observed from 1996-2014 (r=-0.36, p=0.13), but a sub-group analysis from 2003-2014 demonstrated a strong negative correlation (r=-0.81, p<0.001). The highest percentage of unmatched radiology positions was in 1996 at 14.6%, followed by 8.3% in 2014.

Since 1996, the Canadian radiology residency match has seen a considerable increase in the number of residency positions offered; the increase in applicants has not seen the same level of growth. The match was the most competitive in 2003, with a significant downward trend in subsequent years. The position/applicant ratio went from 0.58 to 0.93 (r=0.63, p<0.03), demonstrating a decline in competitiveness.

084
Trends in selection of surgical career amongst Canadian medical students by gender since 1996: What’s happening to the women?

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Introduction
Women are less likely to choose surgical careers than men. Major deterrents include desire for part-time work and family plans that women find incompatible with surgical careers. The purpose of this study is to assess trends in surgical career selection amongst Canadian medical students by gender since 1996.

Methods
The mean percentage of female or male Canadian medical students selecting surgery as a 1st choice career from 1996-2004 and 2005-2013, and a subspecialty from 1998-2005 and 2006-2013, were compared using an independent t-test. To account for changing gender composition of medical schools, comparison after dividing by the total percentage of male or female graduating medical students per year followed. Data was provided by the Canadian Residency Matching Service (CaRMS).

Results
There was no difference in percentage of females selecting surgical careers between 1996-2004 and 2005-2013, but when adjusted for increase of females in medical school, a significant decrease in interest was found (0.16 vs 0.21% selection/% graduating females, p=0.001, 95% CI 0.024-0.077). A significant decrease in surgical career selection was noted amongst males between 2005-2013 vs 1998-2004 (21.69% vs 27.72%, p=0.002, -0.63-0.09). This finding was no longer significant after adjustment for decreasing percentage of males in medical school.

Conclusion
There is decreasing interest in surgical careers amongst Canadian female students. As females now outnumber males in medical school, this finding raises concern for recruitment of future Canadian surgeons. Educators should support women in their pursuit of surgical residencies through mentorship from female surgeons in leadership and academic positions.
Competency-based education and assessment: Recognizing strengths and weaknesses five years post-implementation

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Background
In 2009, we developed a competency-based teaching and assessment framework founded in the concept of “assessment for learning”, called the Competency-Based Achievement System (CBAS). Regular formative feedback shared in the workplace is documented in an online portfolio, and used to inform summative assessment. The key feature of CBAS is that assessment is not unidirectional: both advisor and resident review cumulative evidence of the resident’s progress towards competence demonstrated across a variety of clinical settings. From this evidence review, advisor and resident come to a mutual understanding of the strengths and weaknesses of the resident. The intent of CBAS is to facilitate student-centered learning by giving the resident the tools for accurate guided self-assessment. CBAS is continually evaluated on key outcome measures, which are reported here.

Methods
Mixed methods program evaluation. Quantitative data (frequency counts and descriptive statistics of documented observations in the CBAS online portfolio; surveys) was elaborated upon and clarified by qualitative data (focus groups and interviews with preceptors, residents, and program directors).

Results
Quantitative data revealed that residents receive regular feedback across all Can-MEDS roles. Summative assessment ratings show a greater range than with prior assessment systems. Residents recognize and acknowledge frequent feedback. Qualitative data reinforced quantitative findings. A key finding was that program directors reported that residents in difficulty are identified sooner, and most remediations are small in scale (between preceptor and resident, without need for a formal contract).

Conclusions
CBAS is proving to be a highly effective competency-based learning and assessment framework.
**Assessment: Cutting edge tools and practical techniques**

**L’évaluation : outils d’avant-garde et techniques pratiques**

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**Clinical Case Assessment Tool (CCAT) – A novel online assessment tool for competency-based medical education**

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**Background**

On July 1, 2015, our Department of Anesthesiology will implement a Competence by Design resident-training program. A new assessment tool was needed that would be intuitive to use, engage both the supervisor and learner in the assessment process, and assess competence in all CanMEDS roles. Our solution was the Clinical Case Assessment Tools (CCAT).

**Summary of Innovation**

The CCAT was adapted from the validated O-SCORE. The electronic format allows the generation of reports that can be used to complete ITERs. The learner is required to reflect on their performance (what they did well, what they would do differently, next steps in learning plan) prior to receiving assessment and face-to-face feedback from the staff physician. Responses are organized by CanMEDS role. The learner’s self-assessment is then shared with the staff, who assesses learner performance on a 3-item anchored scale ranging from “Staff had to do” to “Staff supervision not required.” The assessment is documented by staff using the resident’s electronic device, promoting timely face-to-face feedback.

**Conclusions and Implications**

The CCAT has several innovative features. Firstly, it incorporates self-reflective practices. In addition, it provides the assessor a starting point for providing meaningful feedback, which has been described as the “cornerstone of effective clinical teaching.” By requiring completion of the assessment on the resident’s device, timeliness and accountability currently lacking in current tools is addressed. Finally, the CCAT data will be sent to a central dashboard and compiled with other resident learning data, thus providing a summary of resident competence.

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**088**

**Advanced metrics with online radiology OSCE examinations: Moving towards national benchmarks**

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**Introduction**

Despite the increased emphasis on competency based curricula in North America, testing focuses on high-stakes summative assessment (final exams) with less emphasis on low stakes formative evaluations. This is despite evidence that low stakes environments are conducive to building confidence and associated with improved summative examination outcomes. We propose to develop a tool for formative assessment to evaluate raw exams and test taking metrics and allows for comparison against national benchmarks, within PGY year, within program and across the country.

**Methods**

Between 2012-2014, PGY 2 and PGY 3 radiology trainees from 14 Diagnostic Radiology Programs participated in online Radiology OSCE examinations using custom software. Based on >20,000 data points, we calculated 1) Raw Score and 2) Test Taking statistics in four core disciplines (neuroradiology, thoracic, body, musculoskeletal) and separated between Eastern and Western Canada. In terms of raw score analysis between East and West, there were no significant differences between PGY years. In terms of test taking analysis, the number of skipped questions was similar across the country. The average time to answer a question was significant lower in the PGY3 year compared to the PGY2 year (73seconds vs 58seconds, P<0.05).

**Conclusion**

A single platform for advanced formative assessment is a powerful tool providing both raw performance scores as well as test taking metrics. With this data, comparison to national benchmarks is dramatically simplified and can serve as an adjunctive measure of competency in both formative (end rotation) and summative (end year) evaluations.
A double-edged sword: Exploring residents’ experiences of direct observation during training

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Introduction
Calls abound for more direct observation within medical education programs. Direct observation promises to support both credible feedback and trustworthy assessment; however, we lack a clear understanding of how direct observation should be used to support those aims. In this study, we explored learners’ experiences of direct observation to understand how, under what conditions, and why direct observation impacts learning.

Methods
Using constructivist grounded theory methodology, we interviewed 14 residents (PGY 1-5) and 2 fellows from various specialties about their experiences of direct observation during their training. Constant comparative analysis for recurring themes was conducted iteratively.

Results
Residents’ experiences were shaped by tensions between observation and supervision, between coaching and assessment, and between autonomy and security. Residents valued observation for its potential to enhance their learning, but also recognized missed opportunities and unintended consequences. While participants described frequent observation of “hands on” and procedural work, opportunities for observation of “doctoring” skills, such as interpersonal communication, were often missed. Direct observation could cause emotional discomfort, create a tendency to “perform” rather than simply “do”, and alter relationships with patients. These unintended consequences seemed more likely to impact learning when observation was infrequent.

Conclusions
Residents value learning through working independently and learning through observation and feedback. Direct observation is a double-edged sword; while it may promote a credible feedback culture, it may also create artificial performance and stifle learners’ feelings of autonomy. A culture of routine observation is required to realize its intended effect of making a meaningful impact on learning.
Case logging in an orthopaedic surgery residency program 2004-2014 – Trends and comparison to standards

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Introduction
Self-reporting of surgical cases (case logging) is one of the most commonly employed tools used by surgical residency programs to objectively assess a resident’s surgical experience in terms of volume and types of cases. This study was designed to obtain information regarding trends and accuracy of reporting of surgical cases by residents in one Canadian orthopaedic surgery residency program, and to compare that experience with minimum standards set by the ACGME for residents in US orthopaedic surgery residency programs.

Methods
From 2004 to 2014 residents in one Canadian orthopaedic surgery residency training program recorded operative cases they were involved in using a web-based case logging system. During the same time period, the department’s orthopaedic trauma database independently recorded resident involvement as an assistant on all surgical cases.

Results
Dissimilar trends in case log volume were observed at different PGY levels during this period of observation. Some of these trends reflected changes to the curriculum. For example, fewer cases were logged by PGY5 vs PGY4 residents likely due to the amount of time devoted exclusively to exam preparation. It was determined that residents logged 83% of trauma cases they were actually involved with. Compared to ACGME standards, volumes in most categories were met and significantly surpassed.

Conclusion
Case logging behavior by orthopaedic surgery residents between 2004 and 2014 follows trends, some of which could be explained on the basis of changes to the curriculum. Operative volume at this Canadian institution surpassed most ACGME standards.

Delphi method analysis for creation of an emergency medicine grounded, education based patient satisfaction survey

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Feedback on patient satisfaction (PS) and provider communication is lacking in resident training. Once in practice, promotion, compensation and job satisfaction may be impacted by PS scores. Many surveys exist but none focus solely on emergency medicine settings for educational purposes.

The goal of this project was to create an emergency medicine based educational PS survey with strong evidence for content validity.

The Delphi Method (DM) was used to develop construct validity via an iterative process of surveys, each one followed by feedback, until a pre-specified level of consensus was achieved. Experts were sought from PS education leadership, emergency physician PS researchers and residents with career interest in PS. Questions were mined from four popular PS surveys as well as from group suggestion. The DM analysis determined the structure, content and size of the tool. The group used four point Likert-type scales and Lynn’s criteria for content validity to determine relevant questions from the stated goals.

Twelve experts from around the USA were recruited. A total of seven surveys were required to achieve consensus. 99.5% response rate for all survey items. A ten question, single page survey was selected. An additional page with qualitative questions and additional demographics was agreed upon. Thirty one items were judged to be relevant from the original sixty seven question list. Of these, the top ten were chosen.

The DM produced a consensus survey with content and construct validity evidence. Further work will be needed to obtain evidence for response process and internal structure validity.
Evidence-based cheating: The impact of simulated security breaches on OSCE performance

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Introduction
In high stakes examinations, test security is an important issue to support valid score interpretation. When students gain unauthorized access to test materials, it can create an uneven advantage and lead to examination scores that do not reflect students’ true ability. The purpose of this study was to quantify the impact of various simulated security breaches on OSCE scores.

Method
Seventy-six 3rd year medical students participated in an 8-station OSCE and were randomized to one of the following three conditions: two conditions represented simulated test security breaches: (1) control group, (2) “grapevine” condition (i.e., providing a list of station topics a few days prior to examination), and (3) security breach (i.e., providing detailed content information a few days prior to examination). Total OSCE scores, checklist scores, and rating scale scores were compared for the three groups using ANOVA (total score) and repeated measures ANOVA (checklist, rating scale, and oral questions).

Results
The students in the security breach condition (M=81.5) significantly outperformed students in the “grapevine” condition (M=72.0) and the control condition (M=66.7), F(2,73) = 43.34, p<.0001. The same pattern of results was found for the checklist, rating scale and oral questions for all three study conditions.

Conclusion
This simulation of different OSCE security breaches demonstrates that student performance is greatly advanced by having prior access to test materials, even under instances that may appear innocuous (grapevine condition). This has important implications for medical educators and testing organizations as they develop policies and procedures to safe-guard and re-use test content.

Learning by evaluation from all-inclusive 360 degree engagement of residents (LEADER): Assessment of non-medical expert CanMEDS roles in residents through multi-source feedback

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Introduction
The move towards to competency-based medical education warrants the need for valid, reliable, and feasible assessment tools, particularly in the assessment of non-medical expert CanMEDS roles. There is a gap in the literature, with only two published Canadian studies examining the use of multi-source feedback (MSF) to assess CanMEDS competencies in residents. Our objective was to develop and test a new MSF survey assessing non-Medical Expert CanMEDS competencies in residents.

Method
This was a mixed methods study focussing on resident self-assessment as well as nurse and patient assessment of the resident. A 10-item MSF survey was developed to measure non-Medical Expert CanMEDS competencies. Qualitative and quantitative data were collected in three residency programs over 5 blocks/rotations. Qualitative data from open-ended questions were analyzed and triangulated with quantitative data. Psychometric properties were assessed to establish a validity argument.

Summary of the innovation
A total of 20 residents from internal medicine, general surgery, and pediatric programs participated, yielding a response rate of 88%. Twenty self-assessments, 30 patient assessments and 48 nurse assessments were collected. There was good reliability pertaining to internal consistency (Cronbach’s alpha) across all respondent groups: nurses (0.84), patients (0.90), and self-evaluations (0.76). By comparison of means, patient respondent groups tended to rate residents more favourably than nurses whereas residents tended to rate themselves the lowest.

Conclusions
A validity argument can be established for the LEADER survey. It can be used by other programs however champions are needed to promote assessment throughout the block/rotation to ensure stakeholder participation.
Comparison of simulation-based resuscitation OSCE performance with ITER portfolio assessments of emergency medicine residents: A Canadian multi-center study

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Objective
We compared performance of emergency medicine (EM) residents in a simulation-based resuscitation objective structured clinical examination (OSCE), using the validated Queen’s Simulation Assessment Tool (QSAT), with portfolio assessment using modified in-training evaluation reports (ITERs).

Methods
EM residents (FRCPC and CCFP-EM) at 5 Canadian sites participated in a simulation-based OSCE. Video-recorded performances were independently reviewed by 3 blinded EM experts using the QSAT with 4 domain-specific anchored scores (primary assessment, diagnostic actions, therapeutic actions, communication) and a global assessment score (GAS). Three EM educators reviewed the last 12 months of resident’s portfolios using a modified ITER subdivided by CanMEDS competencies and a GAS. Correlational analyses were performed comparing assessment methods.

Results
EM residents (N=79) from Queen’s University, the University of Ottawa, Dalhousie University, the University of Calgary, and the University of Toronto participated. There was a moderate positive correlation between total scores (r=0.341). Positive correlations were found between scores in all OSCE domains and ITER competencies, with the strongest observed between the ITER Medical Expert competency and the OSCE GAS (r=0.420), Communication (r=0.443), and Therapeutic Action (r=0.484) domains. The OSCE Communication domain had a moderate correlation with the ITER Communicator competency (r=0.317).

Conclusion
There is a positive relationship between OSCE and ITER Scores. Specific OSCE assessment domains and ITER competencies appear to measure differing aspects of competence, with a moderate correlation between those measures of conceptually similar constructs. Thus, a simulation-based OSCE using the QSAT is likely best utilized as a tool for assessment of Medical Expert and Communicator competencies.
The application of expressive writing techniques for the reductions of performance anxiety during technical skill testing

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Introduction
Research highlights that anxiety about the consequences associated with poor performance contributes to incidences of choking-under-pressure. Interestingly, research has also revealed that expressive writing can be effective in managing these types of ruminations in patients with depression and students about to write high stakes cognitive tests. In this study, we test the impact of expressive writing on laparoscopic performance.

Methods
55 residents and medical students participated in 2 tests of a “pots-and-beans” accuracy in the simulated laparoscopic environment. After the first performance, each participant was notified that the second performance was to be conducted under (sham) conditions of increased anxiety. They were then randomized into one of two 10-minute writing intervention groups: a group that wrote reflectively about their anxiety regarding the next performance and a control group that wrote objectively. All participants also completed an anxiety inventory that classified them as either high- or low-anxiety performers.

Results
Analyses of variance performed on participant performance errors yielded an effect of Anxiety Group (p = 0.04), in which individuals that experienced higher levels of anxiety performed significantly worse.

Conclusion
These findings support the idea that anxiety suppresses performance, but the lack of any effect of expressive writing suggests that this exercise does not ameliorate choking-under-pressure in the technical skill context. We conclude that distraction theory must be reconsidered as an explanation for the impact of anxiety on performance. Explicit-monitoring theory is introduced as a viable alternative.
Competency-based education
La formation médicale fondée sur les compétences

Occasions propices à l’apprentissage : Un outil pédagogique pour le développement des compétences en médecine nucléaire

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Introduction
Le Collège royal des médecins et chirurgiens du Canada (CRMCC) a défini 7 compétences fondamentales du médecin: l’érudition, le professionnalisme, la communication, la collaboration, la gestion, la promotion de la santé et l’expertise médicale. L’occasion propice à l’apprentissage (OPA) est un outil pédagogique développé par l’Université de Montréal (UDM) pour soutenir le développement des compétences à l’aide d’observation directe et de rétroaction structurée.

Méthode

Sommaire de l’innovation
Différentes tâches dites intégratrices, où plusieurs compétences se retrouvant fréquemment dans la pratique du nucléiste, furent identifiées comme OPA. Pour chacune des tâches, des outils de rétroaction structurée et des documents synthèse décrivant les compétences visées et les ressources disponibles furent créés. Les tâches furent réparties longitudinalement dans la formation, afin de permettre un apprentissage continu et progressif.

Conclusion
L’OPA incorpore des tâches intégratrices et permet de donner de la rétroaction constructive à l’apprenant, tout en valorisant ses différents rôles en médecine nucléaire. L’OPA est un outil facile à utiliser, qui permet de répondre aux exigences d’agrément des programmes de formation. Toutefois, il nécessite une formation préalable des enseignants.

Opportunities for learning: An educational tool for the development of competencies in nuclear medicine

Introduction
The Royal College of Physicians and Surgeons of Canada (RCPSC) has identified seven key competencies for physicians: Scholar, Professional, Communicator, Collaborator, Manager, Health Advocate and Medical Expert. “Opportunities for Learning” (OFLs) are an educational tool developed by the Université de Montréal (UDM) to support the development of competencies using direct observation and structured feedback.

Method
A survey was conducted of the nuclear medicine specialists and residents in the nuclear medicine program at the UDM. Prior to the implementation of the OFLs, we measured the feasibility and the potential impacts associated with the use of this tool. We present an OFL adapted to the specific needs of the program and the survey results.

Summary of the innovation
Various “competency integration” tasks, which involve several competencies frequently required in the practice of a nuclear medicine specialist, were identified as OFLs. For each task, structured feedback tools and brief summaries describing the targeted competencies and the resources available were developed. The tasks were distributed longitudinally over the course of training, in order to promote continuous and progressive learning.

Conclusion
The OFLs incorporate competency integration tasks and provide the opportunity to pass on constructive feedback to the learner, while highlighting the various roles in nuclear medicine. OFLs are an easy-to-use tool, which facilitates attainment of the accreditation requirements of training programs. However, instructors must first be trained in the OFL method.
Factors influencing intercultural doctor–patient communication: A realist review

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Introduction
Due to migration, doctors see patients from various ethnic backgrounds. This can be challenging for the doctor-patient relation due to communication with cultural and linguistic barriers. To enhance evidence based communication in residency training with intercultural communication (ICC) skills, it is important to know which barriers and facilitators determine the quality of ICC. This study aimed to provide an overview of the literature and to explore which factors influence ICC.

Methods
A realist synthesis allowed us to use an explanatory focus to understand the interplay of communication. A systematic search was performed in MEDLINE, EMBASE, Psycinfo, Cinahl, Cochrane and Education Resources Information Center. The search terms used were cultural, communication, healthcare worker.

Results
In total, 145 articles met the inclusion criteria. We found that language, cultural and social differences, and doctors’ assumptions to be the main contextual influencing factors of ICC that are described in the literature. Also, we found several mechanisms, which were described as factors influencing the process of ICC, such as recognizing misunderstanding caused by cultural differences or expectation management. We divided these factors into communication-objectives, core skills and specific skills. Doctors who used these mechanisms influenced the communication process positively.

Conclusion
The quality of ICC is influenced by context and by mechanisms. These mechanisms provided practical points for training and seem to have similarities with patient-centered communication. Therefore ICC might be incorporated in existing patient-centered communication training.
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The purpose and scope of fellowship training; a department-wide mixed methods study

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In some disciplines, 60-85% of residents intend to pursue a fellowship. Duty-hour reduction, with resultant lack of preparedness for practice, has been proposed as a cause. However, surveyed Canadian residents cite a desire to pursue an academic career, acquire marketable skills and meet their own career goals. From the faculty perspective, fellowships are described as a solution to the lack of after-hours clinical coverage as well as promoters of scholarship.

This exploratory sequential mixed methods study examined the current status and ongoing needs of fellowship training in our Department of Medicine from the perspectives of division heads, fellowship directors, current fellows and recent graduates.

Participants identified a variety of reasons to offer fellowships: improve academic productivity; improve clinical productivity; share/develop enhanced clinical expertise; recruit future faculty members/attain an academic position; enhance the reputation of the division/department/trainee; and enhance the scholarly environment.

Three distinct types of fellowships were identified. Individualized fellowships focus on the career goals of the trainee and/or the recruitment goals of the division, often associated with enrollment in a Masters program. Clinical fellowships focus on the attainment of clinical expertise over and above the competencies of residency, usually related to a specific disease entity or treatment modality. Research fellowships focus on research productivity and are embedded in a sustained program of research.

Fellowships serve a variety of purposes. The type of fellowship is linked to its purpose. Different divisions may have different priorities; therefore at the department level all three categories of fellowship are desirable.

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International Medical Graduates (IMGs) within the Canadian cultural medical context

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Introduction/Purpose
International medical graduates (IMGs) are a heterogeneous group of learners with distinct ethnicities/religions/cultural backgrounds. IMGs come from various countries with differing medical education standards/societal values/professional codes of conduct. This study examined strengths and challenges that IMG family medicine residents encounter in becoming culturally competent within the Canadian medical context.

Methods
Ten academic/community preceptors, 12 health professionals, and 4 family medicine residents from the University of Alberta and University of Calgary took part in focus groups. Participants identified perceived strengths and challenges that IMG residents encounter within the Canadian medical context and areas for learning. Focus group data were transcribed and analyzed thematically.

Results
Study participants identified that IMG residents possess strengths in 4 areas: (1) clinical/medical – knowledge of global diseases, strong physical exam/procedural skills; (2) education – highly educated, specialty knowledge; (3) cultural – multilingual, different cultural perspectives; (4) personal – mature, exhibit perseverance. Challenges were identified in 5 areas: (1) language – difficulty with language nuances/writing; (2) clinical/medical – limited experience with Canadian lab tests/medications, limited mental health awareness; (3) educational – hierarchical/didactic learning approach, challenges with ethical issues and computer technology; (4) cultural – challenges with gender roles and diverse populations; (5) personal – struggle with loss of professional identity/status, later stages of life issues. The need for education related to communications skills, ethics, confidentiality, and cultural competencies was noted.

Conclusion
Some challenges are perceived to be present when residents transition into the Canadian medical context. Identification of these challenges will assist in developing teaching resources.
Health policy and residency education
Les politiques sur la santé visant la formation des résidents

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The one-minute manager: A randomized study of how resident book club can improve competence in the CanMEDS manager role

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Introduction
As party of the Canadian Medical Education Directions for Specialists (CanMEDS) project, residency programs are required to teach management skills involving patient care, health care resources, and learning. This study aims to determine if resident participation in a book club using the book *The One Minute Manager* could improve scores on a written examination.

Methods
In 2012, the authors developed two written exams focusing on the role of physicians as managers. Exams were randomly distributed to 16 general surgery residents as a pre-test before reading the book. Half the residents were randomized to Test A, and the other half to Test B. Subsequently, the residents were asked to read the book *The One Minute Manager*, and participate in a book club discussion one month later. The exams were then re-administered, with each resident taking whichever exam they had not completed previously. The scoring system was standardized (maximum 100). The pre- and post-test scores were compared using a paired t-test.

Results
The mean score on the Physician as Manager exam was significantly higher in the post-test than the pre-test (37, s.d. 14 vs 74, s.d. 8, p<0.001).

Conclusion
These results suggest that participating in a book club with discussion of *The One Minute Manager* improves knowledge about the CanMEDS competency of Physician as Manager. Similar book clubs may be helpful in teaching and assessing resident competency in the various CanMEDS roles.

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Barriers to recruitment and retention of Clinician Scientists in Canada: A literature review

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Introduction
The role of Clinician Scientist’s (CS) is central to the discovery and translation of health-related knowledge; the development of CS as a career stream is an integral part of the health system and an important component of ensuring the right mix and distribution of physicians. CS face many career obstacles and are relatively few in numbers. The objective of this research is to outline barriers and possible solutions to CS’ development, recruitment and retention in Canada.

Methods
This research is comprised of two phases. First, we conducted a literature review and utilized thematic narrative analysis to discuss rather than exhaust the existing gaps in training and retention of CS in Canada. Second, we concluded a consultation with key CS and medical education stakeholders on the draft of the manuscript and incorporated their feedback with additional recommended literature.

Results
From the extensive literature review and the consultation phase, that gathered 30 responses from a wide range of stakeholders, we identified six barriers to CS’ recruitment and retention: the changing gender balance in the medical profession; residents’ exposure to research skills, research mentors and role models; lengthy training time; CS trainee requirements; financial deterrents; and career demands.

Conclusion
Stakeholders must work towards increasing the perceived value of CS in Canada as well as continuously advancing and evaluating support mechanisms at every stage of CS’s career development. Moreover, further research needs to be done to identify training gaps in the path to become a CS in Canada.
Tracking Canadians studying medicine abroad

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Introduction
Since 2006, the Canadian Resident Matching Service (CaRMS) has been tracking a subset of international medical graduates (IMGs). IMGs are either doctors from other countries or Canadians who obtained their medical degrees abroad (CSAs). The number of CSAs applying through CaRMS is increasing, comprising over a third of the overall IMG group. The objective of this research is to track CSA cohorts to fill the knowledge gap on their medical training and help identify implications for health human resource planning.

Method
Online surveys were conducted in 2010 and 2014. A total of 1082 respondents were studied in 2010, and over 1700 responses were obtained in the 2014 survey.

Key Results
CSAs are studying medicine all over the world. The top 3 locations for respondents are the Caribbean, Australia, and Ireland.

More CSAs in the 2014 survey want to practice family medicine than the 2010 survey cohort (34% versus 21%, t-value of 6.9, p < .001).

In both the 2010 and 2014 cohorts, over 90% of CSAs wish to return to Canada for their postgraduate education.

Conclusion
Physician resource planning and policy efforts to integrate IMGs into the Canadian health system must take into account these changes. The number of CSAs competing for postgraduate education in Canada has increased dramatically over the years. CSAs will continue to be a significant group as international medical schools that recruit Canadian students provide little or no postgraduate training opportunities. To become practicing physicians, CSAs must obtain postgraduate training in Canada or the US.

Predictors of Canadian certification success among international medical school graduates

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Introduction
More international medical graduates (IMG) than ever are being admitted into North American residency programs. Unfortunately, the rates of failure on college certification exams are significantly higher for IMGs than for their North American medical school graduate counterparts. This study aims to determine predictors of IMG success in accordance with the priorities highlighted by the Thomson Judicial Report on IMG Access to Post-Graduate Medical Education.

Methods
A retrospective assessment methodology wherein the information available at the time of resident selection is compared via regression analyses with those trainees’ national certification exam outcomes is employed. In particular, comprehensive admissions information concerning residents that completed Ontario post-graduate medical education programs between 2005 and 2012, which includes demographic (e.g., time since medical training), education (e.g., country of medical training), assessment (MCC-EE test scores), and professional experience (e.g., previous internships) information, is analyzed in multivariable linear and logistic regression models and Pearson correlation matrices.

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Results
The odds ratios and correlation coefficients generated by these analyses point to the particular relevance that each piece of information has on certification success for this population.

Conclusion
This data is instrumental in confirming and/or challenging particular hypotheses about IMG success in North America, in identifying areas for improvement in IMG education, and for assisting all post-graduate medical education programs in Ontario respond effectively to the recommendations of the Thomson Judicial Report. This endeavor is particularly noteworthy in that it reflects a provincial collaboration between post-graduate medical education programs across Ontario as well as the RCPSC and CFPC.

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The impact of call-related sleep disturbances on radiology residents’ productivity and diagnostic accuracy, and ways in which residents cope

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Background/Objective
Taking call is an integral part of residency training. Nonetheless, call schedules are known to disrupt residents’ sleep. The aim of this study was to examine radiology residents’ sleep patterns, determine the degree to which call schedules affect them, and gauge the efficacy of various methods aimed at combating sleep disturbances.

Method
Through an online survey, radiology residents rated their sleep quality, described their institution’s call policy, and reported ways in which call affects their sleep, using both scaled and freeform questions. Residents also elaborated on their attempts at combating call-related sleep disturbances, and the efficacy of these strategies.

Results
Two-hundred and three responses were analyzed. A majority of residents reported experiencing some degree of sleep disturbance related to being on call. Most felt that these disturbances had the greatest influence on their overall sense of well-being, with a lesser but meaningful impact on productivity and diagnostic accuracy. Just over half admitted to trying strategies to combat sleep problems. Among the most effective tools were daytime light reduction (while working nights), sleep-cycle alarm clock apps and exercise. Many residents acknowledged that a night float system was preferable to twenty-four hour call, as it resulted in an easier transition to day shifts.

Conclusions
Most radiology residents experience call-related sleep disturbances. Optimizing call schedules, and encouraging residents to utilize personal strategies, may reduce these problems, thereby leading to superior work performance and an improved sense of well-being. These conclusions may be generalized to trainees taking call in any medical specialty.
Is simulation an effective way to teach communication in Neonatal-Perinatal Medicine?

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Introduction
There is no standardized approach to communication skills training among Canadian Neonatal-Perinatal Medicine programs. We sought to develop, implement and evaluate a simulation based communication skills workshop.

Methods
Questionnaires assessing communication teaching methodology and trainee confidence were sent to Canadian NPM program directors and trainees. A workshop including didactic teaching and simulated parent encounters was executed. Trainee communication skills were assessed pre and post workshop using qualitative (Calgary-Cambridge (CC)) and quantitative (Global Rating Scale (GRS)) assessments. One month later, trainees completed another simulated encounter to evaluate retention. Trainees completed questionnaires surrounding the workshop to assess confidence, communication skills and satisfaction.

Results
Two thirds of training programs do not offer communication skills training. Eight trainees completed the workshop; four completed the retention assessment. Five trainees improved on the GRS and CC with mean scores increasing from 29.6(±1.8) to 33(±2.4) out of 45 and 83.1(±2.6) to 89.9(±3.0) out of 100. One month post, 3 trainees demonstrated improvement from their post workshop assessment with scores of 35.3(± 1) and 95.2(±1.7). In pre vs. post workshop surveys, there was increasing confidence in discussing palliative care (33.3% vs. 77.8%), conflicts of opinion (44.4% vs. 66.7%) and spiritual beliefs (33.3% vs. 66.7%). Seven trainees “agreed” or “strongly agreed” that the workshop met their expectations and all “agreed” or “strongly agreed” that the workshop improved their communication skills.

Conclusions
Our simulation based communication skills workshop resulted in improved confidence and qualitative and quantitative assessments in almost two-thirds of trainees. Similar workshops should be implemented across Canada.
Learning to interpret ECGs:
A meta-analysis

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Introduction
Interpretation of ECGs is integral to medical practice. Considering the importance of ECG reading and interpretation, having an effective, evidence-based approach to training is clearly important to medical educators. The purpose of this systematic review is to determine the scope and effectiveness of existing educational strategies for ECG teaching.

Methods
A comprehensive search of the literature on ECG training was undertaken, with 1,596 studies identified (85 meeting inclusion criteria). Information regarding trainee population, educational intervention, evaluation method, and study quality was extracted. This was synthesized through meta-analysis using a random effects model. Effect size was calculated by dividing the differences between pre intervention and post intervention means by the pooled standard deviation.

Results
A variety of teaching methods have been used to teach ECG competency, including didactic lectures, small-group seminars, one-on-one tutorials, computer-based tutorials, self-directed learning, and multi-component interventions. The most effective methods emphasized active learning with individual practice and feedback. Of the 85 studies meeting our inclusion criteria, the aggregated effect on participants’ abilities was large, with posttest scores approximately 1 SD above pretest scores. Effect sizes varied categorically between educational practices.

Conclusions
There are a variety of educational approaches utilized in the medical community to improve participants’ abilities to interpret ECGs with variable effectiveness. The most effective approaches engage participants in coordinated activities for an extended period, providing learners with the requisite depth of knowledge, as well as practical application opportunities, serving to favourably alter the mechanisms underlying performance.

Overcoming the barriers to bedside teaching: More than just curriculum design

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Introduction
Throughout residency, physicians must learn the art of history taking and physical examination techniques. The ideal setting for clinical skill acquisition appears to be at the bedside as it offers contextualization. There is evidence that bedside teaching has been declining. This study attempts to find out why.

Methods
A total of 12 clinical teachers and 9 residents were recruited from an inpatient teaching unit in Ottawa. Perceptions related to bedside teaching experiences were collected through semi-structured interviews. Focus groups were subsequently held to further discuss issues raised. Through an inductive and iterative process using a fundamental qualitative descriptive approach, themes were identified and coded until saturation was reached.

Results
Two main themes emerged: (1) barriers to bedside teaching and (2) strategies to ease barriers. Barriers related to the stakeholders involved in teaching (52% of coded comments), the culture of teaching (13%), the existing curriculum (12%), the hospital environment (11%), the conflicting responsibilities (6%) and the teacher-learner relationship (5%). Clinical teachers’ lack of enthusiasm/motivation, residents’ anxiety to perform in front of peers, and the importance of selecting appropriate patients for teaching were highlighted. The main strategies to ease barriers included the need to improve our current curriculum (26%), create a change of culture (24%), and support clinical teachers (21%) through faculty development and incentive program.

Conclusion
The themes highlight the sociocultural nature of bedside teaching/learning and suggest that changing the curriculum will be insufficient. Strategies focusing on the stakeholders and improving the culture of bedside teaching will likely be needed.
eLearning is really all about the learning

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Introduction

eLearning is an approach to engaging health professions learners in education that applies technological approaches to teaching, learning and scholarship. A scoping review (Arksey and O'Malley, 2005) about eLearning was conducted using Schwab¹s curricular algorithm (Schwab, 1973) to examine the insights about the learners, teachers, subject matter and eLearning strategies and tools.

Methods

Literature searches were conducted in MEDLINE, EMBASE and ERIC for the period of 2009-2014, resulting in 275 references. Following calibration across reviewers, the primary screen of title and abstracts deemed 78 articles met the inclusion criteria. An additional 9 articles were recommended, resulting in a total of 87 articles for full text abstracting.

Results

82 full text articles were retrieved and all underwent secondary full text screening, resulting in a total of 36 articles that were included for full text analysis. Information on article demographics and the insights about learners, teachers, subject matter and eLearning strategies and/or technologies was collected from each article. The results inform how best to include eLearning in health professions. A key finding was that learners usually benefit from the inclusion of eLearning with evidence of equal or better learning outcomes than with solely didactic methods.

Conclusions

Consideration must be given to learner preferences and learner readiness for the effective inclusion of eLearning to support and enhance learning outcomes. The educational benefits of eLearning need to be carefully employed and consistently evaluated to ensure the anticipated educational goals and objectives are achieved. This requires consideration of the best match for the learners, teachers and educational aims.
Addressing the academic half-day requirement of accreditation through collaboration: Merging technology and a curriculum map to enable small subspecialty residency programs to succeed

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Introduction
Accreditation of postgraduate medical education programs emphasizes protected academic time such as an academic half-day. Small subspecialty programs (i.e., fewer than 4 residents) face a series of unique challenges in delivering an academic half-day comparable to what residents receive in larger programs. Accreditation standards are the same, regardless of program size.

Methods and Results
We describe the evolution of a distributed academic half-day. In 2010, two pediatric Clinical Immunology and Allergy programs collaborated to create a weekly web-based, resident-led, peer-teaching session. Five years later, the format has evolved into a formalized distributed academic half day involving six Clinical Immunology and Allergy training programs from 4 institutions located coast-to-coast across Canada. The curriculum map for this subspecialty academic half-day is anchored in Joseph Schwab’s commonplaces of subject matter, learner, teacher and milieu. Key curricular innovations include: curriculum mapping of the objectives of training for the specialty addressing both adult and pediatric content; faculty mentorship of new residents to the training programs in the resident-as-teacher role; greater faculty teaching pool and number of faculty-led presentations; and applying web-based interactive teaching via webcams and real-time surveys to engage participants at all sites. Assessment tools include weekly evaluations of each presenter via the One45 evaluation system and monthly real-time quizzes assessing application of content delivered in the preceding 4 weeks.

Conclusions
A distributed web-based academic half-day meets accreditation standards and is an innovative tool for small subspecialty programs. Further research will aim to explore the perceived value by all involved stakeholders.

Education about goals of care discussions in postgraduate medical education: A needs assessment

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Background/Objectives
Communication about goals of care (GOC) impacts patient care; inadequate communication results in care inconsistent with patient wishes, and distress amongst patients, families, and healthcare providers. Postgraduate trainees struggle with GOC discussions and decision-making, and education to address this gap has been recommended. Our objective was to characterize the gap from a program perspective, by describing current postgraduate education about GOC discussions and interest in further development.

Methods
A survey was developed and distributed to all postgraduate medical education program directors (PDs) at the University of Calgary (n = 65) over a six month period, with up to three reminders.

Results
Survey response rate was 34%. Formal and informal GOC teaching is incorporated into 63.4% and 86.4% of programs, respectively. GOC teaching comprises 1 – 4 and 4 – 8 hours/year of formal curriculum time in 45.5% and 13.6% of programs, respectively. GOC communication is assessed in 72.7% of programs; direct observation and feedback is the most common approach (63.6%), and OSCEs less common (25%). Sixty-eight percent of PDs believe program faculty are prepared to teach GOC discussions. Most PDs were interested in incorporating further education about GOC (77.3%) and assessment of GOC communication (54.5%) into their programs.

Conclusion
Of responding programs at the University of Calgary, most incorporate some GOC communication teaching in their curriculum; the majority of teaching and assessment is informal. This provides a baseline for future education around GOC discussions, while the impact on trainees and how education can be tailored to their needs warrants further exploration.
Training towards high-value, cost-conscious care: A realist review

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Introduction
Physicians central role in health care makes training (future) physicians an important focus of cost-containment interventions.

Methods
Using a review of the literature, we aimed to explore which factors are thought to play a role in educating physicians in high-value, cost-conscious care. We systematically searched Cochrane, Pubmed, EMBASE and ERIC databases with a variety of keywords related to high-value, cost-conscious care. Of the 2469 articles that matched our final search, 69 met the inclusion criteria. Data were analyzed with help of a realist evaluation.

Conclusion/Implication
Our data-analysis identified three major factors present in training cost-conscious care:

1. Knowledge transmission - educational interventions should offer a combination of health economics, scientific, and patient preferences information and understanding;
2. Reflective practice - providing trainees with feedback through, for example, benchmarking or audits to stimulate reflection and discussion, is crucial for physicians general awareness of their role in health care costs;
3. Supportive environment - the beliefs and positions of peers and supervisors influence personal beliefs of trainees and physicians, making them more susceptible for learning about and reflecting on cost-conscious care.

These factors can not be considered without taking influences on macro-level, such as payment systems and politics, into account. The complexity of high-value, cost-conscious care and the lack of clear expectations of how (future) physicians can be cost-conscious requires attention and a configuration of interventions. The realist review points to the important role of deliberate training efforts in this area.

Intercultural doctor-patient communication, from theory to practice; a video-observation study

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Introduction
Intercultural doctor-patient communication (ICC) is often associated with misunderstanding and dissatisfaction from both the doctor's and the patient's perspective. These are caused by several influencing factors which have been described in literature. Our aim was to compare literature with practice to enhance the theory of ICC and identify theoretical determinants of ICC in real-life consultations.

Methods
We used a cross-sectional sample of patients visiting the doctor in different outpatient clinics in a multi-ethnic, university-affiliated secondary care hospital in the Netherlands. Forty videotaped intercultural doctor-patient consultations were analyzed with a modified version of the validated MAAS-Global scoring list. Communication was scored on presence and relevance of ICC influencing factors. Also, free space was available to stimulate the observers to add extra comments which could direct a discussion.

Results
We found that, communication skills relevant for the specific context of ICC were not all used by the doctor. These were for example asking the patient questions about their language ability or cultural perspective, family involvement in the interaction and exploration of reason for encounter. Also, a check if the patient understood the information and sharing decision making were most of the time absent. Additionally, the differences in professional background of the observers appeared to influence the scoring of the observations.

Conclusion
We found that many factors relevant for ICC in theory were not used by doctors in real-life consultations. Important determinants of ICC were identified and could be used to enhance theory of ICC.

Teaching and learning in residency education
L'enseignement et l’apprentissage dans la formation des résidents
Developing leadership competencies in medical education: Involvement in student government

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Background/Purpose
The importance of developing leadership competencies in physicians is well recognized as being vital to the wellbeing of the medical profession and ultimately the quality of care given to patients. Involvement in extracurricular activities such as student government has been shown to offer beneficial leadership development opportunities. The purpose of this study was to examine how involvement in student government contributes to the development of leadership competencies in physicians and whether this experience influences the obtainment of future leadership roles.

Methods
Twenty-three physicians who were involved in student government completed an electronic survey inquiring about their experiences in their leadership role (e.g., motivation, experiences and benefits). Descriptive statistics, Chi squared and content analyses were used to examine results from the survey.

Results
The qualities participants felt they obtained from these positions fell into both leadership (e.g., change skills, organizational understanding of policy and procedures, politics) and management (e.g., communication, organization, administration, time management) domains. Chi-squared analysis revealed that involvement in these prior positions did not influence obtaining subsequent roles [p>.05], with only 14 participants in a current academic or clinical leadership position. However, 85% of these participants found that their past roles in student government prepared them for their current leadership position.

Conclusion
Based on survey results, involvement in extracurricular student government does facilitate the development of leadership and management competencies. However, involvement in extracurricular student government did not necessarily lead students to take on academic or clinical leadership roles further along in their career.
Using learning contracts to improve resident education on a pediatric rheumatology subspecialty rotation

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Introduction
Learning contracts have been used in residency programs and select rotations to increase self-directed learning, but have not been studied in pediatric subspecialty rotations. We hypothesized that learning contracts would increase resident self-directed learning activities and improve the quality of knowledge acquisition on a pediatric rheumatology rotation.

Methods
This is a randomized controlled pilot study of pediatric residents on a 4 week rotation in pediatric rheumatology at a major pediatric referral center. Two-thirds of participants received the intervention (use of learning contracts), and one-third served as a control group. All residents received pre and post-rotation knowledge self-assessment surveys. Changes in scores within and between control and intervention groups were analyzed with t-tests. The intervention group was surveyed post-rotation about their self-directed learning activities and their opinions on the use of contracts.

Results
Seventeen of 25 participants completed the project (7 control, 10 intervention). Difference in subject confidence pre/post-rotation was statistically significant within the control and intervention groups (p<0.01), but not between groups (p=0.21). Surveys reflected an increase in self-directed learning activities, and an appreciation that contracts allow focus on specific learning objectives and empower choice of learning needs.

Conclusion
Residents reported an increase in self-directed learning activities with the use of learning contracts. A statistically significant increase in knowledge confidence was not seen. Study limitations included small sample sizes and conflict between learning objectives and patient care duties. These results suggest promise for the use of learning contracts for promoting resident self-directed learning in pediatric rheumatology and other subspecialties.

Needs assessment for a transitional boot camp

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An action item following the fifth recommendation in the FMEC-PG report (Ensure effective integration and transitions along the educational continuum) is the post-match Boot Camp. In this study we perform a targeted needs assessment to determine the ideal content of a PGME-wide boot camp to facilitate the transition of trainees to residency.

A total of 129 residents consisting of 37 CMGs, 25 SMGs, 25 CSAs and 20 IMGs across 17 residency programs completed the on-line survey. Residents were asked to provide ratings on the usefulness of 39 topics which cover the 7 CanMEDS Roles on a 10-point Likert scale. Data was analyzed using descriptive and Kruskall Wallis H tests. Ratings of the residents in 23 topics were not significantly different (p > .05) across the four resident groups. Top ten topics identified for inclusion in a Boot camp were Simulations, Procedural Skills, The Ten Minute Code, Safe and Efficient Sign Over, Physician Well-being, Tips to Success in the First Year, Electronic Medical Records, Interpreting ECGs, Ethics and End-of-Life Care.

Based on the results of the needs assessment survey, a novel PGME-wide Boot Camp curriculum is being developed for new trainees. As the results reveal common as well as varied needs of new trainees, it will be necessary for the Boot camp to include generic, specialty-specific and elective components. The generic component will serve multiple purposes, including maximizing resources as well as being a platform for collaborative relationships across programs.
Teaching residents how to effectively prescribe nicotine replacement therapy on the Clinical Teaching Unit (CTU)

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Introduction
Despite evidence that smoking cessation is best achieved through the combination of counselling and pharmacotherapy, residents perceive barriers to providing this standard of care. In a recently distributed survey at McMaster, 57% of residents identified a lack of knowledge regarding Nicotine Replacement Therapy (NRT) as a common barrier to counselling. We hypothesized that a teaching intervention promoting the role of NRT in smoking cessation would bridge an identified gap in medical education and promote health advocacy amongst residents.

Methods
A teaching intervention directed towards housestaff on the CTU at McMaster took place on week 4 of an 8-week rotation. Electronic pharmacy records were retrospectively extracted to determine NRT prescribing behaviour. The amount of NRT prescribed during the 4-weeks pre-intervention was used to establish a control rate amongst the current housestaff.

Results
During the 4-week pre-intervention period, 15 prescriptions were written for NRT for 13 unique patients providing an average of 3.75 prescriptions per a week. Preliminary data from the 2-week period post-intervention confirms 17 prescriptions were written for 16 unique patients providing an average of 8.5 prescriptions per a week- a 2.27 fold increase.

Conclusion
Providing an innovative strategy to promote smoking cessation at McMaster has demonstrated an overall trend towards improved rates of NRT prescribing in active smokers. Educating residents on the delivery of effective smoking cessation counselling may target previously identified barriers. Although limited by a small sample size, this data suggests that integrating formal education on NRT into the residency curriculum can alter resident prescribing behavior.

Building a better half day: Development of a new distributed half day for internal medicine

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Background
Academic Half Day (AHD) curriculums are frequently based on Royal College objectives, combined with program decisions around what constitutes core topic areas. Teaching is traditionally didactic. This study was intended to provide recommendations to the Dalhousie Internal Medicine (IM) Residency Program Committee, which was in the midst of redesigning their AHD curriculum.

Methods
A focus group was conducted with IM residents to discuss their weekly AHD. 9 volunteers participated. This included 3 residents per year from PGY1 to 3, and included residents from Dalhousie’s distributed campus in Saint John, NB. The discussion was facilitated by a non-faculty member, and used open ended questions about overall residency experience, satisfaction with AHD and what format of AHD seminars are most beneficial. The discussion was transcribed and then analyzed for themes using N-Vivo software.

Results
Themes emerged including dissatisfaction with current distributed technologies, the predominately didactic format of talks, often unclear objectives and poor integration of teaching sessions such as journal clubs or interesting case rounds. Residents also identified the importance of truly protecting AHD time. A “to do list” for curricular redesign was then developed.

Conclusion
Curricular redesign includes better matching objectives to trainee level. Junior residents will attend a new “foundations” half day, while seniors attend the existing “core” half day. New teaching methods and sessions will be incorporated into AHD including journal clubs, frequent MCQ’s, simulation and e-modules. AHD will move out of the hospital to better protect teaching time, and to access improved distributed technology.
Bedside teaching at an academic institution: Current practices and preferences

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**Background**
Clinical teaching is a competency of the CanMEDS Communicator and Medical Expert Roles for residents. Bedside teaching has traditionally been utilized in medical education and the benefits have been shown for trainees and patients alike. The objective of this study is to assess current practices and preferences of BST from the perspective of medical learners.

**Methods**
This is a cross-sectional study of BST on the clinical teaching units (CTU) at three principal teaching hospitals at McMaster University. A 23-item survey was administered to all participants after 2 weeks of service on CTU.

**Results**
There were 25 respondents of which 16 were medical students, 8 PGY1s and 1 PGY3. 80% reported some form of formal BST over a two week period. 44% reported that sessions were 15-30 minutes in length and 80% reported that the focus of BST was on physical examination. 92% indicated that BST was a valuable learning tool and 68% felt that BST was underutilized. As to future directions, 80% of respondents indicated that BST should occur 1-3 times per week with 48% wanting sessions to be 15-30 minutes in length. 84% wanted to have team rounds 1-3 times per week and 52% wanting at least a quarter of team rounds to be spent on BST.

**Conclusions**
Medical learners show considerable interest in receiving BST. Our data can be used to develop targeted education sessions for resident teachers and faculty educators to facilitate BST sessions that best suit the preferences of medical trainees.

Perceptions of “pimping” as a teaching method in the emergency department

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**Background**
Medical “pimping”, a strategy utilizing the Socratic method to promote active learning, is a commonplace teaching technique in the wards and amongst medical students. However, this approach has not been studied as an educational tool amongst residents in the emergency department.

**Objective**
The goal of this study was to assess Emergency Medicine residents' perceptions of “pimping” as a teaching strategy.

**Method**
This was a prospective, randomized-controlled study performed during emergency department shifts at an urban, academic hospital. Groups of 3-4 residents received a bedside teaching session on head trauma; either through a Socratic method style “pimping” strategy or a more passive lecture style. Both groups were taught by one of two emergency physicians trained via an online module and one live training session. After each session, residents completed a questionnaire assessing their perceptions of “pimping”.

**Results**
20 residents participated in our study. 90% (18/20) of residents felt pimping was an effective teaching method at least some of the time. 85% (17/20) of residents noted that they are pimped less in residency than compared to medical school. Amongst all residents, 85% (17/20) stated they would utilize “pimping” as a teaching method at least some of the time.

**Conclusions**
Residents expressed a favorable view towards “pimping” as an educational tool and most would use it as a teaching strategy. However, the majority of residents felt they were “pimped” less in residency as compared to medical school. Given residents’ perceptions, “pimping” should have a greater role in resident medical education.
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Development of an ethics curriculum for critical care trainees: From knowledge synthesis to bedside application

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Introduction
A gap exists for ethics teaching and training in critical care programs. Intensivists require a specialized approach herein due to the immediacy, uncertainty and gravity of medical decisions made when caring for the critically ill. There is a paucity of cohesive, specific curricula for these unique learning needs.

Methods
We systematically searched the literature and solicited input from experienced Intensivists to determine commonly encountered ethical issues. We then designed a specific module-based critical care curriculum to guide trainees through issues commonly encountered during a typical patient's ICU course.

Results
Our curriculum consists of six self-learning, online, case-based modules with pre & post-tests, and interactive group discussions covering a framework for approaching critical care ethical scenarios, principles of consent and capacity assessment, substitute decision making, developing and changing a plan of care, end of life care, organ donation and physician assisted death. Group discussions consist of a short didactic component delivered by an ethicist, who then leads case based discussions with trainees to facilitate practical knowledge synthesis & application. Trainees have access to an online assessment tool, supplementary resources and the responsibility to discuss their own case dilemmas at each session.

Conclusion
Our curriculum was developed to enhance ethics education synthesis and application to specific ethical concerns commonly experienced by Intensivists. Curriculum implementation will begin for University of Ottawa adult critical care trainees in July 2015.

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Perceptions of physicians on the adoption of a palliative care approach in patients with COPD

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Introduction
Models of care released over a decade ago advocate for an early and concurrent adoption of disease-modifying and palliative care approaches to address the needs of patients with a life-limiting illness, such as Chronic Obstructive Pulmonary Disease (COPD). However, research suggests patients with COPD continue to receive insufficient palliative care. While endorsing these models of care is justified, no study has demonstrated their adoption by physicians caring for patients with COPD. The purpose of this study was to examine the extent to which resident and attending physicians adopt a palliative care approach in patients with COPD.

Methods
A qualitative design with a phenomenology approach was used. Semi-structured interviews conducted over a 5-month period involved 7 residents and 7 attending physicians from internal medicine, respirology, emergency medicine and family medicine. Following verbatim transcription and member checking, the data were inductively analyzed using Atlas.ti to identify recurrent themes.

Results
Interviewed physicians unknowingly practiced some elements of a palliative care approach early in the disease trajectory of patients with COPD. Residents repeatedly described influences from attending physicians caring for patients with COPD. Physicians’ misperceptions of palliative care and its role in COPD limited their full adoption of this approach, creating disparity on its timely introduction.

Conclusion
Physicians perceived palliative care as a reactive rather than proactive approach, delaying the adoption of palliative care simultaneously with disease-modifying therapies. Residency education in palliative care in COPD is lacking. This should be complemented by targeted education for attending physicians to meet the needs of patients with COPD.
Improving the curriculum in the pediatric hematology and oncology residency program

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Background
The curriculum for the Pediatric Hematology/Oncology Program at Sick Kids is a time-based curriculum built upon a foundation of constructivism with an expectation that residents will learn through experiential learning. However, this curriculum faces the challenge of incorporating all required content in order to meet accreditation standards and develop competence.

Objective
To determine the content needs of learners and teachers, based on RCPSC training objectives in order to create a 2-year longitudinal academic half-day (AHD) curriculum.

Method
We administered a needs assessment questionnaire to learners and teachers.

Results
Twelve subspecialty residents and 7 teachers completed the needs assessment. 11/12 (91.7%) residents and 5/7 (71.4%) teachers were aware of the published RCPSC training objectives. 10/12 (83.3%) of residents viewed sessions on medical expert content as important and 9/12 (75%) indicated these topics should be reviewed annually. Sessions on career development and scholarly activities were less valued among learners. Interestingly, teachers believed that these subjects were not adequately covered in the existing curriculum.

11/12 (92%) residents found case-based learning useful whereas only 7/12 (58%) found didactic lectures to be useful. In contrast, 6/7 (86%) teachers found didactic lectures to be a useful teaching method.

Conclusion
Time-based curricula are challenged with incorporating an enormous amount of content to fulfill both learner and teacher goals. We found that the priorities of learners and teachers did not always align. Moving forward, a competency-based framework that can be built within a time-referenced program should be considered to enhance achievement of minimal competency in all necessary content areas.
Using innovative technologies for medical education
L’utilisation de technologies innovantes en formation médicale

**Online revision course in MRCS part A candidates: Patterns of usage in repeat subscriptions**

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**Background/Introduction**

The Part A exam comprises basic sciences with principles of surgery and is common to all UK and Irish colleges. Traditional study is now supplemented with online learning. PasTest has offered online revision since 2005 and has been used by over 20,000 candidates.

**Objective**

The aim of this study was to examine the patterns of usage in repeat subscriptions to online revision to advance revision technology and techniques.

**Methodology**

We analysed PasTest data for the MRCS between January 2011 to September 2014. Comparisons were made on number of questions accessed by pass and fail groups for each period. Candidates were emailed to determine pass or fail.

**Results**

5835 customers accessed the service 9387 times. Sub-analysis was performed on candidates with multiple subscriptions and a definitive outcome; 215 candidates with 583 subscriptions; 109 candidates who passed and 106 who failed. Number of questions answered during each subscription was analysed. Both data sets showed negatively skewed distributions that were not significantly different between subscriptions (Pass group, Shapiro-Wilk p=0.013; Fail group, Shapiro-Wilk p <0.001). Kruskall-Wallis tests showed significantly more questions were accessed in the final attempt; this was true for pass and fail groups (p=0.001). In the final period, the pass group answered significantly more questions than the fail group (Mann-Whitney U-test 2 – tailed, p=0.0395).

**Conclusion**

This study shows that successful candidates engage more fully with questions and increase their engagement to a greater extent in repeat subscriptions. This offers the development of protocols to improve success in the exam.

**How we created a simulated morning report through a novel case based electronic resource**

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**Introduction**

Morning report is an integral element of residency education. However, recent changes in medical training – including distributed education, duty hour limitations and other competing demands – have begun to erode its educational effectiveness. The goal of this project was to produce an electronic teaching resource to improve the effectiveness and accessibility of morning report.

**Method**

Using best practice guidelines for internet-based learning, we developed a case-based, multimedia learning tool that incorporated interactive features, practice exercises, feedback, and opportunity for repetition. Considering the challenges for our program, it was designed to create an easily accessible experience, suitable for learners with varied experience that provides feedback on clinical reasoning, and is grounded in expert opinion with key learning points.

**Summary of Innovation**

The tool incorporates ten cases from Queen’s Internal Medicine morning report. Each case begins with a summary of the clinical presentation. This is followed by interactive features, which take the learner through differentials, physical exam findings, and investigations, typically presented in multimedia. Practice exercises with detailed feedback are then used to challenge learners at different levels of training. Each case finishes with an expert summary that includes a description of the patient’s clinical outcome at discharge from hospital.

**Conclusion**

Our teaching tool improves the educational value of morning report in keeping with the CanMEDS Scholar and Medical expert roles. It supports our trainees as an easy-to-use, high fidelity resource that actively involves learners of all levels. It uses interactive questions, high quality feedback, and expert-guided teaching points to reinforce learning.
Both online and traditional curricula lead to nutrition knowledge acquisition and retention in pediatric residents

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Introduction
Nutrition education for postgraduate trainees is limited. Several barriers may limit increased coverage. Online learning may offer a solution by allowing trainees to learn at convenient times, and without local expert faculty. To our knowledge, no studies have compared the effectiveness of online learning and in-person instruction in nutrition for pediatric trainees.

Methods
All pediatric residents at three Canadian centres were invited to participate in this non-randomized controlled trial. Participants were assigned to in-person or online nutrition curricula containing the same content, or a control group. Nutrition knowledge was assessed through multiple-choice tests at baseline, post-intervention and two months later. Comparisons were made with paired t-tests within groups and one-way ANOVA between groups.

Results
Total recruitment was 62 residents, with 30 completing all study components (20/26 in-person, 4/19 online, 6/17 control). In-person and online group test scores were similar at baseline (64.3 ± 8.4% vs. 65.1 ± 8.5%, p=NS), and both improved on immediate (71.4 ± 9.5% and 78.5 ± 8.5%, p<.05) and delayed post-tests (70.6 ± 6.7% and 73.4 ± 4%, p<.05). There was no significant difference in improvement between intervention groups.

Conclusion
Both online and in-person curricula led to nutrition knowledge acquisition and retention demonstrated through improved test scores. Despite the major limitation of participant attrition seen in the online group, these results suggest that online nutrition learning may be beneficial in pediatric postgraduate training to supplement existing curricula. Effectiveness and acceptability of online modules as required components of postgraduate training merits further study.

The resident management system: An innovative tool for record keeping and stakeholder communication in postgraduate medical education

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Introduction
The administration of postgraduate medical education (PGME) involves the timely exchange of information between multiple stakeholders. Close, consistent communication between hospitals, paymasters, licensing authorities, and the university is essential. Such communication ensures residents and patients are protected, and allows the institution to meet its fiduciary responsibilities to its partners in education delivery.

Methods
To address these complex communication needs, the PGME office and MedIT at Dalhousie University developed a fully integrated system, the Resident Management System (RMS), to allow appropriate, targeted, simultaneous and consistent communication of relevant resident information to key stakeholders. Through a collaborative process, the RMS was piloted and evaluated through multiple application versions, refining its accuracy and capacity to share information each time. The resulting web-based system is user-friendly, easily accessible by program directors, administrators, or PGME staff, as well as by stakeholders outside the University. It provides real-time, up-to-date summary information on residents’ educational progress (PGY), leaves and absences, end-of-training and promotion dates, and has resulted in substantial positive feedback from stakeholders. It also has the capacity to add features should data needs arise in the future.

The RMS is hosted within Dalhousie’s Faculty of Medicine’s internal intranet portal, DalMedix, and runs on Windows Server 2008 on top of a ColdFusion 11 Enterprise framework with a Microsoft SQL Server 2008 backend.

Conclusion/Implications
The RMS is an innovative Dalhousie-developed computing application that can potentially be adapted to other settings. It provides a record management solution for PGME offices and allows seamless communication with multiple PGME stakeholders.
**Queen’s nephrology e-learning using WhatsApp (Q-NEW)**

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**Introduction**  
Providing adequate teaching tools to enhance and evaluate competency-based knowledge and practice is critical to advance the delivery of Nephrology Education to trainees. E-learning and social medias are widely adopted educational tools. WhatsApp Messenger is a free mobile messaging app allowing exchanging messages and images freely.

**Methods**  
After obtaining the Queen’s Research Ethics Board approval, we conducted a pilot study at Queen’s University using WhatsApp as an e-learning teaching tool, to improve Internal Medicine Residents’ Nephrology competency. An online survey was emailed to all residents to assess their current competency of diagnosing and managing the most common Nephrology topics.

**Results**  
27 (42.9%) residents, out of 63, responded to the Q-NEW survey (44.4% female). On a scale of 5; 1: very unconfident, 5: very confident, residents’ competency (average) diagnosing and managing acute kidney injury were (AKI: 4.1&4.1); acute interstitial nephritis (AIN: 3.8&3); glomerulonephritis (GN: 3&2.7); nephrotic syndrome (3.1&2.7); electrolyte disorders (3.4&3.4); hemodialysis (HD: 3&3.2), peritoneal dialysis (PD: 2.7&2.7), chronic kidney disease (CKD: 2.8&2.7) & transplant complications (2.1&2); hypertension (HTN: 3.2&3.1) and over doses (OD: 2.9&2.9).

Residents felt slightly competent diagnosing and managing common kidney diseases such as AIN and GN (Diagnosis; 3±0.7 and 3±0.7; Management: 3±0.7 and 2.6±0.72). Residents felt incompetent diagnosing or managing PD (2.7±0.5) and transplant patients (2.1±0.8).

**Conclusion**  
Our survey showed minor deficit in residents’ competency managing Nephrology patients, especially complicated patients. Most residents are interested in e-learning and WhatsApp to learn Nephrology. Residents’ competency might improve using WhatsApp as an effective tool to enhance learners’ critical thinking.

**Flipped classrooms and test effects:**  
A simple intervention to increase the effectiveness of an academic curriculum series

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Educators are faced with the challenge of including an ever-expanding body of content into training programs and often rely on structured academic curricula to meet this challenge. These curricula, however, frequently use lecture-based formats, which promote passive learning and thus lead to inefficient use of trainees’ and instructors’ time. While alternative instructional methods can increase learning efficiency, the resources required to implement such methods (e.g. the development of online modules) present barriers to implementation.

To promote active learning and optimize the efficiency and effectiveness of an academic curriculum, an intervention employing both flipped classroom and test-enhanced learning was implemented.

In an 8-resident subspecialty program, a 6-session flipped classroom series was developed. The series director selected required pre-readings and a senior resident to lead each session. At each session, the senior administered a test they had created and led the post-test discussion. Each senior received a teacher evaluation that was included in their learning portfolios (CanMEDS Scholar).

Based on post-session resident surveys, satisfaction and engagement with the sessions were high. Residents perceived an increased depth of understanding. The seniors uniformly scored the teaching experience positively.

The use of required readings rather than online modules promoted ease of implementation without decreasing resident satisfaction. The test encouraged residents to complete the pre-reading and may have enhanced retention of content (test effect). Finally, this model allowed the senior to gain skills in assessment and small group teaching.

This intervention was simple to implement, resulted in high learner and teacher satisfaction, and promoted learning efficiency.
What Works? Innovations in residency teaching and assessment
Pratiques efficaces : des innovations pour la formation et l’évaluation des résidents

Assessment of problem solving skills in paediatric oncology residents using the “PROTEJE” (Paediatric Oncology Triple Jump Exercise)

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Introduction
In current Canadian subspecialty training programs in Paediatric Haematology/Oncology (PHO), there is a paucity of formal assessment even though informal feedback takes place; and this becomes more apparent as residents progress through training. Therefore, a new assessment tool called “PROTEJE” was designed to provide PHO residents with formative assessment of their problem-solving skills.

Methods
Following a literature review and discussion with several postgraduate program directors of Canadian programs, it was identified that residents’ problem-solving skills are not currently being assessed. The PROTEJE tool was then designed to address this gap. PROTEJE is based on the Triple Jump Exercise and aims to assess residents in problem solving skills. The PROTEJE consists of a worksheet that residents use to document their summary of the 3 steps of the triple jump, which include problem identification, critical appraisal, and synthesis. This tool is being piloted in the UBC PHO program. The resident receives real-time feedback during interdisciplinary case presentation meetings (Tumour Board) and written feedback documented on the same worksheet. A rubric is provided to anchor the assessment. Each step, and the overall assessment component, is scored out of 5. The passing score is “3” in each step. The expectation is that most residents will “pass” and less than 10% would exceed expectations. PROTEJE assesses multiple CanMEDS roles including medical expert, scholar, collaborator, and communicator.

Conclusion/Implication
The PROTEJE is a new tool that can be used for the assessment of problem-solving skills and can potentially be applied to other postgraduate training programs.

All NYC emergency medicine: An innovative region-wide EM educational program

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Introduction
Emergency Medicine (EM) residencies strive to improve the education of their residents through innovative didactic programs. The NYC area contains multiple EM residencies and as a result, numerous educators are concentrated in this region. In addition, highly desirable grand rounds speakers may limit repetitive travel to any single region, thereby preventing multiple residency exposures to them.

Objectives
We sought to create a sustainable and innovative region-wide EM educational program. A steering committee representing multiple residency programs was formed to design curriculum and to plan educational events. The “All NYC Emergency Medicine Conference, Inc” [All NYC EM] was registered as a 501(c)(3) non-profit entity with steering committee members serving on its inaugural board.

Methods
All NYC EM hosts spring and fall conferences each year featuring local educators and prominent guest speakers from around the nation. Conferences are themed and include multiple short lectures, panel discussions and resident lecture competitions. All NYC EM has also launched an EM Education fellowship, an annual chief resident forum and a medical student boot camp.

Conclusions
Since its inception, All NYC EM has hosted 7 conferences, 2 chief forums, 1 medical student boot camp and supported 2 fellows. Attendance at the regional conference continues to grow. Five hundred and thirty residents, students and faculty representing 18 programs attended “All NYC 7” in April of 2014. Feedback has been overwhelmingly positive, with a satisfaction score of 4.1 on a 1-5 Likert scale in regards to education content and usefulness in April, 2014.
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This abstract has been withdrawn / Ce résumé a été retiré

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Using a team approach for successful outcomes with residents in difficulty
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Introduction
Managing the under-performing resident is a challenge for faculty. This retrospective study of a team-based system to support programs and their residents in need by identifying the real problems and implementation is an example of a comprehensive, consistent and competency-based approach to better manage residents in need.

Method
A profile of 90 resident cases from the past 3 academic years that describes specialty programs, training levels, competency areas of need and outcomes were analyzed and assessed.

Summary of Innovation
This multi-method case study includes demographic statistics and narrative descriptions to illustrate the diversity as well as the common issues among the residents in need. Additionally the case study inventories the variety of systems, processes, resources and outcomes that residents and faculty experience during a team approach to dealing with residents in difficulty. A competency based team approach to dealing with the real problems of residents in difficulty led to positive faculty and resident outcomes. The case studies illustrate the benefits of a faculty team approach to designing and implementing teaching, evaluation and supportive remediation plans.

Conclusions
It was concluded that there is a high association of wellness issues, spanning a range of issues which identifies opportunities for prevention. The identification of trends informs the faculty and resident resource needs including the need for a diverse team of faculty to manage the ‘real’ problems that require remediation. Early and careful attention to wellness issues also appears important.
Increasing resident feedback during academic half-day

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Background/Objective
Evaluation is critical to a comprehensive learning strategy and feedback processes should be regularly reviewed. At our institution, a previous approach to collecting feedback for residents presenting at academic half-day was reviewed due to low response rates and poor quality of written feedback. Originally, evaluations were collected on a voluntary basis in a paper-based platform structured around the CanMEDS roles. All staff and residents attending half day were encouraged to complete feedback forms and results were collated anonymously with results distributed several weeks afterward. Our objective was to increase participation by creating a more user-friendly approach that delivered better results in a timely fashion.

Innovation/Methods
The paper feedback form from the 2012-2013 academic year was updated and converted to an electronic form, allowing online submission. While this partially addressed problems related to physical submission and handling of paper forms, engagement continued to be sub-optimal. Subsequently, feedback forms were implemented through Fluid Surveys for the 2014-2015 academic year and submission of the electronic Feedback form was required for a record of attendance.

Conclusions
Creating an electronic feedback form with online capabilities increased the overall completion rate by attendees and improved quantity and content of feedback. Implementing a requirement to submit the online form for record of attendance served to further increase our completion rate and also substantially improved timeliness of feedback. We believe this approach could be easily adopted by other training programs, regardless of size.
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CanMEDS specific competency milestones implemented in surgical pathology training in anatomical pathology residency training at the University of Ottawa

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Introduction
As part of the shift towards competency based postgraduate medical training, the new 2015 CanMEDS framework has added the concept of “milestones”, which defines specific abilities at each stage of training. In Anatomical Pathology Residency Training, the bulk of the training is developing skill complex skill sets in Surgical Pathology, which poses additional challenges as a specialty with little clinical contact, where learning involves individual study, with daily sign-outs with staff within one or two blocks of subspeciality training.

Methods
The pathology program at the University of Ottawa has developed specialty specific milestones and competencies for each postgraduate year of training, available on the department website. Based on these documents, resident in-training evaluation reports (ITERs) were generated with pathology specific CanMEDS framework format to be used as end of rotation assessment tools. In addition, a checklist document for resident feedback has also been created, to be used at the end of daily sign-out sessions or midrotation.

Results
Theses evaluation methods are ongoing for evaluation of residency training in the Anatomical Pathology Residency program at the University of Ottawa. It is expected that the provided documents will standardize resident expectations and the evaluation process across all levels of training, as evaluation of competency is performed according to milestones specific for each PGY level. In addition, it will provide an objective tool for self-directed assessment and learning.

Conclusion
The use of pathology specific milestones, ITERs and checklists during resident evaluation is expected to facilitate better feedback for professional development.

Teaching students CanMEDS using missions sent from a mobile friendly website

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Teaching students CanMEDS roles during clerkship and residency is challenging. Most preceptors are comfortable with the medical expert role and may not explicitly cover the other CanMEDS roles with trainees. It is the expectation from the Royal College that trainees be taught and evaluated based on all CanMEDS roles.

An innovative way to engage preceptors to teach and medical students to learn CanMEDS roles is Mission Possible. A pilot of the missions, based on CanMEDS roles (Medical Expert clinical objectives, Communicator, Collaborator, Manager, Health Advocate, Professional, Scholar), has been started in Pediatric Hematology/Oncology initially on paper format. After receiving funding from the Department of Pediatrics Innovation Award, we have developed a website: www.missionpossible.ucalgary.ca

Students receive these missions using a mobile friendly website and upon completion can review and receive feedback from preceptors. We have updated the website based on trainee feedback to include a pre and post evaluation, tracking icon of completed missions, and link online survey. Students get a code access to enter the website in order to obtain generated missions. Students agreed that using Mission Possible helped integrate CanMEDS roles into rotation.

Mission Possible is designed to be an electronic curriculum with web based resources and can be adapted to specific rotations. It is a mobile friendly tool to engage learners in meeting their clinical objectives while meeting CanMEDS requirements in situ. We plan to engage other specialties in using the website in the future.
Resident remediation processes through the lens of curriculum design

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Introduction
Learners in difficulty include those residents who are not meeting the educational requirements set out by their program at their level of training. Providing support for these learners through a remedial process can be a daunting task for programs. The objective of this study was to provide a framework for establishing a remediation process that is adaptable for all programs by likening remediation to the principles of curriculum design.

Methods
The remediation process is essentially a curriculum design exercise meant to develop, execute, and evaluate an individualized curriculum (i.e. the remedial learning plan). By using and modifying David Kern’s Model (2009) for curriculum development as a framework, we have outlined a remediation process that follows the general principles of curriculum design:

- Problem Identification and General Needs Assessment
- Targeted Needs Assessment
- Developing Goals and Objectives
- Identifying Educational Strategies and Assessments
- Learning Plan Implementation
- Evaluation and Feedback

Summary of Innovation
The Kern Model was selected as the foundation for process development in remediation for our residents who are learners in difficulty. Given this is a common framework specifically targeted for Medical Education, adapting the Kern Model allows for a comprehensive remediation process that is adaptable for all programs by likening remediation to the principles of curriculum design.

Conclusion
The remediation process can be viewed through the lens of curriculum design. Through this understanding, programs can begin to adapt their own curriculum development approaches in order to develop and/or refine their own remediation processes.

"Diabetes Bootcamp" – The development of a multidisciplinary interactive curriculum for endocrinology residents

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Introduction
Endocrinology residents manage patients with diabetes within the context of a multidisciplinary clinic setting. Additionally, learners face the challenge of managing patients on insulin pump therapy, a relatively complex technology intervention. In the current curricula at McMaster, endocrinology residents do not receive formal orientation to the unique roles of diabetes team members nor to the basics of insulin pump therapy.

Method
A needs assessment of residents and diabetes allied health team members highlighted the need for a formalized curriculum addressing the multidisciplinary management of patients with diabetes and insulin pump therapy. A workshop-based 1-day curriculum, “Diabetes Bootcamp”, was developed with input from both pediatric and adult diabetes team members and residents. Participants included 13 pediatric and adult endocrinology residents as well as residents with an interest in endocrinology. All learners wore an insulin pump (with saline) throughout the day and simulated life of a patient with diabetes by engaging in diabetes self-care activities during the day such as checking blood sugars, carbohydrate counting, and calculating insulin doses before meals.

Summary of Innovation
Resident medical expert knowledge in the management of diabetes improved through participation in this curriculum as evidenced by a statistically significant improvement in post-test scores. Qualitative feedback clearly demonstrated learner engagement as well as a unique appreciation for the burden of illness of diabetes through the use of experiential learning methods incorporated in the curriculum.

Conclusion
An interactive multidisciplinary curriculum, which incorporates experiential learning methods, engages residents in learning about the multi-disciplinary management of patients with diabetes.
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Apprenticeship in radiology: An oncall preparation intervention

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Introduction
Covering call service is challenging for junior radiology residents. They must master skills such as case prioritization (manager), accurate diagnosis (medical expert) and reporting of cases (communicator). This paper describes how our program addresses this challenge by using methods informed by a Cognitive Apprenticeship framework.

Methods
This intervention contains didactic and clinical components that are delivered during the day and after hours, targeting junior residents.

Didactic interventions include a lecture series on emergency radiology, case presentations by residents and selected readings. These strategies target the domain and content knowledge required to build expertise.

To address the skills domain of expertise, junior residents shadow senior residents during calls while they are both on site. This allows them to acquire heuristic strategies through modeling and observation of their seniors, who are in turn encouraged to make their clinical reasoning explicit. This learning applies the principle of sociology; which relates to situated learning. With time, juniors gradually take on more responsibility, as they perform their first call duties alone on site, but still have access to their seniors who provide the necessary scaffolding.

In addition, Ultrasound simulators are available for residents to practice their procedural skills under supervision of senior residents and staff.

Finally, there are longitudinal components such as case logs, and residents reflect upon them continually.

Conclusion
Our intervention incorporates many aspects of cognitive apprenticeship and targets several CANMEDS roles. It has been well received by radiology residents, and can be adapted by other programs.

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Developing leadership in residency through communities of practice: A developmental process map

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Introduction
With the increasingly complex nature of healthcare systems there is a growing need for physician leaders. While leadership development is a fluid process whereby new skills are acquired and evaluated throughout a career, the need for formal training in leading change can also be fostered in residency. Within the McMaster University Department of Psychiatry and Behavioural Neurosciences this is being done through an innovative approach to leadership development combining a core curriculum with Communities of Practice (CoP). A CoP is a group who meets to enhance their knowledge within a specific shared area of interest.

Methods
Starting in July 2014, six residents participated in a CoP focused on leadership skills development, facilitated by one mentor. As part of a larger cohort, five workshops were attended, complimented by monthly CoP meetings. Utilizing qualitative methods, specifically process mapping, leadership skills development within this resident group was analyzed. Through this method the steps of the leadership development process were outlined and outcomes highlighted providing an iterative reflective process for leadership development.

Conclusions
Overall, the process of engaging in an ongoing yearlong leadership course as well as the activity of process mapping facilitates reflective leadership. The qualitative nature of this analysis allows for rich description and an outline for residency leadership skills development. This has the potential to inform other leadership programs in residency and develop mentors to subsequently provide further leadership guidance. It specifically emphasizes and promotes the CanMEDS roles of manager and communicator.
A critical care “crash course” improves first year internal medicine residents’ comfort with intensive care medicine

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**Introduction**

The first intensive care unit (ICU) rotation for a resident can be intellectually and emotionally challenging. Unfamiliarity with the highly specialized knowledge and skills specific to the ICU, like mechanical ventilation and invasive hemodynamic monitoring, may heighten resident discomfort. Introduction of duty hour restrictions has meant there are fewer opportunities for didactic sessions during clinical rotations, which may be particularly valuable in the ICU.

**Method**

Inspired by a ‘2013 What Works’ presentation by the Pediatric Residency Program at McMaster, the Internal Medicine Program in Calgary has developed a Lifelong Learning Program that supports accreditation and learning need.

**Summary of Innovation**

Residents must acquire 200 LLLP credits over each academic year. Credits are earned by undertaking any of 60 pre-specified activities some of which are time based and others are work-product based. Documentation includes category of activity (small group, committee, etc), title of the activity, presenter/facilitator, relevant CanMEDS roles, summary of what was learned, indication as to whether objectives were met, and suggestions for improvement. Information can be entered using a smartphone, tablet, or computer. Presenter/facilitators can review their suggestions for improvement which are provided anonymously. The Program can review resident or Program progress and filter on any variable such as: learning activity or CanMEDs role in order to inform curriculum planning.

**Results**

During the first half of academic year 2014-15, 96 internal medicine residents documented 4,500 individual activities that amounted to 7,800 credits. Qualitative analysis found residents to be insightful and that the spectrum of CanMEDs competencies were being achieved. Feedback during the accreditation process was positive.

**Conclusion**

A pre-ICU rotation “crash course” can improve self-reported confidence in core concepts in intensive care medicine for first year internal medicine residents by addressing gaps in medical expertise.
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Transforming academic half-days: From lectures to learning cases

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Background
Our Department of Anesthesiology will launch a CBD residency-training program on July 1, 2015. Our new CBD curriculum comprises 26 specialty modules, each of which have educational requirements designed to help residents achieve competency (milestones and EPAs). A core requirement is learning cases (LCs).

Summary of Innovation
LCs are designed to replace core academic half-days. Learners are provided with a case scenario followed by questions to direct their learning, as well as selected resources (e.g., journal articles) to guide learning. Learners are expected to spend 2 hours engaged in self-directed learning for each case, and then meet with a staff anesthesiologist to be assessed against the expected level of competency defined.

LCs are delivered through a custom-built e-platform that stores, manages, tracks completion, and documents assessment. Permissions restrict access to a staff template of critical features that residents need to cover to demonstrate competence. Data from this system will feed into a dashboard summarizing resident progress.

Conclusions/Implications
Compared to our current core program, which is expert-led, requires residents to be physically present at a specific time and place, and cycles through topics every 3 years, LCs have several advantages. Residents engage in self-directed, active learning; they can complete the cases at their own pace. By studying the topic before interaction with staff, the discussions can be at a higher level, mirroring a “flipped classroom”. LC content is resource-based and curated by subject matter experts, thus minimizing demands on staff time.

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Authentic feedback: Can formative, situated, and longitudinal feedback benefit residents’ learning through practice?

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Introduction
Feedback is a cornerstone of medical education. However, learners and teachers are often dissatisfied with its timeliness, relevance, and authenticity. We developed a novel feedback program, designed to enhance the power of feedback for residents’ learning in and through practice.

Methods
Nine PGY-1 internal medicine residents and three faculty from UBC were paired together in a feedback program based on three key principles: direct observation of performance; longitudinal relationships; formative assessment uncoupled from formal evaluation. Participants met three to five times for unstructured observations of the resident’s authentic clinical work. After each observation, feedback linked to the CANMEDS roles was shared and a personalized learning plan was co-constructed.

We employed a qualitative case study methodology to examine the impact of the program. Data included audio-recorded feedback sessions, faculty field notes, and resident interviews. Data was analyzed in an iterative fashion, through the identification and organization of themes using an open, inductive stance.

After just three to five meetings across the year, residents described benefits associated with their capacity to do the “real” work of a doctor, ways of thinking of themselves as a learner and reported an increased sense of belonging. They identified the three key principles as being essential.

Implications
By creating a feedback program based on a formative, longitudinal relationship between resident and faculty, and centered on direct observation in the workplace, residents and faculty were able to engage in meaningful feedback conversations. Several elements of the program are directly applicable to other residency settings.
Creating a culture of wellness: Ice cream rounds for pediatric residents

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Background
Residency may represent the nadir of a physician’s personal wellness with burnout rates approaching 70% across programs. Residents suffering from burnout or depression are more likely to make medical errors and provide suboptimal care. Targeted, proactive interventions to address resident wellness and resiliency building are needed urgently to address the physician health element of the Professional role. With the Ice Cream Rounds initiative we aimed to shift the focus from treatment to prevention of burnout.

Methods
Ice Cream Rounds is a confidential, resident-only support group, facilitated by a registered counselor. Fifteen to thirty of the 60 residents in our training program come together quarterly within the context of academic half day, assuring that all residents are free of clinical duties to attend. Ice cream is served.

Summary of Innovation
Ice Cream Rounds is a space to discuss the unique challenges of residency. Sessions are unstructured, but themes have included grief management, self-reflection, mindfulness, failure, work-life balance and fatigue management. Sessions are 90 minutes long and held during protected academic time. Participation is optional. Though evaluation measures are pending, the feedback from residents has been overwhelmingly positive.

Conclusion
These sessions foster collegial support and encourage reflection, self-assessment, and resiliency building. They address a gap in the current residency curricula and could easily be adapted by other programs as a critical step towards promoting a culture of wellness, resiliency and camaraderie within a training program, and shifting the focus of wellness initiatives from burnout treatment to prevention.

A systematic, program-wide approach to developing and implementing a residents as teachers program

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Introduction
Improving residents’ teaching skills has numerous benefits for residents including increased job satisfaction and decreased burn-out and has major impact on undergraduate, postgraduate education, and patient care. However, faculty lack expertise, time, and support to implement residents as teachers (RaT) programs, which are typically delivered by individual programs as a one-time course to upper level residents.

Method
At UBC, we took an innovative approach to fostering residents’ teaching skills through the systematic development and implementation of a program-wide RaT program aimed to become one of the foundational competency-based pillars across all residency programs.

Summary of Innovation
A literature review, expert interviews, and curriculum development process has resulted in a core RaT curriculum that can be adapted to discipline specific contexts. We developed a RaT classification system and assessed the developmental stage of each residency program, before recruiting program directors to discuss their program’s needs. We then planned a developmentally appropriate strategy for building each program’s capacity for delivering RaT, through a train-the-trainer approach. A program evaluation is planned to assess each residency program’s progression through the developmental stages and to demonstrate the successful programmatic integration of RaT in postgraduate medical education.

Conclusion
This program-wide approach addresses the CanMEDS scholar role and ensures that residents will continue to improve in their teaching roles as they progress through their residency. This unique systematic, program-wide approach will allow the RaT program to have ongoing institutional support. Successful implementation provides a model for all postgraduate programs to follow in fostering effective clinical teaching.
What Works? Innovations in residency teaching and assessment
Pratiques efficaces : des innovations pour la formation et l’évaluation des résidents

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This abstract has been withdrawn / Ce résumé a été retiré

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An integrated approach to teaching and assessing the Health Advocate and Collaborator Roles

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Introduction
Some of the Intrinsic CanMEDS Roles including Health Advocate have been traditionally challenging to teach and assess. The Pediatric Residency Program at the University of Manitoba developed an innovative Collaborative Health Advocacy Project in 2009 to teach and assess the CanMEDS Health Advocate Role. This mandatory group project was designed to promote collaboration while developing a plan to advocate for patients at the community or population level.

Methods
Each PGY3 cohort of pediatric residents was required to identify an area for patient advocacy. Collaboratively, the residents developed a project proposal and budget, created a mid and final project report regarding implementation and presented their work at Pediatric Grand Rounds. They were provided with faculty supervisors, financial resources and protected time to advance their project to completion within one year. The project was evaluated with a pass/fail system by faculty supervisors. A peer-to-peer feedback form was developed and used at the mid and end of project, to facilitate peer feedback about competencies within the CanMEDS Collaborator Role.

Summary of Innovation
Since its inception, five projects have been successfully completed, three of which facilitated change in provincial legislation (Mandatory use of booster seats and bicycle helmets, and banning tanning).

Conclusion
Both CanMEDS Roles of Health Advocate and Collaborator can be taught and assessed, in alignment with the draft RCPSC CanMEDS 2015 Framework, through a collaborative health advocacy project. This novel approach should be transferrable to other postgraduate programs to augment the teaching and assessment of two of the CanMEDS Intrinsic Roles.

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InstaDoc: The novel use of Instagram to deliver education to vascular surgery residents

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Introduction
According to the adult learning theory, medical education should be relevant, engaging and self-directed. In surgery, the didactic obligations of residents consumes much of the experiential learning opportunities, with sessions organized by the Faculty, Royal College, and home curriculum, allowing little time for collaboration. In an attempt to create more trainee-centered medical expert learning opportunities, the vascular surgery program developed a pilot project with a virtual discussion platform using social media.

Summary of Innovation
All residents in the vascular surgery program at the University of Ottawa were asked to download the Instagram application onto their phones. A randomly assigned resident would be required to post a teaching video of 15 seconds in duration. Another residents was assigned the ‘moderator’ role to stimulate conversation in the ‘comments’ section of the video. Residents would then contribute to the discussion at their leisure. At the end of the week, the discussion was summarized at the academic half day by a Faculty Staff member.

Conclusion
Online media platforms are conductive to adult learning as the offer an opportunity for collaboration, learner-centered approaches and engagement via a familiar platform. The mobile nature of these platforms makes it easy for surgery residents to be able to engage in discussions with their peers and learn from others. Due to the dynamic and limitless utility of the Instagram application, this means of information dissemination could easily be adapted for any medical specialty.
Successful launch of an international community for physician leadership education

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Introduction
In 2010, a global commission on “Education of Health Professionals for the 21st Century” proposed a comprehensive framework published in the Lancet: “Health professionals for a new century: transforming education to strengthen health systems in an interdependent world”. Of the instructional and institutional reforms needed to drive transformative learning and interdependence in education, academic systems linked “through global networks, alliances and consortia” were integral. With leadership increasingly recognized as a key competency for physicians, we sought to establish an international community interested in physician leadership education.

Methods
In October 2014, the University of Toronto and Royal College of Physicians and Surgeons of Canada sponsored the Toronto International Summit on Leadership Education for Physicians. Stakeholders including learners, medical and interprofessional faculty and educators were invited; 64 individuals from 8 countries attended. Through plenary, panel, breakouts and large group discussions, participants addressed enablers and challenges of leadership and curriculum development, focusing on the components of medical leadership, teaching, assessment, implementation, program evaluation & scholarship. Post-Summit, attendees were invited to evaluate the Summit and participate in ongoing working groups. Evaluations rated the speakers & overall summit highly. 34 participants from 7 countries have volunteered for the working groups; initial outputs will be presented October 2015 at the next Summit. Additional outputs include a White Paper on MD Leadership Development, as well as a thematic analysis of the discussions of the day.

Conclusion
An international community can be developed to advance physician leadership education. This model may be generalizable to other educational initiatives.

Teaching health advocacy to surgical residents: Outreach beyond the operating room

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Introduction
Health Advocacy is often considered the most difficult CanMEDS role to teach and assess in residency education. In surgery, teaching is often focused on operative skill acquisition, a setup that may not lend itself well to the development of advocacy related competencies. The formal curriculum attempts to rectify this by including didactic sessions, which do not necessarily translate into changes in advocacy behaviour. The goal of this innovation was to include advocacy in the curriculum through experiential learning and encourage abstract conceptualization of the role into clinical practice.

Summary of Innovation
Surgical Foundations at the University of Ottawa incorporated a mandatory advocacy project as part of the curriculum. Residents were asked to participate in an outreach initiative, and provide a short presentation outlining their activity and reflections on personal development to their peers. Residents that could not fulfill this project submitted a reflective essay on Health Advocacy as an alternative. 64 of 67 residents chose to participate in an outreach initiative. Of the initiatives, majority (59%) were medically related, of which 31 (48%) related to their surgical subspecialty.

Conclusion
Incorporating and sharing outreach activities is a way to teach the Health Advocate role through experiential learning. By allowing residents to choose their own activities, it encouraged significant reflection towards how advocacy could be incorporated into their own practice. Residents explored the role in a broad sense, and used shared narratives to discuss the impact of these activities on their role as clinicians.
**“Reviewing with the staff”: BoringEM’s creation of a robust peer review process for a learner-oriented blog to promote scholarship and collaboration**

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**Background/Objectives**

BoringEM is one of Canada’s “Free open access medical education” resources (~300,000 views/year). The blog’s editorial board is committed to empowering junior learners’ participation in the creation of material, generating the challenge of respecting our learner-centered philosophy while also ensuring credibility of published material. The objective of our innovation is to create a safe space for learners to engage with a peer-review process (Scholar) and to foster engagement with online educational resources amongst students and faculty (Collaborator).

**Summary of Innovation**

As a part of the editorial process for pieces written by juniors, we pair each author with an attending physician reviewer. The attending also authors a short, open review that offers his/her perspective and is published alongside the junior learner’s piece. Since July 2014, we have had 16 junior authors write for BoringEM and rostered a team of 15 attending reviewers. Attending reviews mainly result in changes concerning: 1) grammar/punctuation; 2) literature searches; 3) interpretations of evidence; 4) providing clinical context. An internal review has shown that writers and reviewers view the process favourably.

**Conclusions**

The “Reviewing with the Staff” initiative is a collaborative process that models the positive and professional relationship that can occur between an author and a reviewer. This provides learners exposure to a modified peer-review process that coaches them to improve their writing. We hope that this process might assist and cultivate junior learners to become involved in online teaching and learning, as well as increasing comfort with the peer review process.

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**Innovative resident leadership and health systems education**

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**Introduction**

Leadership competencies for residents enable them to contribute to planning, delivery and transformation of health services. Canadian Medical Education Directives for Specialists gives a new framework for Leader Competencies that relate to healthcare systems effectiveness, resource management, and personal leadership. Residents in the University of Toronto Psychiatry Residency Program are offered workshop-based sessions within the ‘Leader’ curriculum. The initiative addresses gaps in: understanding the health system; attitude, capacity and responsibility for participating in health systems improvement; and personal leadership skills.

**Method**

TRIZ, an innovative problem solving method was used to deliver the ‘health care system’ part of the curriculum in one of the sessions. Residents in PGY1 (30), PGY4 (15) and PGY5 (10) participated in the workshops.

**Innovation**

The workshop delivery involved: a system failure case for interactive learning about system infrastructure, decision-making, policy and impact; an overview of the provincial health system, emphasizing levers of health outcome, health spending and inefficiencies; and TRIZ ‘contradictory’ scenarios to elucidate suboptimal practices followed by group-work generating ideas for improvements possible within each domain of WHO quality. Discussion about experiences of health care practices with potential for resident-led improvement led to exploration of perceived barriers, and a later workshop about personal leadership skills.

**Conclusion**

Residents produced many innovative potential solutions to systemic issues. The innovative teaching methods were useful, and efficient and demonstrated highly interactive tools for problem solving and leadership in health system issues. Formal feedback suggests high levels of satisfaction with the content and teaching methodology.
The I-TRAC curriculum: Individualized training of residents through assessment of clinical competency

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Introduction
Residency training programs generally use a “one size fits all” approach, in which each resident, regardless of their mastery, or difficulty with, achieving competencies, is provided the same clinical curriculum. Milestones-based assessments, involving daily objective feedback, enhanced formative evaluations, and periodic clinical competency committee (CCC) assessments, have demonstrated that trainees’ abilities vary along a spectrum with different rates of growth. With specific and timely performance metrics available to our educators, we instituted a program with flexible block scheduling based on individual residents’ knowledge and skills in each phase of training.

Methods
Our standard clinical block curriculum has been divided into three tracks, and residents move among these tracks based on performance evaluations and recommendations of the CCC. The majority of residents fall into the middle track. Residents on the lower track benefit from enhanced mentorship, dedicated simulation exercises, and greater clinical supervision. High performers in the upper track are provided advanced opportunities in departmental operations, bedside teaching, or clinical research.

Conclusion
In a standard block curriculum, significant resources are often devoted to any struggling residents, while high achievers are left to “find their own way,” rather than being offered more advanced experiences. The flexible I-TRAC curriculum replaces the standardized block curriculum, which might lead to a “regression toward the mean,” with a novel individualized program based on each resident’s strengths and weaknesses. This allows educators to truly apply their milestones-based assessments in a way that maximizes residents’ potential and targets specific areas of need throughout the residents’ training.
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2015 International Conference on Residency Education /
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Plenary Sessions
Séances plénières

**PS-01**

**Conference opening plenary featuring the Royal College Lecture in Residency Education: If we improved graduate medical education, how would we know?**

D. Asch  
University of Pennsylvania, Philadelphia

If someone were to ask you which residency program in a particular specialty is the best, or which programs are better than others, what information would help you answer those questions? A growing number of websites provide these rankings but, in turn, how do they know? Several decades of empirical work in clinical quality measurement has explored how process measures and outcome measures can advance our understanding of quality and our ability to improve it. The evaluation of medical education is following along this path. Medicine has something to learn from industrial management. To the extent the field of medical education is in the business of producing good doctors, we need to know the outcome, which doctors are good, and also the process by which they got there.

This session is designed for medical educators. Upon completion of this session, participants will be able to distinguish process and outcome models of evaluation of medical education.

**PS-02**

**Plenary panel – Residency rediscovered**

M. Nousiainen¹, E. Albanyan², E. Warm³, M. Donoff⁴  
¹University of Toronto, Toronto; ²King Abdullah Specialized Children’s Hospital, Dept. of Pediatrics, Riyadh; ³University of Cincinnati Academic Health Center, Cincinnati; ⁴University of Alberta, Edmonton, AB

All those involved in residency education, including residents and educators and health care providers, need to work with each other to transform today’s training so that it is better suited for preparing residents for modern care. This must include ensuring that residents have both the clinical skills for modern practice and also the leadership and organizational skills to enable them to work with others to flex or transform the health care system in response to future advances in health care technology and changes in patient expectations. Today’s residents will need to be more skilful change agents than their predecessors.

This panel discussion will encourage participants to “forward think” about the changes are needed to their residency programmes to ensure they really are fit for purpose – i.e. to prepare residents to provide good quality and safe care for both today’s and tomorrow’s patients.

Upon completion of this session, participants will be able to understand where, how and why residency education may fail today’s residents; learn about examples of transformation; and consider/reflect on what is needed to transform residency education so that today’s residents are better prepared.
**PS-04**  

**CBME: Pros and cons ... The heavyweight title fight**

*E. Holmboe¹, M. Walton²*

¹Accreditation Council for Graduate Medical Education, Chicago, IL; ²McMaster University, Hamilton, ON

In this session, Drs. Eric Holmboe and Mark Walton will go toe-to-toe to debate the pros and cons of competency-based medical education. This controversial session will provide participants with the authentic views and opinions of two heavyweights in medical education, and will highlight the challenges and opportunities available through CBME.

Join the discussion led by Drs. Eric Holmboe and Mark Walton:

- Dr. Eric Holmboe, a leading expert in milestone development and assessment, interventions to improve quality of care and methods in the evaluation of clinical competence, is the Senior Vice President, Milestone Development and Evaluation at the Accreditation Council for Graduate Medical Education. In this session, Dr. Holmboe will be arguing the pros of competency-based medical education, and highlight the opportunities this new system may present.

- Dr. Mark Walton, an award-winning educator recognized for his work in resident and student advocacy, is the Post-Graduate Dean at McMaster University. Dr. Walton has been involved in the Future of Medical Education in Canada PG project, the National Steering Committee on Resident Duty Hours, and a number of resident wellness initiatives. He will debate the cons of competency-based medical education, acknowledging some of the challenges associated with CBME.
Conference closing plenary featuring the Royal College Lectures: Rocking the boat and staying in it: How to be a great change agent

H. Bevan¹, J. Cox²
¹NHS Improving Quality, Coventry, UK; ²Safety Operating Systems, Washington

The people who change the world are the heretics and radicals; those with the courage and skills to challenge the status quo. It's tough being a healthcare radical. This plenary will highlight how radical change has impacted the aviation industry and draw important parallels between this industry and healthcare. We will apply the thinking and practice of radical leaders and explore tactics necessary to “rock the boat while staying in it” by engaging others who may not want to change in order to transform healthcare quality in our organizations and communities.

At the end of this session, participants will be able to appreciate how aviation, as another high stakes industry has achieved high quality, near error-free performance; apply the aviation industry successes towards quality improvement and performance to healthcare; apply the tactics and success strategies of radical leaders to increase effectiveness as leaders of change; and identify approaches to leading change aimed at healthcare improvement.
P. Eisener-Parshe, G. Moineau

Canada has strong and internationally recognized accreditation systems for Undergraduate medical education (UGME), Postgraduate medical education (PGME) and Continuing Professional Development (CPD). They have been developed and refined so that they assess how well our education systems function and how well the graduates of our programs meet certain outcomes (e.g. CaRMS match rates, LMCC Part 1 scores, LMCC Part 2 scores, etc.). However, we have very little data on the performance of our graduates based on their school and program of graduation. Accreditation systems, both Canadian and internationally, would be enormously enhanced by measuring outcomes that look more directly at practice.

The FMEC PG report has made a recommendation to align accreditation standards across the UGME, PGME and CPD domains. This work is proceeding quite effectively, and as we work towards more seamless, more efficient and less costly accreditation systems there is a real opportunity to address the issue of outcomes – outcomes that would be socially accountable and measure performance and competencies that are focused on meeting the health care needs of patients. There is a universal paradigm shift towards outcomes-based accreditation happening right now and Canada is at the forefront of this change.

This session will begin by describing our current accreditation systems, in terms of what outcomes are measured and how they are measured. The session will then describe the limited evidence that explicitly links the training program experience to practice patterns in order to understand what might be achievable in an accreditation system that focuses less on assessing processes and more on assessing the outcomes of the educational process.

This session will then engage all participants in brainstorming accreditation outcome measures, be they clinical, safety related, or quality related. This information will inform the future discussions of the FMEC PG working group on the alignment of accreditation across the continuum of medical education, and will help any international colleagues looking to embark on this change journey within their own accreditation systems.
Admissions: Selecting residents
Les admissions : sélection des résidents

AD-01

Lightning round: Selecting residents

S. Choi¹, I. Incoll²
¹University of Ottawa, Ottawa; ²Australian Orthopaedic Association, Sydney

This session will look at current practice in selecting residents from North America and Australasia and the rationale and evidence for the use of these tools. A panel discussion will explore the positives and negatives of past, current and potential future tools and their weighting in a residency selection process.

AD-02

Best practices in residency applications and selection: Interview process

L. Probyn, S. Glover Takahashi, G. Bandiera
University of Toronto, Toronto, ON

The recent Future of Medical Education in Canada projects (MD and PG) and the Independent Review of Access to Postgraduate Programs by International Medical Graduates in Ontario by George Thomson and Karen Cohl have directed attention and a call to action around resident application, selection and admissions practices. Appropriate selection practices and processes will enable programs to select residents with confidence in order to meet program and population healthcare goals.

The University of Toronto (U of T) struck the Best Practices in Applications and Selection (BPAS) Working Group to develop recommendations and an implementation strategy for selection across U of T's PGME programs. The BPAS group developed 13 principles and 24 best practices to address issues of transparency, fairness, selection criteria, committees, processes and instruments. The recommendations were viewed by local and national stakeholder groups who reported high face validity, relevance, and timeliness.

Based on the BPAS work, the Postgraduate Medical Education (PGME) office at U of T developed tools and resources to support residency programs in the interview process.

The workshop will begin with a brief presentation of the recommended principles and best practices in resident application and selection. Then, participants will work in small groups on exercises focused on the interview process. The workshop will end with a general discussion of selection best practices and implementation strategies within participants' local environment.

By the end of this session, participants will be able to identify best practices in resident applications and selection; evaluate whether their own interview process is consistent with identified best practices; and create a best practices implementation strategy for their particular environment.
Assessment: Cutting edge tools and practical techniques
L’évaluation : outils d’avant-garde et techniques pratiques

RA-01

The Challenges of Personalized Training Programs for Residents – How to Assess Professional Identity and the Role of ‘Gut-Feeling’?

M. Duitsman¹, L. Fluit¹, F. Scheele², D. Jaarsma³, M. ten Kate-Booij⁴, J. de Graaf¹
¹Radboud University Nijmegen, Nijmegen; ²VU Medisch Centrum, Amsterdam; ³Universitair Medisch Centrum Groningen, Groningen; ⁴Erasmus UMC Rotterdam, Rotterdam

In the Netherlands, postgraduate medical education (PGME) programs have been changed from a time based training program to the ultimate form of competency based medical education: an individualized training program.

An urgent question that comes to mind is: what tools are needed to assess whether a particular resident has completed the training? This may be relatively easy for practical tasks, but how is professional identity/performance assessed? Are the available tools in a portfolio sufficient or is additional information needed?

On the work floor, there is friction between assessing all the competencies separately and objectively with the available tools (e.g. mini-cex, OSATS, 360 degree feedback) and the authentic, holistic performance of a specialist. What exactly is the professional identity of a medical specialist? Can it be measured? What is the influence of ‘gut-feeling’ and personal characteristics of assessors on the opinion concerning a resident?

This session will introduce the concept of individualized competency based training programs in the Netherlands, and the concept of professional identity.

Anonymous portfolios will be evaluated in small groups. Each group will be asked to form an opinion about an individual resident.

Next, video fragments of different clinical performances of the same resident will be shown. Participants will discuss similarities and discrepancies in their opinion about that resident based on evaluating the portfolio on one hand and observing clinical performances on the other hand.

Last, participants are challenged to become aware of how their own personality features influence their opinion about residents. Prior to this workshop, all participants will be asked to fill in a standardized online test about their personality. During the session, participants watch video fragments of two different doctors. Next, they are asked whom of these two residents they would hire, while exploring the contribution of their gut feeling and their personality preferences.

RA-02

KeyLIME: Best assessment literature

E. Holmboe¹, J. Sherbino²
¹Accreditation Council for Graduate Medical Education, Chicago; ²McMaster University, Hamilton

Effective and valid assessment is an essential component of competency-based medical education (CBME). As CBME continues to influence health professions education, the field of assessment continues to evolve. During this interactive discussion, key papers on assessment from the past year will be highlighted. The important findings and their implications for front line educators will be discussed in an open forum.
Assessment: Cutting edge tools and practical techniques
L’évaluation : outils d’avant-garde et techniques pratiques

RA-03

Workplace based assessment rediscovered

N. Dudek¹, F. Bhanji²
¹University of Ottawa, Ottawa, ON; ²Centre for Medical Education - McGill University, Montreal, QC

Workplace based assessment (WBA) is considered the optimal method of assessing professional competence. With Competency Based Medical Education (CBME) curricula, there is an increasing requirement of direct observation and workplace assessment methodologies that reflect trainee performance accurately. Quality workplace assessments are a critical component of medical trainee assessment within CBME.

Tools for WBA usually consist of a list of items on a checklist or rating scale and written comments. Recently, there has been a strong call in the literature for more emphasis on the narrative aspects of these assessments (i.e. the comments). Some have even suggested that narrative descriptions replace numerical ratings for clinical performance. Rich narrative evaluations of performance enhance the formative function of workplace assessments (i.e. to provide feedback to the trainee that can be used to modify and develop future performance). Additionally, these detailed descriptions of performance are required for defensible decisions in summative assessments. In order to assist clinical supervisors with collecting and documenting these qualitative assessments, the Royal College of Physicians and Surgeons of Canada has developed the Narrative Assessment Tool.

During the interactive workshop, participants will have opportunities to: 1) discuss the challenges to completing workplace assessments in the residency training environment, 2) develop strategies for improving observation of trainees, 3) learn and practice strategies for improving the quality of written comments, and 4) use the Narrative Assessment Tool.

RA-04

One size does not fit all: Learner-centered remediation plans

S. Wahi-Gururaj, A. Singh, M. E. Bar-on
University of Nevada School of Medicine, Las Vegas, NV

Resident success in training is highly variable due to a multitude of factors, including diverse educational backgrounds and experiences, learning styles and distinct mental models. As a result, response to uniform curricular offerings may not lead to appropriate progression for all. To provide struggling residents with the necessary tools to realize their goals, program leadership must develop learner-centered educational plans for improvement. Successful models often require a multi-faceted approach. The purpose of this workshop is to engage participants in developing a robust toolbox to be used in forming these remediation plans.

We will begin this workshop with a brief review of remediation principles highlighting steps for developing resident improvement plans that are PGY level and milestone specific. Participants will then divide into teams and address several ACGME core competency-specific resident challenges. The small groups will be asked to craft a milestone specific remediation plan accompanied by an outcomes assessment which they will present to all in attendance. Finally, examples of strategies used at the facilitators’ home institution will be provided and discussed. Participants will be given copies of their developed remediation plans after the workshop.
Helping underperforming trainees

I. Incoll, J. Atkin
Australian Orthopaedic Association, Sydney, NSW, Australia

An underperforming trainee/resident can be defined as one who does not meet the expectations of a training programme because of a problem with knowledge, attitude or skills (Steinert, 2008). The percentage of trainees/residents experiencing some sort of difficulty is fairly consistent across the world. This interactive workshop will discuss early signs of trainees experiencing difficulty, factors that impact on performance and will propose a step-by-step approach to helping underperforming trainees and suggesting remedial activities. We will also address prevention strategies.

The workshop will feature short presentations interspersed with group activities, small group discussion and opportunities for participants to reflect on how they have helped underperforming trainees previously. The second portion of the workshop will involve discussing challenging cases and working through case studies, using small group discussion and consensus to practise applying the suggested framework.

Organizing a process for in-training assessment in the context of competency-based education

T. Crichton¹, T. Allen¹, K. Lawrence¹, M. Donoff², S. Hawrylyshyn¹, K. Schultz³, T. van der Goes¹, C. Brailovsky¹, T. Laughlin¹, C. Bethune⁴
¹College of Family Physicians of Canada, Mississauga, ON; ²University of Alberta, Edmonton, AB; ³Queen’s University, Kingston, ON; ⁴Memorial University of Newfoundland, St. John’s, NL

The Future of Medical Education in Canada Postgraduate Project’s fourth recommendation speaks to the need for effective assessment tools and systems that support learners. There are clearly identified gaps in in-training assessment that include incomplete sampling of performance, hidden performance deficits of the resident, lack of performance benchmarks, and faculty members’ hesitancy to act on negative performance information. This workshop proposes practical approaches that will help educators to close these gaps with particular emphasis on high quality workplace-based assessment.

This workshop will allow participants the opportunity to reflect on and discuss their own institution’s current processes of assessing learner’s daily clinical activity. Strategies for enhanced observation and documentation will be highlighted, and there will be opportunities to clarify further roles, skills and tasks of learners, preceptors, faculty advisors, and program directors in assessment of competencies in medical education.
Develop a simulation based objective standardized clinical exam (OSCE) in a competency based medical education (CBME) era

B. Mema, A. Kotsakis, A. Kawamura

1The Hospital for Sick Children, Toronto, ON; 2Holland Bloorview Kids Rehabilitation Hospital, Toronto, ON

Competency based medical education (CBME), a new era in medical education involves outcomes driven education and assessment to ensure that physicians have the knowledge and skills needed for independent practice. CBME needs strong multifaceted assessment of competency in real life and simulation. Increase complexity of patients, shortened training time, concerns for patient safety also call for simulation based practice and assessments in a safe environment. Gold standards for tests are not available in medical education. Assessment tools and judgments that are made as a consequence of those assessments are important and actions made on assessment scores should be compatible with assessment strength (validity). In a recent systematic review of simulation based assessment Cook et al found that from 217 eligible studies only 6 provided a unified five source validity framework and call for more robust studies with good validity evidence. We share our experience of having built an OSCE for assessment of competence in Critical Care Medicine trainees and having validated the OSCE using Messick's five-point, unified construct validity framework. The workshop focuses on discussion and application on planning to implement an OSCE and preparing the necessary data for validity evidence based on Messick's five-point, unified construct validity framework that is: content, response process, internal structure, relationship to other variables, and consequences.
Competency-based education
La formation médicale fondée sur les compétences

CB-01
What is Competency-Based Medical Education (CBME)?

E. Holmboe1, J. Karpinski2, E. Van Melle3, L. Snell4, J. Sherbino5, F. Scheele6, J.R. Frank2, R. Englander7

1Accreditation Council for Graduate Medical University, Montréal; 2Royal College of Physicians and Surgeons of Canada, Ottawa; 3Queen’s University, Kingston, ON; 4McGill University, Montreal, QC; 5McMaster University, Hamilton; 6St. Lucas Andreas Hospital, Amsterdam Education, Chicago; 7George Washington University School of Medicine, Washington

Are you planning to create or enhance a competency-based training program?

This course will help you start to develop and implement an outcomes-based curriculum in postgraduate or residency education. A unique professional development opportunity for leaders and curriculum developers in medical education, this course will provide a comprehensive, intensive immersion into the world of competencies, milestones, EPAs, and programmatic assessment, World-renowned faculty, including some of the founders of the International CBME Collaborators group, will walk you through the rationale, process, and elements of CBME design and delivery. Armed with the learnings from this course, you will be prepared to lead the transformation of any training enterprise to a CBME approach.

CBME is an emerging approach to health professions training, oriented to the abilities of graduates of programs and organized around the progression of expertise. CBME is rapidly becoming a movement, with innovative programs in multiple professions and various stages of training around the world. This course is an introduction to CBME that will help to prepare any medical educator with an approach to the design of CBME curricula.

Upon completion of this session, participants will be able to articulate the rationale for the CBME movement to their peers; define key terms relating to CBME, including: CBME, competency, EPA, milestone, outcome, program evaluation, programmatic assessment, progression of competence, & competence; describe examples of CBME innovations underway around the world now; employ a stepwise approach to planning a CBME curriculum for any health profession; describe pitfalls and enablers when implementing CBME; describe a logic model for CBME program evaluation; and describe how to effectively leverage scholarship out of a CBME innovation.

CB-02
Shaping Competency-Based Medical Education in Your Own Department

T. v. van Kempen, J. Bustraan, B. de Leede, S. Velthuis
Leiden University Medical Center, Leiden

During the process of implementing CBME a lot of effort goes into creating new competency documents, milestones and implementation via teaching and assessment. Being involved in the development of competency based residency programs in the Netherlands, we became aware of the importance of a broader scope, aiming at active involvement of clinical teachers and residents as main change agents in clinical practice. A successful introduction of a competency based educational system highly depends on the commitment of staff, skills of the program director and the attitudes of the residents. This workshop addresses all three aspects. In the first part of the workshop we will show participants how they can engage their colleagues in educational change and how they can overcome counter pressure. We will introduce a framework that is helpful to analyze important aspects of change processes as well as organizational responses to change. Participants will have an opportunity to use this framework as it applies to their own educational challenges. Then we move over to the skills program directors or staff members need to find out if residents are competent in the generic competencies. We will practice a specific interview technique (STARR) suitable for this purpose. Finally we will discuss the changing role of residents in CBME into a more active role in shaping their own education. What kind of knowledge, skills and attitudes does a resident need to be successful in CBME? And how can a program director facilitate this? We will show some examples and discuss the application of these ideas in the specific contexts of the participants.

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CB-03

Lightning round: The dawn of the clinical competence committee in assessment

E. Holmboe
Accreditation Council for Graduate Medical Education, Chicago, IL

Implementation of competency-based medical education models globally has surfaced the increased need for rigorous work-based assessment methods, and the realization that no single assessment tool is sufficient to evaluate the overall competence of a physician-in-training. Synthesis and integration of multiple assessments, as part of a program of assessment, is essential. Given the importance of informed judgment, effective group process is vital to this synthesis that must lead to various types of high quality entrustment decisions throughout the training period. The clinical competency committee (CCC), now a required element of graduate medical education programs in several countries, provides a useful and evidence-based approach for making informed judgments and entrustment decisions. The CCCs also provide a mechanism to gauge the developmental trajectory of trainees and provide rich, useful feedback to inform trainee learning plans.

In the workshop, participants will:
1) discuss the rationale and evidence for group process in general and CCCs specifically.
2) discuss how CCCs and group process can improve their own programs and trainee feedback.

A bibliography and CCC worksheet will also be provided.

CB-04

Lightning round: Ensuring program quality in competence-based medical education

F. Scheele¹, E. Van Melle²
¹St. Lucas Andreas Hospital, Amsterdam; ²Royal College of Physicians and Surgeons of Canada, Ottawa

There are a number of essential ingredients that go into creating a quality CBME program. By the end of this session participants will be able to describe these qualities as well as a process for ongoing monitoring and evaluation.
CB-05

Entrustable Professional Activities for entry into residency: first day expectations and implications for the clinical teacher

C. Touchie¹, A. Boucher²
¹Medical Council of Canada, Ottawa, ON; ²Association of Faculties of Medicine of Canada, Ottawa, ON

The Future of Medical Education in Canada – Postgraduate Medical Education (FMEC-PG) recommendation #5 action-list includes developing smoother and more effective transitions from medical school to residency. The document suggests the creation of close links between individual learner competencies developed in the MD training with the educational objectives set for the resident (FMEC-PG, 2012). The FMEC-PG Transition Implementation Committee has identified priority projects in order to facilitate the transition from medical school to residency including the development of pan-Canadian Entrustable Professional Activities (EPAs) at this transition period.

The objective of the pan-Canadian EPA working group was to define EPAs that all graduates from Canadian medical schools should be able to perform with indirect supervision when starting a residency training program regardless of specialty. These EPAs would help define expectations for residents entering residency programs regardless of (1) the school of MD training, (2) residency training program site and (3) chosen specialty.

This session will present the proposed Pan-Canadian EPAs for entry into residency as elaborated by the working group. A comparison will be made with the 13 core EPAs for entry into residency defined by the AAMC in 2013. Similarities and differences will be explored.

This session will explore the clinical teacher’s comfort with the proposed EPAs and the level of supervision they would expect to provide in various scenarios. A mapping exercise to the CanMEDS 2015 roles will help demonstrate how EPAs relate to competencies and milestones.

CB-06

Boot camp for boot camp: Build a foundational module for competence-based residency training

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¹The University of Ottawa Skills and Simulation Centre, Ottawa, ON; ²The Ottawa Hospital, Ottawa, ON

The use of “boot camp” style modules to build and accelerate competency at the outset of residency training has been integral to competence-based curricula in Canada. However, the development of these modules is complex and challenging. This workshop will describe the steps taken in development and launch of the Foundations module at the Anesthesia programme at the University of Ottawa. Participants will explore existing resources for teaching and assessment tools, and create sample materials for use at their own programme, including milestones and instructional plans.

Workshop design:

- 15-25: Resources: time, money, people. Activity: Identify resources required and strategies for team assembly
- 25-40: Milestones: what do residents need to learn? Activity: Write milestones
- 40-55: Instruction: how will they learn? Activity: Examine different modalities of instruction. Determine which best suits different milestones
- 70-80: Launch: overcoming barriers Activity: Identify barriers within own institution. List strategies to overcome identified barriers
- 80-85: Assessment: measuring outcomes (lecture)
- Wrap up, feedback

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**CB-07**

**Mastery Learning as a tool for competency based medical education**

**L. Mazer**, M. Ritter, K. de Boer, E. Ruano Cea

1Stanford University, Stanford, CA; 2Walter Reed National Military Medical Center, Bethesda, MD USA; 3University of California, San Francisco, San Francisco, CA; 4McGill University, Montréal, QC

Internationally, medical education is increasingly competency-based. Training programs are rewriting learning objectives in terms of specific outcomes or milestones, and developing new assessments to map trainees’ behaviour to these objectives.

This session will present one approach to competency-based education that has its origins in the K12 literature of the 1960’s, but has since demonstrated success in technical and nontechnical skill acquisition in medicine. Mastery Learning proposes that virtually all learners can meet a predefined level of competency, if given sufficient time. A Mastery Learning curriculum breaks complex topics into discrete educational units, with each unit having a specific educational activity and assessment tool. Learners are required to meet the predefined competency level at each step before progressing to subsequent educational units.

This session will explore the principles and current applications of Mastery Learning in medical education. Mastery Learning has been applied to laparoscopic surgery, central line placement, code status discussions, and more. Reported advantages include optimizing skills acquisition and retention, and improved patient outcomes. Participants will gain familiarity with the evidence for Mastery Learning in the medical education literature.

This session will demonstrate the steps of developing a Mastery Learning curriculum using a sample laparoscopic surgery skills program. In small groups, participants will collaborate to create educational units, develop appropriate activities, and brainstorm assessments. The session will provide an introduction to standard setting, with practical examples.

Mastery Learning is one educational approach that has been successful in competency-based education. It also encompasses several concepts that are essential for any competency-based curriculum, including the outcomes-based approach to assessment and the process of standard setting. Participants in this session will gain familiarity with Mastery Learning, understand its applications to medical education, and practice applying several tools that will be broadly relevant to competency-based medical education.

**CB-08**

**Transforming your program to be competency-based: An interactive workshop to explore strategies and solutions**

**J. Griffiths, K. Schultz**

Queen’s University, Kingston, ON

Competency-based medical education (CBME) intuitively makes sense and is widely embraced as a preferred approach to health care education. We have transformed our Canadian postgraduate Family Medicine program to be competency based over the last 5 years. Early outcomes are encouraging. There has been more direct observations and performance documentation for our residents. This has provided data for identification of patterns of performance and developmental trajectory which in turn supports competency declarations. This also allows for earlier identification of outliers, with subsequent educational interventions and program modifications. The data also supports program decisions when these are scrutinized by third parties.

Although CBME has been widely accepted and understood, there remain significant challenges to implementation. This workshop will be based on our experience with CBME implementation in our large program. We will focus on the implementation of the central tenets of CBME including curriculum structure and assessment process, and beyond to explore the impact of medical education culture, the importance of change management and faculty development. We will introduce an organizational framework for the steps involved in CBME implementation, highlighting facilitators, gaps and pitfalls. Participants will identify where their program is along this CBME implementation path. They will then regroup to work with participants at the same stage, discussing barriers and solutions. The session will end with a large group discussion highlighting group wisdom around implementation successes and solutions to challenges.
Building a validity argument for qualitative assessment tools

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In assessment, our ultimate goal is to make sound judgments and subsequent decisions about our learners; what feedback can I give this resident on their communication skills? should the resident be promoted to the next year of training? In order to make these judgments we require evidence to support the validity of our assessment tools and related decisions. Modern validity frameworks are available to help us examine and structure our validity argument and hence understand the strengths and limitations of the assessment tools we employ.

In our shift to Competence-By-Design (CBD), there will be an increased emphasis on in-training assessments that generate both qualitative (i.e., narrative comments) and quantitative (i.e., numerical) data. These quantitative and qualitative assessments will inform an overall judgment about the trainee with recommendations for both formative (feedback) and summative (e.g., promotion) decisions. The process and the ultimate decisions based on these assessments must be rigorous and defensible – or, in other words, the judgments and decisions must be valid.

While older validity frameworks focus almost exclusively on assessment approaches that produce a numeric score, Kane’s modern framework is well suited to qualitative and quantitative data and programmatic integration of data of varying types and quality. Kane’s framework focuses on four key phases or inferences involved in planning and evaluating the validity argument for an assessment tool: scoring, generalization, extrapolation, and impact/decisions. This workshop, for educators with a basic understanding of the need to collect validity evidence, will focus on using Kane’s framework to build a validity argument for qualitative assessment tools.
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CB-11

Transitioning from time to competencies: Organizational obstacles in a complex health care setting

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¹Maastricht University, Maastricht, Netherlands; ²VU University Amsterdam/Sint Lucas Andreas Hospital, Amsterdam, Netherlands; ³Deventer Hospital, Deventer, Netherlands

Competency Based Medical Education (CBME) in Post Graduate Medical Education (PGME) is gradually introduced worldwide. CBME not only changes the structures and content of PGME programs, but it also affects the way PGME is organized in teaching hospitals. The transformation from Time-Based Medical Education (TBME) to CBME introduces new organizational challenges; both on the hospital administration level and on the clinical work floor. We observe that these challenges often lead to friction and barriers in these complex settings. The move to CBME can lead to educational quality improvements and intensification, but PGME is not just about training and education. Residents play an important role in the provision of clinical service from teaching hospitals. One example of the problems that arise when making the transition to CBME is the disruption of this labour supply, often leading to organizational tension, friction and uncertainty.

By presenting an analytical perspective, best practices and practical instruments this workshop addresses the following questions: How do these organizational challenges manifest in teaching hospitals? How can they be revealed? And subsequently how can they be dealt with. During interactive case studies the participants discover the impact of implementing CBME in PGME programs from an organizational perspective based on implementation and complexity theory. During these case studies participants are encouraged to reflect on their own experiences with the transition to CBME. Furthermore the participants will discuss the consequences that the implementation of CBME may have on their own hospital organization in practical group experiments, get practical insights and discover best practices that can support their own implementation processes.

CB-12

Competency based assessment tools – Using “entrustment anchors”

W. T. Gofton, N. Dudek, J. Rekman

University of Ottawa, Ottawa, ON

A shift towards Competency Based Medical Education (CBME) in post-graduate residency education has triggered consideration of how to implement feasible assessment tools. It is clear that increased formative feedback and assessment from staff supervisors to guide residents through milestones and the achievement of Entrustable Professional Activities (EPAs) will be required. It is crucial for frontline educators to feel an assessment tool captures their true appraisal of a resident. Entrustment assessment evaluates a trainee against what they will actually do when practicing independently and aligns with Millers level 4 (Does), putting their abstract knowledge and generalized skills into a larger context. Staff already make daily evaluations of their ability to trust a trainee with a task. Aligning assessment with these daily considerations may improve the quality of feedback and assessment.

This interactive workshop will provide an overview of workplace-based assessment (WBA) in CBME. We will demonstrate the value of construct-aligned entrustment scales for assessment of day-to-day activities expected of a physician. We will walk participants through the process of tool development using modern validity theory. Drawing on our experience in developing three separate tools for the assessment of technical and non-technical skills, the Ottawa Surgical Competency Operating Room Evaluation (O-SCORE), the Ottawa Clinic Assessment Tool (OCAT), and the Ontario Bronchoscopy Assessment Tool (OBAT) we will walk participant small groups through the process of assessment tool development and validation.
CB-13
Accreditation Council for Graduate Medical Education (ACGME) – Systems approach to professional self-regulation

E. Holmboe
Accreditation Council for Graduate Medical Education, Chicago

Professional self-regulation is a privilege granted to variable degrees by the public and policy makers to the medical education community, and requires effective integration of clinical care and educational systems. Combined with key principles of competency-based medical education, systems thinking is a vital and useful way to design and improve assessment and curricula in graduate medical education (GME) programs. This highly interactive workshop will explore key concepts in self-regulation, systems design for residency and fellowship programs, and key concepts in co-production and co-creation for learning and assessment.

CB-14
Implementing competency based education by using relevant medical themes

F. Scheele¹, J. C. Borleffs², K. van. Loon³, C. den Rooijen⁴
¹VU University Medical Centre, Amsterdam, Netherlands; ²University Medical Center Groningen, Groningen, Netherlands; ³Sint Lucas Andreas Hospital, Amsterdam, Netherlands; ⁴KNMG, Utrecht, Netherlands

Communicator, Collaborator, Health Advocate, Manager, Scholar, Professional (the generic competencies): all topics in which a resident should be trained in order to become an expert. But how? And how can these topics become a concrete part in the residents’ workplace based training? This workshop will give answers in these important questions and participants will be challenged to apply a successful Dutch approach in their own workplace.

During the workshop our approach of implementing competency based education in the resident training (known as the ‘CanBetter’ project) will be shared with the participants. In CanBetter the generic competencies are made operational by using themes which are relevant in today’s health care. These themes are Leadership, Patient Safety, Quality of Care, Care for Elderly, and Patient Participation. By paying attention to these themes residents will master the generic competencies, partly implicitly.

Participants will be challenged to think of relevant themes in their own context. Which important topics can be used in the training of residents to implement generic competencies? And how do you implement such a topic in your own training program? Besides discussing these questions in small groups we will exchange our experience from the Netherlands, share practical tools for implementation, and trigger the participants to join a discussion about successful ways of implementing generic competencies in the workplace.

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How a culture of safety fosters good learning

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A culture of safety is integral to the delivery of safe healthcare, and is associated with improved outcomes and patient satisfaction. The importance of a culture of safety is acknowledged in the CanMEDS 2015 Competency Framework; the physician as ‘leader’ “contribute[s] to a culture that promotes patient safety’, by achieving the ascribed milestones across the professional life cycle. Reciprocally, a culture of safety is integral to a safe learning environment.

Culture, colloquially defined as ‘the way we do things around here’, is a complex construct. It is represented by shared values, attitudes, behaviours and artifacts internalized through a process of socialization. In a culture of safety, safety is valued as a key priority and is manifest through a committed leadership that ‘walks the talk’, frequent and transparent communication across the organization, openness and reporting of errors, and psychological safety, all key ingredients for a safe learning environment. A culture of safety is also reflected by many of the patient safety-related competencies and milestones attributed to the ‘non-leader’ CanMEDS roles. To be competent at the time of transition to practice, trainees must first comprehend the construct of culture and the interrelatedness of the various patient safety-related competencies and milestones within this construct. This comprehension underpins individuals’ ability to feel invested in and meaningfully contribute to the local culture of safety during training and beyond.

This session will describe the components of a culture of safety and illustrate its centrality to the safe operation of complex environments characterized by little margin for error, such as aviation and healthcare. The CanMEDS 2015 patient safety-related competencies and milestones will be aggregated and aligned with the elements of a culture of safety, and their application to healthcare demonstrated. The reciprocal relationship between a safety culture and a safe learning environment will be explored.
EPS-04
Tailoring quality improvement plans for residency training

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There is a global struggle to improve and assure the quality of residency training. Therefore many accreditation systems require professionals to guarantee high levels of quality of residency training through continuous quality improvement (QI) plans. Designing QI plans is not sufficient; their implementation has to be proven. Tailor made QI plans are needed to maximize a positive impact on training quality and physicians’ buy-in. Active participation from the side of stakeholders to design and fine-tune a feasible QI plan is therefore crucial.

This session will present the opportunities and challenges of designing a context-specific QI plan for residency training. Most of the time will be spent on self-work in small groups. Each group will be asked to define an ambitious performance goal within a specific context and subsequently to design a plan how to consistently improve to get there. Groups will therefore address the following issues:

1. What information is needed to achieve the defined goal?
2. What guidance does the current (Canadian) accreditation system provide?
3. What information seems redundant for your context and which information is missing?
4. How do we get the missing information?
5. How (and with whom) will the results be reflected on, and translated into improvement actions.

Groups will be invited to present their specific QI plan to other participants who will be asked to provide feedback. The discussion should focus on enhancing professional input and value within accreditation systems.

EPS-03
Teaching Quality Improvement (QI) in residency education

R. Wong
University of British Columbia, Vancouver

This session is designed for program directors, program administrators, faculty members and residents who are interested in teaching and learning of QI. This session will launch the new electronic publication on “Teaching Quality Improvement (QI) in Residency Education”. Upon completion of this session, participants will be able to discuss how this educational resource can be helpful in teaching and assessing QI.
EPS-05

What’s new in CanMEDS 2015? Incorporating safety and quality competencies in your program

B. M. Wong
Sunnybrook Health Sciences Centre, Toronto, ON

There is an urgent need to improve patient safety and healthcare quality for patients and populations in Canada. As physicians, we are uniquely positioned to lead in this effort. However, physicians need to acquire new competencies that allow them to contribute to improving safety and quality. Therefore, the CanMEDS 2015 framework has evolved to include specific competencies that relate to patient safety and quality improvement. The Medical Expert role now clearly states as a key competency that physicians should be able to “actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety”. Additional competencies have also been integrated across the intrinsic roles to support this core expertise expected of all physicians. This workshop will introduce the changes to the CanMEDS 2015 framework, allow participants the opportunity to discuss and reflect on these changes, and identify opportunities within their training programs to introduce teaching about patient safety and quality improvement to their colleagues and residents.

EPS-06

ASPIRE-ing towards safer patient care: Practical approaches to teaching patient safety

B. M. Wong
Sunnybrook Health Sciences Centre, Toronto, ON

The Royal College, in partnership with the Canadian Patient Safety Institute, created the ASPIRE (Advancing Safety for Patients in Residency Education) professional development program. This program seeks to develop expert faculty who can design and deliver education on patient safety in their training programs. The course has already been delivered to 80 participants over 2 cohorts, and has created a community of patient safety educators across Canada. This workshop provides a brief overview of the ASPIRE program, and then engages participants in two of the modules created as part of the ASPIRE program (using case-based learning to learn about safety culture, re-structuring morbidity and mortality rounds to have a patient safety focus to learn about the analysis of patient safety incidents). This workshop would help participants to contribute to patient safety education in their local programs, and address the urgent need to teach patient safety competencies that have been more explicitly highlighted in the CanMEDS 2015 framework.
**ERM-01**

**Evaluating Educational Innovations: The Key is to Start Early!**

**E. Van Melle**, **L. Flynn**, **F. Bhanji**

1Royal College of Physicians and Surgeons of Canada, Kingston, ON; 2Queen’s University, Kingston, ON; 3McGill University, Montréal, QC

Program Directors and Clinician Educators are often responsible for designing and implementing educational innovations. These innovations can include a new or revised teaching strategy, assessment tool, workshop or curriculum (Van Melle et al, 2012). Evaluating the effectiveness of an innovation is often left as the last step in the cycle of design and implementation (Steinert & Snell, 2011). To provide meaningful results however, an evaluation should be threaded through all phases of design and implementation: it requires a thorough needs assessment, well-defined goals and objectives and a clearly articulated theoretical framework(s) (Donaldson, 2007). In this workshop we will present a simple but comprehensive model that focuses on these common elements; elements that set the stage for an effective, scholarly, robust evaluation.

**ERM-02**

**Getting real with evaluations: Using realist review for medical education research**

**E. Paternotte**, **L. Stammen**, **R. Stalmeijer**, **F. Scheele**

1Sint Lucas Andreas Hospital, Amsterdam, Netherlands; 2Maastricht University, Maastricht, Netherlands

Clinicians need tools to become effective in medical education research. The realist review (realist evaluation, realist synthesis) could be this tool. Besides realist review is becoming increasingly popular in educational research. In contrast to systematic reviews which aim to summarize existing literature in order to answer a specific research question the realist review aims to clarify how interventions cause change. As such it has an explanatory rather than a judgmental focus and aims to answer the questions ‘what works, for whom, how and under what circumstances’. Realist methods try to modify and sharpen theory by reviewing context, mechanisms and outcomes of programmes.

In this workshop we will introduce the background and the paradigmatic stance of the realist review as a research method. Furthermore, the presenters will illustrate how this method can be used to guide medical education research by showing practical examples from their own experience.

Participants will be encouraged to apply the “what works, for whom, how and under what circumstances”- question to their own research and/or workplace. We will finish the session with a debate about how realist methods can be used in medical education research and how to situate the realist method in comparison to other types of reviews, such as systematic and narrative reviews.
Education research methods
Les méthodes de recherche en éducation

ERM-03

Effective hazard mitigation in error intolerant industries

J. Cox
Safety Operating Systems, Washington

A facilitated discussion using examples from nuclear, aviation and medicine. The background would be some of the example in Charles Perrow book “Normal Accidents.” Also a discussion on the need to focus on effective mitigation techniques (what we do right) while discussing the rare event of when things go wrong.

This session is designed for people involved in Error Intolerant Industries. Upon completion of this session, participants will be able to better understand the complex issue in hazard identification and mitigation leading to more effective mitigations.

ERM-04

Academic advocacy: Developing effective ways to engage colleagues when sharing controversial scholarly medical education findings

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¹University of Toronto and Women’s College Hospital, Toronto, ON; ²University of Toronto, Toronto, ON; ³Wilson Centre for Research in Education, Sunnybrook Health Sciences Centre & Department of Medicine, all at the University of Toronto, Toronto, ON

Medical education scholarship and research is diversifying, incorporating researchers and clinical educators with multiple perspectives. This is a sign of the maturation of our discipline and allows us to ask increasingly complex questions and answer them in sophisticated ways. It also means, not surprisingly, that at times our findings may call into question certain accepted educational approaches and practices. This is a necessary and desirable aspect of academic activity, and can open exciting and creative possibilities for change. It may at times however, pose challenges for the scholar who is sharing these findings with her/his community to engage colleagues in constructive conversations about the implications of these findings for educational practice.

In this workshop, we will explore strategies and solutions for achieving effective, credible and respectful collegial engagement when sharing controversial scholarly medical education findings.

In this workshop, the facilitators will provide brief presentations of case studies that demonstrate provocative research findings, and discuss strategies that they have used to actively engage members of their medical education community in translating these findings into practice. There will be interactive group discussion about each of these cases. Participants will engage in small group discussion about challenges, strategies and solutions they have tried in terms of developing respectful positive engagement of colleagues with their own academic scholarly work.

This session is appropriate for all researcher and educators who are interested in exploring ways to advocate strategically for research-informed change that improves medical education.
**FD-01**

**Effective Writing for Journals and Conference Abstracts: Lessons from 2 Journal Editors**

F. Moss¹, K. Eva²

¹Royal Society of Medicine, London, UK; ²University of British Columbia, Vancouver, BC

In this interactive session, led by two journal editors, participants will describe their own research work in the field of education or quality improvement work or in their chosen medical field and, with colleagues, will identify key messages and lessons of interest and potential use to others. From these accounts, using a structured framework, participants will write about the key points of their work. Finally by sharing ideas and others’ reflections, participants as authors will modify their messages and produce a first draft of an abstract of their work and plan the next steps of writing about their work.

**FD-02**

**Canadian Association for Medical Education (CAME): CLIME Leadership Primer – It Shouldn’t Feel Like Time Misspent: How Leaders Can Make Committee and Team Meetings Work!**

F. Goulet¹, B. Kvern², M. Chan³, D. Dath⁴

¹Collège des médecins du Québec, Montréal, QC; ²St. Boniface Hospital, Winnipeg, MB; ³University of Manitoba, Winnipeg, MB; ⁴McMaster University, Hamilton, ON

This workshop is based on the dynamic four-day CLIME session that has been delivered to educator leaders across Canada. In health education, educators must participate or lead many committees or working groups or teams. Leading effectively teams or committees is a perennial leadership challenge for health educators.

**FD-03**

**Conversations in Medical Supervision (CiMS) Workshop: The Junior Doctor in Difficulty**

L. Watterson¹, A. Llewellyn², S. O'Regan¹, R. Lim³, A. Dumazel², J. Vassilidis¹

¹Sydney Clinical Skills and Simulation Centre, St Leonards, NSW, Australia; ²Health Education & Training Institute, Gladesville, NSW, Australia; ³Pam McLean Centre, St Leonards, NSW, Australia

A recent concern in the Australian health system has been the quantity and quality of clinical supervision provided to medical and other health trainees. The Conversations in Medical Supervision Course (CiMS) is the outcome of research into effective models of clinical supervision and successful programs to improve supervision capability. The lessons learned and the resultant programs presented here are generalizable to providing constructive feedback and to clinical supervision in many contexts.

**Why should I attend this workshop?**

Attendance at this workshop will improve your confidence and skills in tackling some of the most critical conversations that occur in supervision.

The course content presents a “learner-centred” approach to interviewing, derived from the literature on patient-centred interviewing and effective debriefing and based upon the best available relevant to a range of health disciplines that describes some of the key elements of quality learning environments as including: learner-centredness, engagement in ward activities, role clarity, safety, autonomy, variety and fostering workplace learning.

This PM workshop will present the second module of the CiMS course to participants comprising of the following topics:

- The “Quiet Chat” Assessing Difficulties as They Present, and Coaching
- Escalating Concerns, Performance Management, Delivering Bad News at End of Term

Both the AM and PM modules are complementary and can be completed independent of each other or in combination.

The workshop will be delivered utilising audience participation in simulation, including the opportunity to bring along relevant prepared case scenarios, the use of trigger videos to stimulate discussion, and importantly the participation in role play as supervisor (with experienced faculty actors taking the role of trainee) with observation and immediate feedback being provided.
### FD-04

**Ten Ways to Provide Effective Feedback to Residents**

**L. Fluit¹, C. den Rooijen²**  
¹Radboud University medical center, Nijmegen, Netherlands;  
²KNMG, Utrecht, Netherlands

Feedback is one of the most powerful learning tools we know in education. With the introduction of competency based medical training programs, the need for effective feedback for the learning process has been strongly emphasized. Several tools, like the mini-CEX and the multisource feedback are now used in order to stimulate clinical teachers to provide feedback to their residents.

There are many ways to provide feedback. Very often teachers use the Pendleton rules when providing feedback to their trainee (what goes well – what goes wrong). In many workshops this method is practiced with clinical teachers. The last years we have experienced that teachers are asking for alternative methods, as teachers feel that providing feedback using the Pendleton rules is not always applicable or effective. During this active workshop participants will gain more insight in the benefits and pitfalls of giving feedback, and will learn and practice more ways for providing feedback to their learners.

### FD-05

**Lightning round: Writing a great abstract**

**S. Hamstra**  
Accreditation Council for Graduate Medical Education, Chicago

This session is designed for clinician educators and educational researchers who are submitting proposals to conferences for dissemination, based on completed work or works in progress. Program directors and associate program directors may also benefit by honing their skills at distilling their ideas and thinking around innovation. Upon completion of this session, participants will be able to discuss principles for succinct communication of ideas, research results and their implications.

### FD-06

**Lightning round: Educational leadership skills for program directors: A primer**

**J. Nordquist**  
Karolinska University Hospital, Stockholm

A program director has many roles and functions in most programs around the world. How do we prepare incoming program directors for their educational role and how to we further develop in-service program directors in educational leadership?

### FD-07

**Lightning round: Finding your passion: Exploring career paths in medical education**

**R. Englander¹, L. Snell²**  
¹George Washington University School of Medicine, Washington; ²McGill University, Montréal

Many residents and practicing physicians would like to incorporate medical education into their future career plans; however they are not aware of the many potential roles beyond clinician-teacher (e.g. clinician educator, training director, education activist etc), and multiple options for training (e.g. faculty development programs, advanced degrees, diploma programs, etc.) In this highly interactive session learners will explore their passions and aspirations in education and link these with the multiple roles and many options for preparing for a career in medical education. This session is aimed at junior faculty, residents, medical students, and those who advise or mentor them, at all levels.
FD-09

Addressing challenges surrounding International Medical Graduate (IMG) education: The good, the bad and the not so ugly

U. Najeeb, S. Edwards
University of Toronto, Toronto, ON

Large numbers of IMG residents are entering Canadian postgraduate training programs. IMGs are a very diverse group of postgraduate learners. Over the last few years two distinct groups of IMGs have emerged: Canadian IMGs (C-IMGs: Canadian citizens and permanent residents who have gone overseas for medical education) and immigrant IMGs (I-IMGs: immigrants to Canada with medical degrees from other countries). In particular, the number of C-IMGs entering training programs is increasing. The broad goal of this workshop is to create a space for educators of IMGs to enhance their understanding around the changing landscape of IMGs and also to identify the challenges faced by faculty in this new context. The workshop will provide an overview of the diversity of IMG learners and share common approaches to help prepare faculty members to critically observe, effectively question, and appropriately assess this unique group of learners. It will include insights from an innovative, research-based IMG mentorship program (for both immigrant & Canadian IMG residents) which has helped identify challenges and opportunities faced by this unique and diverse group of learners (1, 2). We will engage in rich discussion and learn from each other's experiences. Participants will also have the opportunity to brainstorm how they might use the approaches being presented in ways relevant to their own work.

2. U. Najeeb, A. Kuper, P. Veinot, L. Richardson, B. Wong, H. Blumer, L. Stroud; The impact of a novel mentorship program on the integration of International Medical Graduates (IMGs) into their residency training

FD-08

The ABC’s of XYZ: What faculty need to know about intergenerational teaching and learning

M. Forte¹, E. Bearss¹, E. Tannenbaum²
¹Mount Sinai Hospital, Toronto, ON; ²University of Toronto, Toronto, ON

Many impressions and caricatures of each generational cohort abound in popular culture and media. As evidence from medical education and workplace literature is slowly accumulating, educators should be considering how faculty teaching methods may need to be adapted to the preferences and needs of today’s learners. People belonging to a generational cohort may share common experiences, values, attitudes and beliefs. However, post-graduate trainees are also increasingly diverse. The last two decades have seen more women, more international medical graduates and more non-traditional students in many North American schools.

In this workshop we will identify and explore environmental and cultural forces that have shaped Boomers, Gen X-ers and Millennials. We will also review what evidence exists to support commonly made assertions about generational cohorts and how they interact.

Throughout this session, participants will have the opportunity to discuss how intergenerational differences may present challenges and opportunities in postgraduate teaching and learning. This will be done using illustrative examples and case vignettes and referencing the literature where it exists. Workshop facilitators will help participants integrate their knowledge of intergenerational differences to develop strategies for more effective and engaging teaching in various post-graduate settings.
Faculty development  
Le perfectionnement des corps professoraux

FD-10

Diagnosing and managing the doctor in difficulty

I. Curran, V. Osgood  
UK General Medical Council, London, UK

This workshop will explore the recognition, diagnosis and management of the doctor, resident or learner in difficulty. Based on 10 years experience of training over 3,500 senior members of faculty mostly consultants/attendings across the UK and internationally. Prof Curran and colleagues will explore the challenges of successfully managing this difficult area of educational practice. He will introduce the subject and facilitate a series of small group activities and discussions that will explore, clarify and highlight critical issues when identifying, supporting and remediating the colleague in difficulty. A facilitated approach will aim to create deeper insights in this field for participants. The session will conclude with the introduction of a diagnostic framework, cover the principle underlying causes and offer a pragmatic management framework as well as guidance on the optimum faculty behaviours to ensure success.

Dr Osgood and Prof Curran have written UK national policy guidelines in this area.

FD-11

The nuts and bolts of ‘flipping’ a classroom at a resident academic half-day

D. Cooper, D. E. DeWitt, R. Cohen  
University of British Columbia, Vancouver, BC

Diagnostic and therapeutic reasoning form the core of medical expertise and represent one of the ultimate values that physicians add to patient care. Reasoning in medicine requires at least two kinds of knowledge: 1) Conceptual (biomedical), and 2) Problem-solving.

For many decades after publication of the Flexner Report, educational practice ensured that conceptual and problem-solving knowledge were separated in medical education. In recent years however medical education has moved toward ‘vertical’ or cognitive integration, i.e. the simultaneous teaching of biomedical and problem-solving knowledge. This integrated approach to teaching has been mandated by the Future of Medical Education in Canada (FMEC) Project.

How can the integrated teaching of conceptual and problem-solving knowledge be achieved in residency education? One method that has already been employed for decades is problem-based learning, but this is more appropriate for undergraduate medical education. Another method of integrating conceptual and problem-solving knowledge is by what is known as the inverted, or more colloquially, ‘flipped’ classroom. Lectures at academic half-days often serve as venues for transmission of biomedical information. In this format, the resident role is one of passive recipient of large amounts of biomedical knowledge and there maybe very little or no attempt to integrate this knowledge with problem-solving. ‘Flipped’ classrooms on the other hand involve residents pre-studying biomedical information, and then using lecture time to answer a series of questions designed to apply the biomedical knowledge they have pre-studied in the context of problem-solving.

There are several important cognitive rationales for ‘flipping’ a classroom, including facilitation of integration of biomedical and problem-solving knowledge, utilization of active learning techniques and promotion of higher order learning outcomes.

This workshop will describe a practical approach to implementing a ‘flipped’ classroom approach at a prototypical resident academic half-day.
FD-12

Resident and faculty development: Approaches to improving role modeling in the clinical setting

R. Sternszus, Y. Steinert  
McGill University, Montreal, QC

Role modeling by staff physicians and residents is an essential component of clinical teaching and can influence the formation of a learner's professional identity via the enculturation of values, attitudes, and character. Although the literature in educational psychology and medical education highlight the need for role modeling to be conscious and deliberate, most physicians and residents appear to see it as an implicit process. In addition, unprofessional behaviors can also be modeled for learners, which may negatively impact their professional development. Therefore, it is critical that faculty and residents be aware of themselves as role models, and understand how to role model effectively.

This workshop will introduce participants to approaches for improving the role modeling of residents and faculty at their own institutions. We will review the current evidence on role modeling, highlighting what faculty and residents most need to know. Specifically, the importance of enhancing role modeling awareness and providing strategies for positive, effective, and deliberate role modeling will be discussed. Participants will also be given the opportunity to reflect in pairs and small groups on their experiences as role models and in developing faculty and resident role models, identifying how these theoretical considerations can enhance these experiences.

In the second half of the workshop, we will discuss how the above role modeling principles can be taught to faculty and residents. Participants will engage in activities from workshops that we have developed for residents and faculty in order to stimulate their thinking on this issue. Finally, they will have an opportunity to work on a plan to promote more positive, effective, and deliberate role modeling in their own settings.

FD-13

Transformational leadership in healthcare

H. Bevan  
NHS Improving Quality, Coventry

Across the globe, change is happening more quickly and disruptively. Organisations, systems and communities are fundamentally changing the way that they go about making change happen. Yet many of the methods we use in healthcare to improve quality or performance haven’t changed much in over a decade.

In this provocative session, Helen Bevan will outline some of the latest thinking and practice in the wider world of change and improvement which is starting to permeate into our world of health and care. She will provide a picture of a future world where everyone can help tackle the most challenging issues; where improvement is “pulled” rather than “pushed”; where diversity, dissent and divergence are valued as highly as conformity and consensus and where the role of formal leaders is to help create the conditions for change and get out of the way to let people get on with it. She will illustrate this with some practical examples of the new approaches.
FD-14

Re-conceptualizing effective feedback

S. M. Voyer, C. Cuncic, R. Hatala
University of British Columbia, Vancouver, BC

Are you unhappy with the feedback conversations you’re having with your learners? Feedback is frequently emphasized as a cornerstone of effective medical education. Yet, while learners and teachers recognize the value of feedback, both groups are dissatisfied with its implementation. This workshop is targeted to educators involved in feedback conversations who are looking for new ways to think about the relevant issues.

We have developed a novel feedback program in our internal medicine residency program, based on 3 key attributes: feedback is based on direct observation of resident performance; it sets up longitudinal educational relationships between faculty members and residents; and it uncouples formative assessment from summative performance evaluation. Through our qualitative research examining this program, and using a socio-cultural lens, we have re-conceptualized how effective feedback may be fostered. Our approach embraces the complexity of feedback relationships between faculty and learner that have been under-emphasized in many feedback models.

The focus of this workshop is to explore educators’ current frustrations with feedback and to suggest a re-conceptualization that may improve feedback conversations. Using a large group discussion format, we will review recent research that questions traditional feedback models. We will present the outline of our feedback program, and share key results of our qualitative research based on participant and faculty interviews.

Modeled on the Open Space meeting format, workshop participants will develop the workshop agenda. Participants will ‘pitch’ topics surrounding feedback that they would like to discuss. Based on these ‘pitches’, 3 participant-driven topics will be selected and discussed in small groups, each with a facilitator present. We will use audio-recordings of actual feedback encounters from our feedback program as supplements to the small group discussions, highlighting different feedback relationships and how the complexity of these interactions may be embraced to improve our feedback conversations with our learners.

FD-15

Flipping assessment: How documents from teaching can be used for to improve teaching

S. Ross, S. Schipper, M. Donoff, P. Humphries
University of Alberta, Edmonton, AB

Improving the quality of teaching is a goal for all residency programs. The challenge lies in finding the best methods and approaches for effective quality improvement of teaching. The clinician teachers who work with residents and fellows have varying degrees of training in how to teach, and demonstrate a staggering range of competence across multiple areas of teaching. While there is a wealth of evidence in primary literature about what good teaching looks like, it is becoming clear that “one size fits all” group workshops about best practices are not as effective as expected - while many clinician teachers attend, few manage to truly improve their teaching afterwards.

Determining where the strengths and weaknesses of clinical teachers lie can be a difficult task. In our program, we have had success in using documented evidence of teaching, from assessments and documented feedback given to learners, as a proxy for teaching practices. Targeted coaching sessions based on analyzing assessment forms and other documents have resulted in changes to teaching practices (as evaluated by reviewing assessment documents post-intervention).

In this session, we will offer participants some experience in using documented evidence of teaching, from assessments and documented feedback given to learners, as a proxy for teaching practices. Targeted coaching sessions based on analyzing assessment forms and other documents have resulted in changes to teaching practices (as evaluated by reviewing assessment documents post-intervention).

In this session, we will offer participants some experience in using documented evidence of teaching, such as the content of comments and feedback on assessment forms as a proxy for teaching) to help decide where coaching could be targeted. Additionally, range of assessment across the CanMEDS roles will be determined, so see where the mock teacher could be coached to expand the teaching and feedback they are providing to address more CanMEDS roles.
Improving workplace-based teaching of clinical reasoning using principles of Cognitive Load Theory

L. Naismith¹, M. Sibbald², R. Cavalcanti³
¹University Health Network, Toronto, ON; ²University of Toronto, Toronto, ON

Clinical reasoning is learned and developed in workplace environments during clinical placements. Clinical educators can facilitate the learning of clinical reasoning in the workplace through careful instructional design. Cognitive load theory (CLT) is a widely employed framework for instructional design that aims to optimize the use of trainees’ working memory. Since clinical reasoning requires attention to multiple inputs and variables, which can overload working memory, CLT can be usefully applied to improve teaching in this setting. According to CLT, an optimal instructional design is one that limits extraneous load (which does not support schema formation), manages intrinsic load (arising from the complexity of the task and the expertise level of the learner), and maximizes germane load (which supports learning through schema formation).

This workshop will provide attendees with the opportunity to learn the principles of cognitive load theory as applied to workplace-based learning of clinical reasoning. Participants will gain experience in applying these concepts by working in groups of 3-5 to identify sources of cognitive load in two video-based scenarios of common workplace encounters: a case review and a patient interview. A large group discussion will then provide opportunities for participants to share their views and personal experiences in order to develop a practical toolkit of techniques for improving workplace-based learning of clinical reasoning in their own settings.
Faculty development
Le perfectionnement des corps professoraux

**FD-18**

**Preparing residents for teaching: CanMEDS 2015 Scholar competencies**

**A. Oswald**, **D. Richardson**, **J. Karpinski**

1University of Alberta, Edmonton; 2University of Toronto, Toronto, ON; 3Royal College of Physicians and Surgeons of Canada, Ottawa

Post-Graduate medical trainees are important teachers of junior colleagues and medical students yet formal training in this role is often lacking. This workshop, based on the successful Royal College of Physicians and Surgeons of Canada national training program, will outline key strategies and provide practical advice on how to build a Resident as Teacher program. The workshop will use a highly interactive approach and will build on previous experience of participants.

We will begin with key steps for setting up a Residents as Teachers program. This will be followed by a brief review on the assessment of residents’ teaching skills, focusing on the need for authentic, programmatic assessment that supports teaching development. Strategies to build organizational capacity and education scholarship will then be discussed. The intended audience includes medical educators, residency program directors, (chief) residents and faculty developers with an interest in developing Resident as Teacher programs.

**FD-19**

**Practicing an evidence-based model for feedback in competency-based medical education**


1Accreditation Council for Graduate Medical Education, Chicago, IL; 2Dalhousie University, Halifax, NS; 3University of Calgary, Calgary, AB

Recent studies demonstrate that learners and physicians do not always readily accept or use performance feedback for improvement. Explanations for this include incongruence of the feedback with self-assessment, concerns about data credibility, and perceived barriers to feedback use and change. In response, we developed a 4-stage model for facilitating acceptance and use of formal feedback (the R2C2 model) drawing on three bodies of theory and research: person-centred approaches to build trust and actively engage recipients in taking ownership of their feedback; informed self-assessment, which enables assimilation and use of external data; and coaching and behaviour change approaches to enable recipients to identify goals and plan for change. With the advancement of competency-based medical education (CBME) and incorporation of Milestones in the U.S. and Canada, effective feedback and coaching will be essential in ensuring an appropriate learning trajectory.

**FD-20**

**Fireside chat for Early Career Medical Educators (ECME)**

**K. Dore**, **S. Cristancho**, **R. Hatala**

1McMaster University, Burlington; 2University of Western Ontario, London, ON; 3University of British Columbia, Vancouver, BC

An interactive session, which will serve as a resource for questions and discussion around Medical Education Research. Trigger discussion around how to successfully navigate the deluge of “projects” that come one’s way as an early career medical educator, and to make decisions about where to focus one’s time for optimal productivity.
FR-01

CanMEDS 2015-F: un exercice modèle de francisation

A. Boucher¹, J. Poitras², J. Latreille³, L. Ste-Marie¹
¹Université de Montréal, Montréal, QC; ²Université Laval, Québec, QC; ³Université de Sherbrooke, Longueuil, QC

Au terme de cet atelier les participants :

1. Pourront décrire le processus mené par le groupe ad hoc du CRMCC afin d’assurer la meilleure traduction possible du référentiel CanMEDS 2015 et de ses documents attenants ;
2. Pourront soutenir auprès de leur établissement d’enseignement l’utilisation de la version francophone des documents CanMEDS 2015 ;

En introduction, les présentateurs demanderont aux participants de l’atelier leur impression générale sur la traduction des documents du Collège royal pour les versions précédentes des CanMEDS, ainsi que les problèmes expérimentés.

Les participants recevront alors un extrait du Guide des jalons de CanMEDS 2015 traduit par les services de traduction du Collège royal et ils seront invités à en améliorer la traduction en petit groupe (ils auront accès à la VOA).

Les travaux des équipes seront comparés et les participants seront invités à présenter/discuter/étaier leurs suggestions/choix.

L’atelier prendra ensuite la forme d’une discussion avec les participants sur l’importance d’une francisation optimale des documents CanMEDS 2015 et sur le processus suivi par le Comité consultatif francophone (CCF) du Collège royal.

Par la suite, les animateurs présenteront la traduction adoptée par le Comité consultatif en insistant sur certains éléments spécifiques de la version française et le pourquoi des choix du comité, tout en profitant de l’occasion, à l’aide de vignettes cliniques, pour présenter des informations au regard des nouveautés du référentiel CanMEDS 2015 et de ses documents attenants.

Pour terminer, la version électronique traduite « finale » des documents sera remise aux participants et les présentateurs exploreront avec ceux-ci leur utilité potentielle et le désir des participants de s’approprier les documents en version française.

Les présentateurs seront à l’écoute de suggestions pour améliorer le processus et au regard des développements futurs du référentiel CanMEDS.

CanMEDS 2015-F: A model exercise in francization

A. Boucher,¹ J. Poitras,² J. Latreille,³
¹Université de Montréal, Montreal, QC; ²Université Laval, Quebec City, QC; ³Université de Sherbrooke, Longueuil, QC

By the end of this workshop, participants will:

• Be able to describe the process carried out by the Royal College French Advisory Committee (FAC) to ensure the best possible translation of the CanMEDS 2015 Framework and related documents;
• Be able to support, in their educational institution, the use of the French version of the CanMEDS 2015 documents;
• Have participated in the validation of the translation of the CanMEDS 2015 Milestones Guide using clinical vignettes.

By way of introduction, the presenters will ask the workshop participants for their general impression of the translation of the Royal College documents for the previous CanMEDS versions, as well as any problems encountered.

The participants will then receive an previously translated excerpt from the CanMEDS 2015 Milestones Guide and will be asked to review the translation in small groups to ensure that it properly reflects the meaning and the objective of the English (they will have access to the original English version).

The work of the various teams will be compared and the participants will be asked to present, discuss or justify their suggestions and choices.

The workshop will then take the form of a discussion with the participants on the importance of optimal francization of the CanMEDS 2015 documents & on the process followed by the FAC.

The facilitators will then present the translation adopted by the FAC, emphasizing certain elements of the French version and the rationale behind the committee’s choices, while taking advantage of the opportunity to describe, by means of clinical vignettes, the new features of the CanMEDS 2015 Framework and related documents.

To conclude, the “final” electronic version of the translated documents will be provided to the participants, and the presenters will explore their potential usefulness and how interested the participants would be in using the French version of the documents.

The presenters will solicit suggestions for improving the process and concerning future developments of the CanMEDS framework.
The stories of art: A reflective approach to arts-based training and professional practice

J. Zazulak¹, N. Knibb²

¹McMaster University, Hamilton, ON; ²McMaster Museum of Art, Hamilton, ON

Over the past several years much has been written about the importance of developing reflective healthcare professionals who are able to provide compassionate, caring, and sustainable healthcare. There is mounting evidence that these traits can be taught in the art gallery. The development of visual literacy is thought to improve observational proficiency and aid the development of empathy. These techniques are particularly interesting to the medical education community as recent research has shown that trainees' levels of empathy reach their lowest levels during residency. Finding new ways to nourish this domain of professional development is of paramount importance.

In 2010, The McMaster University Department of Family Medicine and the McMaster Museum of Art introduced The Art of Seeing™, an art-based visual literacy course for Family Medicine Residents. After five successful years the program is an ever-evolving multifaceted arts-based curriculum featuring not only visual literacy, but also art-making, reflective writing, and descriptive narrative writing. Using art as a basis for learning to look with greater accuracy can also build skills of empathy and awareness of ourselves and others. The Art of Seeing™ reflects our engagement and responsiveness to the transformation of Canadian health humanities education and the goals of The Royal College of Physicians and Surgeons of Canada's CanMEDS Physician Competency Framework.

This presentation will discuss the program from both perspectives, clinical and cultural, and how the goals of building residents' skills in observation, communication, collaboration, and empathy will shape doctors' compassionate whole-person care. This includes awareness of patients' diverse cultural and socioeconomic backgrounds, increased patient agency, and vocational stress. Participants will experience a participatory visual literacy activity as offered in The Art of Seeing™. We will address the changing landscape of both medical education and cultural institutions in the hopes of influencing others to lead change and consider similar partnerships.
## PHW-01

**Resident Doctors of Canada - Teaching resiliency to resident doctors for a rewarding and sustainable career, a skills-based resiliency curriculum for resident doctors**

*C. Nowik¹, N. Sumar², T. McLaughlin³, G. Shiau³, S. Moore⁴*

¹Resident Doctors of Canada, Ottawa, ON; ²University of Calgary, Calgary, AB; ³Resident Doctors of Canada, Ottawa, ON; ⁴Resident Doctors of Canada, Vancouver, BC

Resiliency Training is the development of skills to effectively identify, cope with, and recover from challenging experiences. Residency training is a particularly dynamic and stressful time for many trainees, who must balance educational and personal responsibilities with providing patient care. Over two-thirds of respondents to the 2013 CAIR National Resident Survey reported that work-related fatigue had an impact on their physical health (83.3%), on their relationships with family (79.8%) and friends (75.7%), and on their mental health (69.9%).

Skills-based training to help mitigate stress can assist residents in overcoming adversity and provide them with the tools to better support their peers and patients, not only during their medical training, but also over the course of their careers. Resident Doctors of Canada has thus been developing a skills-based resiliency curriculum with content support from the Department of National Defence's Road to Mental Readiness Program and the Mental Health Commission of Canada. It highlights the importance of promoting resident doctor mental resiliency by fostering supportive and positive learning environments, understanding and addressing anticipated stresses faced during residency, and advocates strongly the implementation of a formal resiliency curriculum, tailored to the needs of resident doctors, as a mandatory component of medical education.

This session will include an interactive overview of the curriculum including the demonstration and application of tools such as the Mental Health Continuum and practical evidence-based skills that will help resident doctors, clinical educators and discipline leaders recognize and manage shifts in mental resiliency. The session also aims to engage leadership in the interactive discussion of successful curriculum implementation strategies.

## PHW-02

**Competencies for physician health and wellness: CanMEDS 2015**

*L. Flynn*

Queen's University, Kingston

A healthy physician workforce is essential to ensure sustainability for the delivery of healthcare. Teaching residents about physician health and well-being is an essential component of resident education. Indeed, physician health is embedded in the CanMEDS 2015 framework within the Professional role. This workshop is designed to aid those engaged in resident education to develop a physician health curriculum. The goal is to enable the participant to prepare their curriculum and put it into action.

## PHW-03

**Resident survival stories**

*Atkinson¹, N. Costain², A. Dedhar³, N. Snelgrove⁴*

¹The Hospital for Sick Children, Toronto, ON; ²University of Ottawa, Ottawa; ³BC Children's Hospital, Vancouver, BC; ⁴Resident Doctors of Canada, Ottawa, ON

Residency training is one of the richest, most wonderful as well as most challenging times in a medical career. In this panel presentation, a diverse group of residents will present on different areas/challenges they dealt with as residents reflecting on the processes and approaches they used to maximize their experiences. Potential topics to be discussed include: Leadership roles: what does it mean to be a leader? Chief Resident role, preparing for future leadership roles. Career planning: what helps in planning that trajectory? Remaining well in residency: fatigue mitigation, maintaining relationships.

This is a unique opportunity to learn from “real life” stories and strategies used by residents to get the most out of their residencies in a variety of areas.

Each resident will present their topic with reflections and there will be ample time for a facilitated interactive discussion with participants.

Upon completion of this session, participants will be able to identify key areas important and potentially challenging to residents and have ideas for successful strategies to manage these areas through avenues such as mentorship, curriculum development and additions to programing.
Fatigue management plans: The what, why, when and how

C. A. Hurst, S. Edwards
University of Toronto, Toronto, ON

It is generally understood that fatigue is a multi-faceted phenomena that manifests in changes to physiological processes, behavior, and subjective experience. Key sources of fatigue include the pace, complexity and duration of workload demands, homeostatic pressures associated with acute and chronic sleep debt, circadian disruption and individual factors. In addition, our understanding of stress effects, burnout, anxiety, and work engagement tend to overlap with fatigue and performance processes. For these reasons, indirect factors such as insufficient staffing, poor service to learning ratios, inadequate supervision, task distractions and team dynamics also play a role in elevating fatigue levels in medical training.

Given the multifaceted nature of fatigue and its complex links to changes in well-being, clinical performance and patient safety, it is not surprising that the single variable intervention of consecutive duty hour restrictions has proven to be less successful and in some instances more problematic that hoped. It is reasonable to assume that future interventions to better manage fatigue effects in medical training may require a more complex and contextual approach to policy and program interventions. The Royal College's National Steering Committee on Resident Duty Hours has begun a conversation about how best to respond to these issues in their report: Fatigue, Risk and Excellence: Towards a Pan-Canadian Consensus on Resident Duty Hours. One of the recommendations of the report is that all residency education programs should be required to develop a fatigue risk management plan (FRMP) for residents.

This workshop offers an opportunity for faculty and residents to become more familiar with key issues related to understanding, assessing and mitigating critical fatigue related processes in training through the creation of a FRMP. The role of cultural change, education programming, support services, and strategic interventions at multiple levels will be reviewed and discussed.

KeyLIME Top 10 papers in simulation

F. Bhanji1; W. Gofton2
1McGill University, Montréal, QC; 2University of Ottawa, Ottawa, ON

Simulation-based education is increasingly utilized in Postgraduate Medical Education. The opportunity for experiential learning is an authentic environment which is safe for both patients and learners is appealing to educators and learners alike. Despite these advantages simulation does remain ‘costly’ in terms of equipment and instructor time. The literature exploring the optimal use of simulation is evolving rapidly and medical educators may benefit from understanding the key research findings and the associated controversies.

This session will feature experts in simulation-based education, debating the merits of papers you simply can’t miss.
Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des residents

**TL-01**

**Promoting Professional Identity Formation and Socialization: From Theory to Practice**

**R. Cruess, S. Cruess, R. Sternszus, L. Snell, Y. Steinert**
McGill University, Montreal, QC

A consensus has emerged that professionalism is fundamental to the practice of medicine and that it must be taught, learned, and assessed throughout the continuum of medical education. We and others have proposed that the teaching of professionalism is a means to an end, with the end, and the educational objective, being to assist learners to develop their professional identities. If medical educators are to design a curriculum that supports the emergence of a professional identity and the process of socialization through which it is formed, they must understand both processes.

These twin processes of socialization and professional identity formation have long been identified with medical education. Merton, in 1957, stated that the function of a medical school is to provide a learner with “a professional identity so that he can come to think, act, and feel like a physician”. Socialization is “the process by which a person learns to function within a particular society or group by internalizing its values and norms” (OED). Identity formation is a gradual process which proceeds throughout the educational continuum. Students enter medical school with established identities that are gradually transformed so that at graduation they have acquired the identity of a generic physician. During residency, this identity is modified to become more discipline-specific, with further changes taking place in practice.

The workshop will be organized around schematic representations of both identity formation and socialization (Cruess et al. in press). Interactive presentations on the process of professional identity formation, socialization, and the nature of the professional identity appropriate for the present and future practice of medicine will each be followed by small group discussions. The final session will allow participants to develop an action plan designed to enhance support of professional identity formation in their own educational settings.

**TL-02**

**Lightning round: Distributing and expanding PGME: Success stories and lessons learned**

**R. Wong**
University of British Columbia, Vancouver

Upon completion of this session, participants will be able to share the UBC experience on distributing and expanding postgraduate medical education (PGME) across the province of British Columbia and discuss the benefits and requirements of sustainable PGME growth.
Teaching and learning in residency education  
L’enseignement et l’apprentissage dans la formation des residents

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| **Stimulating intrinsic role teaching using common trigger words from everyday practice**

_D. Dath, S. Kelly, N. Afagh_

McMaster University, Hamilton, ON

In a Competency based educational system, trainees must learn and practice in a workplace setting. This is especially true for the CanMEDS Intrinsic Roles (IR). Faculty have long found it difficult to identify and explicitly teach the IRs in their day-to-day practice. Using an interactive approach with teams of faculty and learners from 5 surgical and 5 non-surgical disciplines, we gathered IR trigger words that they identified from their own practices and teaching points that they thought they could teach on-the-fly.

Trigger words in each Role were identified for all disciplines. There were common triggers across disciplines. Some trigger words identified rich situations that prompted teaching in multiple IRs.

As we prepare to improve our competency based residency training with CanMEDS 2015, we will need to ensure programs are aligned with IR training in the workplace. Faculty will need to identify opportunities for teaching IRs and be more comfortable with explicitly teaching content that they did not teach before. Programs will need to deploy the faculty development sessions that will help their faculty transition to frequent IR teaching on the wards.

This workshop will present our work on Triggers for IR teaching, showing how program directors can work together to educate their faculty about IR teaching. Participants will practice with the Trigger words, identify how they can be used by the Faculty in their programs, and design a faculty development event that they can use for their own program. The workshop will also help clinical teachers who want to improve their own IR teaching in their everyday practices.

| **Teams rediscovered: CanMEDS 2015 Collaborator competencies**

_D. Richardson, D. Martin_

University of Toronto, Toronto, ON

Collaboration is essential for safe, high-quality, patient-centred care, and involves patients and their families, physicians and other colleagues in the health care professions, community partners, and health system stakeholders. Evidence now shows that effective collaboration improves patient care, influences health professional practice, and enhances system efficiency. Furthermore, collaboration skills are broadly applicable to activities beyond clinical care, such as administration, education, advocacy, and scholarship. Despite this, there is some evidence to suggest that learners seem to have quite a superficial grasp of the behaviours and skills required for truly effective collaborative practice.

This interactive workshop will highlight the revisions and advancements in the CanMEDS2015 Collaborator Role, and provide a framework to guide the application of possible strategies for teaching or assessing Collaborator Competencies. Individual and small group work will allow workshop attendees addresses challenges specific to their own programs.

| **Canadian Medical Protective Association – CanMEDS 2015: How will I teach my residents about patient safety?**

_E. Tsai, T. Gondocz, S. Swiggum_

Canadian Medical Protective Association, Ottawa

This session is designed for faculty (beginner or intermediate). Upon completion of this session, participants will be able to brainstorm and network with colleagues about innovative ways to incorporate patient safety into competency-based curricula; learn short cuts to locating faculty resources for patient safety education in the online CMPA Good Practices Guide; and learn how the CMPA Good Practices Guide may be utilized for the assessment of residents, including the achievement of CanMEDS milestones throughout the continuum of competence.
TL-07

Wonder and improve: A situated learning approach for creating clinical leadership and organizational awareness among residents

M. Schneider, J. Voogt, L. van Rensen

UMC Utrecht, Utrecht, Netherlands

Changes in society ask for doctors who are competent in more areas than clinical expertise. There has been growing interest for the role of the doctor as “manager” and “leader”. However, when designing a course for improving these organizational competencies it is important to bear in mind the intrinsic conflict of professional cultures (doctors) with organizational cultures (management) and managerial authority. Therefore the autonomy of the learner, a focus on the primary process and proper time management are of special importance for successful implementation of the teaching method.

Wonder and Improve was originated at the Internal Medicine department of the UMC Utrecht in the Netherlands. It was noticed that residents have many ideas for improvement of their daily practices. But up till recently, residents would only dwell on their frustrations and would take no action to solve these problems. It was believed that these ideas are a valuable source for quality improvement on one end and for medical training on the other. Changing these ‘complaints’ into improvement projects induced a mind-set change in residents. It made them more aware of the organization they work in and subsequently, their own responsibilities to improve their daily practices. This way, patient care benefits as well.

The Wonder & Improve method has been successfully implemented in numerous residency programs in the Netherlands. This session will present the results from a pilot study. Barriers and facilitators for successful implementation will be shared. Background will be given about how professional cultures can be invoked to enable the implementation of health care reform from within. Moreover, during a live demonstration of a Wonder and Improve session, participants will experience the power of applying this situated learning approach. At the end of this workshop the participants will have practical tools to apply Wonder and Improve at home.

TL-06

KeyLIME LIVE: The (disputed) top residency education papers of all time

E. Holmboe¹, K. Eva², J. Sherbino³, L. Snell⁴, J.R. Frank⁵

¹Accreditation Council for Graduate Medical Education, Chicago; ²Vancouver; ³McMaster University, Hamilton; ⁴McGill University, Montréal; ⁵Royal College of Physicians and Surgeons of Canada, Ottawa

Over lunch at ICRE this year, meet the meded gurus from the KeyLIME podcast and special guests as they debate the latest publications from the top journals. Hosts Drs. Linda Snell, Jonathan Sherbino, and Jason Frank this year welcome two giants in education: Professor Kevin Eva from the University of British Columbia, and Dr. Eric Holmboe from the Accreditation Council for Medical Education in the US. Three carefully chosen papers will be debated, dissected, defended, and possibly deconstructed. Enjoy your meal, enlighten your mind, and share a few laughs as the gurus illuminate us on the lessons from the literature.

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Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des residents

**TL-08**

**Program director survival stories**

M. Al Salamah¹, B. Chung², M. Walsh³, F. Ankel⁴
¹King Saud bin Abdulaziz University for Health Sciences, King Abdulaziz Medical City; ²University of British Columbia, Vancouver; ³Hennepin County Medical Center, Minneapolis; ⁴Regions Hospital, St. Paul

Program directors have one of medical education’s most demanding and difficult positions. In this panel, current and former program directors will examine how they responded to a “real life” challenge in their residency that became career-questioning for the program director. Potential topics include difficult resident remediation and solutions, substance abuse, dealing with tragedy and loss, professionalism issues, resident legal matters, problems related to social media and other areas. This is a unique discussion of residency education challenges that do not make the academic literature, allowing attendees to learn from speakers’ individual responses to universal problems.

**TL-09**

**Programs that work: Integrating CanMEDS 2015 competencies for a successful residency program**

G. Bandiera¹, A. Oswald², C. Abbott³, S. Glover-Takahashi¹
¹University of Toronto, Toronto; ²University of Alberta, Edmonton; ³Royal College of Physicians and Surgeons of Canada, Ottawa

By the end of this session, participants will understand the relationship and connections between CanMEDS 2015, competency based education, workplace-based learning, teaching, feedback and assessment and Competence by Design; be able to identify best practices in the concurrent integration of multiple CanMEDS roles; be able to select content, tips and tools from CanMEDS Tools Guide for the learning, teaching, and assessment of CanMEDS 2015.

**TL-10**

**Can we teach and assess lifelong learning abilities? CanMEDS 2015 Scholar**

D. Richardson¹, C. Campbell²
¹University of Toronto, Toronto; ²Royal College of Physicians and Surgeons, Ottawa, ON

This session is designed for education leaders, program directors, faculty developers and education innovators. Upon completion of this sessions, participants will be able to define Life Long Learning (LLL); discuss the competency domains of LLL; create a plan to introduce or implement at least one strategy for LLL.

**TL-11**

**Flipping for scholars: Effective research education for residents**

K. Ritchie, J. Hatchette
IWK Health Centre, Halifax

This session is designed for intermediate and advanced participants. Upon completion of this session, participants will be able to identify core components of research education; understand a range of supporting teaching tools and activities; and plan an interactive research education curriculum.
CanMEDS 2015: Moving from framework to philosophy

J. Binnendyk, C. Watling
University of Western Ontario, London, ON

The anticipation behind CanMEDS 2015 will soon culminate in an October 2015 launch date. The introduction of competency milestones within each of the roles contained in the framework will support the alignment of the model with Competency-Based Medical Education. While CanMEDS is considered integral to postgraduate medical education training, it is perceived that residency programs find it relatively straightforward to teach the Medical Expert role and more challenging to teach the intrinsic roles (FMEC 15). A common default has been to explicitly label intrinsic roles and teach the constructs in isolation. As a result, residents report saturation with CanMEDS schooling as evidenced by the recurring refrain, “I’m so sick of hearing about CanMEDS!”

Residents clearly understand the framework. Educators must now move to build curriculum that supports the development of the multiple dimensions by translating the framework into practice. Unconventional approaches are needed to foster a creative curriculum that authentically embeds the competencies and cultivates the skills needed to support effective use of the Roles. Because intrinsic CanMEDS roles can be perceived as artificial when taught in isolation, we can reduce the dismissive response to CanMEDS by creating a relevant, natural integration.

This session will identify engagement strategies and resources to infuse curriculum with CanMEDS in a manner that consolidates the philosophy behind the framework but does not lose the framework itself. Participants will develop specific level-appropriate teaching strategies to achieve curricular goals while avoiding the inundation of explicit role labeling. Medical educators can then reflect the evolution of the CanMEDS model, providing a path for the learner to integrate the roles within their practice in an authentic way.

Designing academic half-days in a climate of restricted duty hours and competency-based medical education: Pedagogical strategies to decrease mind wandering and increase knowledge retention

C. Hillis, V. Mueller, K. Dore, A. Acai
McMaster University, Hamilton, ON

Academic half-days (AHDs) are regularly scheduled teaching events that occur outside of the sphere of patient care. As focus shifts towards competency-based education combined with restricted resident duty hours, AHDs are an increasingly important avenue for delivering program-specific training requirements. However, given the length of these sessions (3-5 hours), the lack of formal training for presenters, and their primarily didactic approach to content delivery, they may not create an ideal environment for knowledge retention in residents. Preliminary research at McMaster University has shown that mind wandering is prevalent among residents in AHDs, thus raising concerns about how well residents are learning and retaining content that is delivered in this setting.

This interactive workshop will present some of the challenges, including mind wandering, associated with teaching and learning in a didactic AHD. Participants will be encouraged to share their own experiences with teaching and learning during AHDs at their home institutions. These experiences will be used as a basis to discuss the pedagogical alternatives to passive learning (e.g., case-based learning, interpolated testing, etc.) and to explore and practice active learning strategies. Practical advice will be given on how to implement active and content-rich AHDs and key metrics to evaluate AHDs will also be shared.

This workshop will culminate with an interactive exercise where participants will work in groups to develop a case study that could be used to complement didactic lecturing in a typical AHD. Participants will emerge from the workshop with a better understanding of how to design and implement cases as learning tools while incorporating principles of effective instructional design. Participation in this workshop will provide participants with the opportunity to bring teaching points around the best use of pedagogical approaches to their home institution.
### TL-14

**Health Advocate rediscovered: CanMEDS 2015**

**J. Sherbino**  
McMaster University, Hamilton

The CanMEDS 2015 Health Advocate Role description incorporates significant changes from 2005 that reflect advancements in the health professions literature. During this interactive workshop a variety of instructional methods, including large group debate, social media discussion, on-line voting and small group exercises, will be used to discover these changes. To address the challenge of teaching and assessing the Health Advocate Role, this workshop will provide potential solutions for both the clinical (i.e. bedside) and extra-clinical environment. Practical tools will be provided to workshop attendees to incorporate in their own programs.

### TL-16

**A practical guide for supporting self-directed learning in resident education**

**A. Sawatsky, J. Szostek, S. Bonnes, J. Ratelle**  
Mayo Clinic, Rochester, MN

Self-directed learning (SDL) is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying resources for learning, choosing learning strategies, and evaluating learning outcomes. SDL is incorporated into many of the Accreditation Council for Graduate Medical Education (ACGME) and CanMEDS competencies. Specifically, SDL skills are necessary to meet the practice-based learning and improvement ACGME program requirements as well as the roles of scholar and medical expert in CanMEDs. Despite the importance of SDL in resident education, previous qualitative studies have shown that residents frequently experience difficulty with SDL and desire guidance on its application to their daily practice.

This session will integrate work from the Stanford Faculty Development Center and research from the Mayo Clinic Internal Medicine Residency program and will serve as a guide for educators who are interested in supporting and encouraging resident SDL. We aim to help faculty outline the process of SDL from the resident perspective, compare it to other-directed learning, and identify methods that educators and residency programs can utilize to foster and support resident SDL. We will accomplish our aims by working through specific case examples designed to stimulate discussion on the role of SDL in resident education. We will then present a theoretical framework for how residents approach SDL and lead a discussion on how educators and residency programs can practically apply the framework to guide residents through identifying and clarifying learning needs, setting learning goals, identifying and utilizing appropriate resources, applying knowledge and evaluating the learning process.

At the end of this session, participants will be able to define SDL, characterize its role in residency education, and describe several strategies that educators and programs can implement to support resident SDL.

### TL-15

**Teaching and assessing CanMEDS in surgical training**

**D. Dath¹, W. Gofton², I. Incoll³**  
¹McMaster University, Hamilton; ²The University of Ottawa, Ottawa; ³Australian Orthopaedic Association, Sydney

Surgical programs are composed of a rich variety of training experiences that can be used to teach and assess the CanMEDS 2015 Roles. Participants in this workshop will discuss and share experiences and ideas about how they can implement CanMEDS training into their programs. In the session, they will learn how to use existing teaching and assessment techniques and map them to their own programs. Participants should bring a computer and have access to their program’s schedules and documentation to aid in the work they will complete during the workshop.
Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des residents

TL-17

KeyLIME: Best teaching and learning literature

R. Cavalcanti, J. Busari
University of Toronto, Toronto; Maastricht University/ Zuyderland Medical Center, Maastricht

This session will review an idiosyncratic and eclectic collection of the top 10 high impact papers in the area of teaching and learning in medical education over the last year. In a lively pro and con format, facilitators will provide a critical review of strengths and weaknesses, examining both methodological issues and potential impact of each article discussed.

TL-18

AMS - The Phoenix Project: Exploring creative strategies for building engaged community partnerships

L. Richardson1, C. Whitehead1, S. Fisman2, M. Spadoni3
1University of Toronto, Toronto, ON; 2Western University, London, ON; 3Lakehead University, Thunder Bay, ON

Practitioners whose clinical/research activities include health promotion and health intervention projects recognize that their practice is enlivened through their ability to partner with colleagues, organizations, and patients/families. Often, the success of their work is related to their capacity to build long-term engaged community partnerships. The Associated Medical Service Phoenix Project– Call for Caring provides grants and fellowships that support practitioners to explore the concept of caring in everyday clinical practice, a key aspect of the work is the ability to establish long-term communities of practice. The AMS Phoenix Project seeks to resurrect caring in healthcare, rebalancing human compassion and technical expertise through strategic investments in three areas: supporting champions for caring relationships who will model compassionate care in their everyday work (identity); promoting creative strategies for building caring learning environments and communities; cultivating communities of practice to advance compassionate healthcare. In this workshop members of the AMS Phoenix Project community share the challenges of sustaining community engagement, and offer creative strategies that support engaged community relationships.
Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des residents

TL-19

Choosing Wisely Canada

B. M. Wong
Sunnybrook Health Sciences Centre, Toronto, ON

There is an urgent need for physicians to advocate for appropriate use of finite healthcare resources. Forty-five subspecialty societies in Canada now fully endorse the Choosing Wisely Canada campaign, which seeks to help physicians and patients engage in conversations about unnecessary tests, treatments and procedures, and to help physicians and patients make smart and effective choices to ensure high-quality care. The updated CanMEDS 2015 framework also recognizes the importance of resource stewardship, and lists within the new Leader role a key competency “engage in the stewardship of health care resources”. Despite this, few residency programs in Canada currently include formal training in resource stewardship. This is an important gap that needs urgent attention – medical education has a critical role to play in training future physicians to view stewardship of finite resources as a professional obligation and equip them with the knowledge, skills and attitudes to do this effectively. Fortunately, there are examples emerging in both Canada and the United States of curricula that specifically address resource stewardship that could feasibly be adapted to the local educational context of any postgraduate training program. This workshop will engage participants in an interactive session that will introduce them to the enabling competencies that allow physicians to become effective stewards of finite healthcare resources, summarize available teaching materials that participants might consider using for their leaners, and help participants develop a strategy for incorporating resource stewardship education in their residency training programs.

TL-20

From physician as Manager to physician as Leader in CanMEDS 2015

M. Chan¹, D. Dath²
¹University of Manitoba, Winnipeg, MB; ²McMaster University, Hamilton

The CanMEDS 2015 revision emphasizes leadership competencies in the new Leader Role. This change in emphasis from Manager to Leader represents a rigorous process of enquiry over the last 3 years and is anchored in the redefinition of leadership in professional work. Understanding the process and content of this change will help users of the CanMEDS Framework to better align their own activities with the competencies in the Leader Role.

The new Leader Role challenges us all to demonstrate leadership activity and to be able to define and refine our leadership competencies. Participants in this workshop will identify how the key competencies in the Leader Role resonate with their own leadership challenges. They will use an exercise to map one of the Key Competencies to their own work whether it is in the clinical, academic, research or administrative domains.
Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des residents

**TL-21**

**Professionalism rediscovered: CanMEDS 2015 competencies**

**L. Snell**  
McGill University, Montréal

The CanMEDS 2015 Role of Professional outlines commitments to the patient, society and the profession, and emphasizes the formation of a professional identity. These changes from the 2005 version reflect advances in the literature and in education practice. During this interactive workshop a variety of instructional methods will be used to address how to teach and assess this Role and to foster the development of a professional identity. The workshop will provide potential strategies for both the clinical (i.e. bedside) and extra-clinical environment. Practical tools will be provided for workshop attendees to incorporate in their own programs.

**TL-22**

**Teaching and assessing communication skills with CanMEDS 2015**

**S. Dojeiji**  
University of Ottawa, Ottawa, ON

A common challenge expressed by clinician-teachers and program directors is the inability to teach and assess communication skills. Often this frustration stems from a lack of training or awareness of available validated tools to teach and assess verbal and written communication skills.

The objectives of this workshop are for participants to: 1) Apply a structured model for communication skills to assess trainees’ communication skills, 2) Describe 3 distinct methods for assessing communication skills in medicine 3) Create a blueprint for communication teaching and assessment for their residency training program.

Participants will be introduced to the Calgary-Cambridge Observation Guide as a means of identifying the specific verbal communication process skills to facilitate communication skills teaching and assessment. Other communication models will be discussed as well. For written communication skills, a validated consultation letter rating scale will be introduced.

Participants will have the opportunity to use the CanMEDS 2015 Framework for the Communicator Role and a communication skills blueprint to create a template for teaching and assessing communication skills in their residency training programs.
Using innovative technologies for medical education  
L’utilisation de technologies innovantes en formation médicale

**TEC-01**

**eLogs and ePortfolios in MedEd Summit: Documenting Clinical Activities for Better Learning**

**M. Sibbald, T. Zhou, R. Cavalcanti**  
University of Toronto, Toronto

This pre-conference program is designed for postgraduate leaders, program directors, educational IT experts, clinician educators – all welcome. How can eLogs improve the training of your residents? What are key differences between eLogs and ePortfolios? How can you integrate eLogs in your training programs? Join us for this unique Summit! Practical examples of eLogs and ePortfolios will be shared from across the world. Key issues in implementation and design will be discussed to help determine best practices. Join the conversation and contribute to build consensus in best practices in design of electronic documentation tools; educational applications in assessment and learning; and implementation strategies. Come to learn about the technologies; contribute to establishing best practices; influence implementation and design standards; and join an exciting network of innovators in eEducation.

**TEC-02**

**Intro to Twitter mastery #MedEd**

**P. Dolman¹, E. Purdy²**  
¹University of British Columbia, Vancouver, BC; ²Queen's University, Kingston, ON

This session will include a brief introduction to the basics of twitter and a more in-depth analysis of how this technology can be used to enhance one's (or one's residents) online digital community of practice. We will review cases demonstrating best practices for local and international hashtags relevant to medical education, describe online twitter journal clubs/discussions and we hope to inspire participants to broaden their understanding of how they might use twitter as an educational adjunct. We look forward to addressing any specific questions that the participants bring to the table.

**TEC-03**

**Creating a great #MedEd blog**

**T. M. Chan**  
McMaster University, Hamilton, ON

This 15-minute Lightning Round workshop will be a chance to discuss the inner workings of creating a great blog-based education platform. The leader (Dr. Teresa Chan) will share personal stories regarding her experiences working with several clinical education and medical education blogs. She will also lead a discussion regarding the strengths, weaknesses, and possibilities of a blog.

**TEC-04**

**Creating an electronic portfolio for your residency program from start to finish!**

**L. K. Sonnenberg, M. Prowse**  
University of Alberta, Edmonton, AB

With the shift to Competency Based Medical Education (CBME), educational portfolios are playing a key role is the training and assessment of the resident/learner. Portfolios have the ability to help learners organize and prioritize their learning, building and reflecting on what has already been experienced. For Medical Educators, the question is, “how do we select content and integrate the use of the portfolio across the curriculum”? Knowing how to select portfolio content can be overwhelming. This workshop will take the participant step-by-step through the process of selecting content based on the existing objectives of training and discussing, as a group, how it can be modified for inclusion in a portfolio.

Finally, this workshop will guide the participant through two functioning resident e-portfolios, on Google Sites, with its design based on the CanMEDS roles framework. We will demonstrate how to create your own e-portfolio with Google Sites by modifying the demonstrated e-portfolio, and how to easily share e-portfolios between Programs and Universities. Having an existing portfolio will place Residency Programs in the right position for when they need to adapt to a Royal College or equivalent Portfolio System.
Addendum

Assessment: Cutting edge tools and practical techniques
L'évaluation : outils d’avant-garde et techniques pratiques

Medical students’ perceptions of receiving feedback from their peers in formative long cases
A. Burgess, C. Mellis
The University of Sydney, Sydney, NSW

Introduction
During peer assessment activities, students are often required to provide feedback to their peers. The quality of such feedback can be perceived by recipients to be superior and better received than feedback given by academic staff. The aim of this study was to investigate students’ views on receiving verbal feedback from their peers during their formative long case examination. The formative long cases are undertaken in preparation for the students’ summative long case examination.

The aim of this study was to investigate students’ views on receiving verbal feedback from their peers during their formative long case examination.

Methods
During 2013, Year 4 students (n=48) were assessed on their formative long case presentation and discussion, by a student examiner, alongside an academic co-examiner. The examinee student was then provided with verbal feedback by both the student co-examiner, and the academic co-examiners.

To gain insight into students’ views on receiving feedback from their peers, two focus groups were held.

Results
Of the 48 participants, 35% (17/48) attended focus groups. Students did not like receiving peer feedback during the scheduled examination time, in the presence of the academic co-examiner. They did value peer feedback, but preferred to receive this in a relaxed environment, after the examination.

Conclusion
In the formative examination situation, students perceived the feedback given by their peer co-examiner to be less constructive, less accurate and less helpful than the feedback given by the academic co-examiner. These findings may have implications for the feedback process for future iterations of the formative long case examination.

E-learning and inter-university collaboration: Two ingredients for successful PGME and CME within a small specialty
J. Keith, S. Glover-Takahashi, T. Bahr
University of Toronto, Toronto, ON

Introduction
Canadian Neuropathology (NP) faces educational challenges related to its small size. The process, successes and challenges of a two year National collaborative E-learning PGME and CME program in Neuropathology which was designed to address some of these challenges is described.

Method
Participants were Canadian NP residents (N=15) and faculty (N=100). Gaps in NP education identified by a Needs Assessment Survey informed development of a 15 hour curriculum. The curriculum was created and executed in a collaborative fashion over 2 years and lectures were made available to participants via an E-learning Portal. Evaluation included Usage Data, Focus Groups, Knowledge Acquisition via Self-Assessment, and User Survey.

Results
Data from the Needs Assessment Survey (68% response rate) and Focus Groups confirmed the need for and buy-in of this E-learning program. The planned curriculum was executed successfully with all 4 residency programs contributing lectures based on local expertise, and Focus Groups with program directors facilitated curriculum development and execution. Usage Data showed 90 logins over a 6 month period. From the User Survey (80,15% resident, faculty response rate) and Focus Groups participants were very satisfied with the program with strengths being exposure to experts outside of home institution, and lack of an interactive component was the major weakness. One major challenge was participants opting out of completing the self-assessment tool.

Conclusion
E-learning is a useful and feasible tool to address educational challenges within small specialties, and our program demonstrates successful inter-university collaboration in the creation and execution of an E-learning program.
A SMART solution to the scholar role for radiation oncology residents – Statistical methods, literature appraisal and research for trainees

S. Turner¹, P. Sundaresan², T. Shaw³, K. Mann³, V. Gebski³
¹Royal Australia and New Zealand College of Radiologists, Sydney, Australia; ²Westmead Hospital, Sydney, Australia; ³University of Sydney, Sydney, Australia

Introduction
Ensuring standardized high quality teaching around the CanMEDS Scholar role is challenging. Variations in the research ‘culture’ of individual training institutions, and amongst supervisors, may lead to unacceptable discrepancies in resident attainment of competence in the areas of biostatistics, research methodology, and literature appraisal. Within a bi-national radiation oncology (RO) training program in Australia and New Zealand, centralized “Scholar” resources including the SMART workshop, a central component, were developed to address this issue. This study aimed to determine the perceived utility of the SMART workshop by RO residents.

Methods
74 RO residents took part in an annual SMART Workshop (2012-2014). A one-day program covered key curriculum topics, half being addressed in alternating years. The workshop was held in conjunction with a national RO clinical trials meeting. Biostatisticians delivered short didactic talks addressing each topic followed by interactive group discussion linking the topic to RO clinical trial publications chosen to illustrate specific learning objectives. Resident perceptions of educational value were collected through anonymous post-workshop survey. Data were analyzed using simple frequencies and emerging qualitative themes.

Conclusion/Implication
Feedback from participants was favorable. 85 -100% reported improved understanding, depending on the topic. Themes from free-text comments included: the balance of didactic/interactive teaching was suitable, and having clinician RO and biostatistician facilitators during group discussions was beneficial. Provision of pre-reading materials was felt to add value. This novel, centralized activity appears to address a learning gap in the Scholar domain. It could readily be adapted for use in other medical specialty training programs.
Under pressure: A screening tool for clinical reasoning and the learner in difficulty

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Introduction
The resident undergoing remediation is a reactive process triggered by a series of learner deficits. There is little research around predicting problems or flagging residents early, prior to encountering serious trouble. Current monitoring systems that track resident progress are reliant on honest and timely assessments but this is time-intensive, and requires a pattern of difficulty to emerge.

Summary of Innovation
This presentation proposes that the use of virtual cases deploying time-pressure and multi-tasking challenges can be used to ‘flag’ a resident who could be at risk of struggling in the cognitive domain, thereby reducing the need to track all residents and establish patterns over time.

A series of retrospective studies identifies that a majority of residents who undergo remediation struggle in the Medical Expert CanMEDS domain while anecdotal experience identifies that clinical reasoning skills are the primary issue. Strong skills in this area require non-linear and broad thinking encompassing critical thinking, judgment and deduction, often in a complex environment. Skilled problem solvers in this context are decisive, can deal with ambiguity, and are able to integrate multiple pieces of information. We developed an assessment that can challenge these skills through time-pressure cases of increasing levels of complexity: (1) time pressure on mundane tasks; (2) adds distractors and requires multi-tasking; (3) adds the third dimension of acuity for added stress.

Conclusion
It is anticipated that these cases could operate as an early flagging tool to identify which residents will begin to struggle in a clinical environment with an increasing level of responsibility.