Advancing Quality: Aligning Residency Education and Patient Care
La qualité avant tout : residence en phase avec les soins aux patients
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2016 International Conference on Residency Education /
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Session Abstracts (see page 77) / Résumés de la séance (voir la page 77)
Shifting residency clinical tests focus from procedure/ know how to patient care / show how

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Effective testing requires that all professionals in the testing process possess the necessary knowledge, skills and abilities to fulfill their roles, as well as an awareness of personal and contextual factors that may influence the testing process. To enhance clinical testing, Saudi Commission for Health Specialties (SCFHS) has recently implied new rules and regulations on residency training programs. The aim was to shift the testing focus from procedure/know how to patient care/show how. SCHFS established two clinical skills testing centers to standardize test administration. Two test formats were used for exams: Structured Oral Exam (SOE) and Objective Structured Clinical Exam (OSCE) formats. In the previous years, the format focus was SOEs. The introduction of OSCE at the post-graduate level required training examiners and orienting examinees. December 2015, the new rules and regulations were applied to General Surgery (GS), Obstetrics & Gynecology (OBG), and Urology (URO) with a total of 164 residents attending these exams. Specialty exam committees were trained and assisted in establishing the blueprint, designing cases, and setting the pass/fail cutoff score. Data collected were exam score reliability, case difficulty/discrimination, and examinee perception.

Reliability of test scores: GS: 0.81, OBG: 0.82, URO: 0.64. In general, OSCEs were better discriminating than SOEs. Difficulty for both formats varied from easy to moderately difficult (range 0.21-0.89). Examinees felt it was an excellent experience. Most comment was “Fair and Well-Structured”. Two comments were memorable: “Regardless of the test results, the experience was great” and “First exam in my life, that I truly enjoyed.”
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Development of an ambulatory clinical teaching unit within a residency program

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Introduction

Internal medicine is facing a paradigm shift with a larger emphasis on chronic disease management particularly in the ambulatory setting. The recent Royal College recognition of GIM as a subspecialty places renewed emphasis on core IM training providing a more comprehensive exposure to outpatient management of complex multisystem patients. In line with recommendations from the FMEC and RCPSC for improved ambulatory exposure, McMaster University recently opened Canada’s first Ambulatory Clinical Teaching Unit (A-CTU) for Internal Medicine learners, to meet the growing needs of patients and learners.

Methods

McMaster University recently opened the Boris Clinic, an Academic Outpatient Medicine Clinic. In July 2015, the Ambulatory Clinical Teaching Unit (A-CTU) was launched to meet the growing needs of patients and learners.

Summary of Innovation

The A-CTU provides a structured clinical environment focused on the management of medically complex patients using a multidisciplinary model, graded learner levels of responsibility and a dedicated educational curriculum. The unique structure of the A-CTU allows for the assessment of milestones and Entrustable Professional Activities (EPAs) pertaining to consultation skills and chronic disease management, in keeping with competence by design. This, A-CTU model can be adopted by other programs as a method to provide outpatient education.

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Bridging the gap: The development of a surgical foundations boot camp

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Introduction

The new Competence by Design (CBD) mandate will move towards a framework where level of training is considered a continuum, with a specific emphasis on transition periods. Previous work has shown that beginning residency with a boot camp can be highly effective in targeting the transition to residency period by improving trainees’ medical knowledge, confidence, and procedural and technical skills before starting to care for patients. As a result, McMaster has developed a two-week Surgical Foundations boot camp for all incoming surgical residents in July 2016. This unique boot camp incorporates both technical and nontechnical skills, emphasizes all seven CanMEDS roles, introduces feedback and assessment from day one of residency, and prepares programs and residents for the transition to CBD.

Method

This presentation will highlight the development of the McMaster Surgical Foundations boot camp through the lens of the Context, Input, Process, and Planning (CIPP) program evaluation framework. An overview of the theoretical foundations of the boot camp, recruitment of stakeholders, faculty buy in, curriculum planning, feasibility issues, and preliminary data will be presented.

Conclusion

The McMaster Surgical Foundations boot camp will provide institutes across Canada with valuable educational information on how to develop their own boot camp. Incorporating such training programs will allow for clinical learning time to be focused on furthering residents’ education above and beyond the basic surgical skills covered in a boot camp, introduce residents to feedback and assessment from the onset of their training, and prepare programs and residents for the transition to CBD.
Using a skills lab to facilitate dialysis training in nephrology fellowship

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Introduction
Proficiency in peritoneal dialysis (PD) and hemodialysis (HD) are central to nephrology practice, however nephrology trainees’ experiences are limited by increasing non-dialysis demands of patient care and the multidisciplinary nature of the field. This may adversely affect care due to reliance on theoretical knowledge, potentially resulting in ineffective application. Novel approaches are required to ensure adequate, timely dialysis training in nephrology programs. Our objective was to assess feasibility and effectiveness of a Dialysis Skills Lab on performance of technical aspects of dialysis.

Methods
Guided by Kolb’s experiential learning model, a Dialysis Skills Lab consisting of six 30-minute stations comprising PD, HD and vascular access issues was developed. It was delivered to thirty nephrology trainees (Canadian, international, adult and pediatric), with at least 1 year of training including dialysis, from a single program at the end of an academic year. Anonymous pre-intervention surveys documented experience level and self-efficacy measures. Pre- and post-tests targeting essential content were analyzed in aggregate for difference in mean score using Cohen’s d statistic.

Results
Seventeen pre-intervention surveys demonstrated self-assessments ranging from novice to highly experienced. Pre- and post-tests were completed by 14 and 21 participants, respectively, with mean scores of 43.6% (SD=10.5%) and 58.4% (SD=15.6%). Cohen’s d statistic=1.50, representing a large effect size.

Conclusion
The Dialysis Skills Lab is feasible, resulting in measurable knowledge gains. Validity frameworks to develop competency-based assessment of dialysis training and exploration of effects on team-based care are required.

Educational impact beyond the workshop: Resident teacher observation and follow-up

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Introduction
To address competencies of the CanMEDS Scholar role, numerous residency programs have provided training in teaching skills to support residents in their instrumental role as teachers of medical students and their own junior colleagues. What remains a challenge is sustaining engagement and impact beyond educational workshops.

Method
In step one, 32 residents received two days of intensive instruction in teaching strategies and were expected to disseminate their learning to colleagues within their departments. In step two, an Educational Developer (ED) observed residents in these planned teaching opportunities; to date, over 25% of the participants have been observed. To explore the impact of this innovative approach, we gathered data from recorded observations and follow-up debriefings. Thematic analysis of the qualitative data revealed that residents believed observation by an ED to be an invaluable learning experience, citing decreased anxiety levels, and constructive, actionable feedback. The ED witnessed resident teachers employing new teaching skills and participants brainstorming program-specific strategies to engage learners.

Conclusion/Implications
Developing residents’ teaching competencies through an intensive workshop and observed teaching serves the dual role of creating a sustainable roster of resident teachers and fostering collaborative near-peer learning. Lower-stakes observation by an ED and protected time to examine teaching created a natural environment that fostered collaborative discussion. This follow up approach, although recognizably labour intensive, may be useful in cementing the learning gains from the teaching workshops while meaningfully building teaching capacity among residents. Our future interest lies in exploring the sustainability of this model.
Promoting an optimal clinical learning environment for residency education and patient care

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Introduction
The Scholar Role in the CanMEDS 2015 highlights physicians’ lifelong commitment to excellence in practice through continuous learning, by teaching others, and promoting a safe learning environment. Adapting the AAMC Statement on the Learning Environment (2014) to address the shared accountability for creating optimal learning environments for medical education with the goal of providing safe and effective patient care, we developed a pilot 3-phase strategy to strength residency education and patient care.

Method
During 2015 the pilot strategy was designed and implemented with the Surgery Medical Residency. Phase 1 “Diagnosis and Research” consisted of initial review of international medical education literature and initiatives regarding the clinical learning environment. Phase 2 “Residents’ Workshop” was a 2-hour discussion session with 1st to 5th year residents, each group was programmed in a different day to promote peer-discussion, an interactive online educational resource (TedEd Lesson) was used for guided reflection and recommendations. Phase 3 “Next Steps” as a result of the information obtained through the previous phases we designed a pilot online report system for critical incidents in the learning environment and the policy to prevent and address clinical learner mistreatment.

Conclusions
The implemented strategy with all the surgery residents’ allowed us to address that faculty and residents are expected to create an environment free of mistreatment as a first step to promote an optimal learning experience, in which feedback regarding educators’ performance can be reported confidentially by residents without concern for reprisal, enabling remediation and disciplinary action when indicated.

Introducing JAMA rounds: A structured near-peer bedside teaching initiative of the clinical exam

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Introduction
Competency-based training emphasizes direct observation of learners with a focus on their clinical skills and abilities. For medical students, this represents a demand challenging to meet through faculty-only approaches. Residents already play a well-established role in medical student education. Effective clinical teaching skills are now a required competency residents must demonstrate during training. Near-peer teaching provides the opportunity for both early teaching experience for residents and effective learning for students.

Methods
We developed a near-peer physical exam teaching program based on the JAMA Rational Clinical Examination series, aimed at developing both teaching skills in residents and clinical abilities in students. After completing residents-as-teachers training, junior internal medicine residents lead biweekly sessions with groups of ten to twelve senior medical students rotating through internal medicine. Sessions involve bedside demonstration of the physical exam, small group discussion, and evaluation of current literature. For program evaluation, feedback from students and residents is collected after each session and at the end of academic year. The data will be analyzed using a mixed-methods approach, including content analysis for narrative data and quantitative methods for Likert data, following completion of one year of the program. The goal is to assess the impact of the program on resident attitudes and experiences as teachers.

Conclusion
Informal feedback has been highly favourable. Our analysis aims to clarify the role of near-peer teaching within the clinical learning environment through a rigorous mixed-methods approach. Further, this program provides a controlled setting that may be effective for assessing residents’ teaching competencies.
Use of daily encounter tools for assessment of CanMEDS Roles

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Tools to assess resident competencies have been developed internationally; in Canada the CanMEDs Framework is utilized. This framework organizes behaviors into 7 distinct roles that define a competent physician. There is paucity of information on how residents apply these roles to daily practice. Our study aims to determine whether using daily patient encounter logs can assess resident's understanding of CanMEDS Roles and evaluate their development of medical competencies.

171 Rheumatology residents at the University of Alberta completed daily encounter logs. In addition to an evaluator driven component, residents were asked to identify what CanMEDS Role(s) they demonstrated and to provide an example of how that role was utilized in the patient encounter. All completed entries were electronically entered and combinations of thematic and content qualitative analysis were applied to create a thematic framework.

Thematic analysis uncovered 8 categories of behaviors or competencies exhibited during patient encounters. Content analysis revealed a distinct emphasis on behaviors relating to communication and diagnosis/assessment. Additionally, there was significant overlap of behaviors across multiple CanMEDS Roles.

Study results demonstrate that using a patient encounter log has utility for assessing resident's understanding of physician competencies within the CanMEDs Framework. Furthermore, the disproportionate selection of behaviors by residents may indicate unequal competency awareness.

Our study demonstrated how daily encounter logs can be used to evaluate medical competencies in Rheumatology residents, however further research should explore whether similar trends are observed in other medical specialties.
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**093**

Finding foundations: An innovation in residency education for psychiatry

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**Background/Objective**
Within psychiatry, there are foundational skills which require development, yet are challenging to assess as they tend not to be as objective as procedural based specialties. Arguably, the first year of residency, when general medical skills are being further developed, is a good time to cultivate these foundational skills. Fostering core foundation skills aligned with the CanMEDS roles allows for future educational goals to flow through the framework.

**Summary**
In 2012, the McMaster University Department of Psychiatry piloted the Foundation of Psychiatry block to address this need. It has since been through 3 iterations. It occurs as a formal rotation within the first year of residency. The curriculum consists of a combination of problem-based cases, resident-led presentations, debates, clinical skills, didactic lectures, community visits, critical appraisal, interviewing and formulation skills aimed to develop a foundation from which to propel psychiatric skills forward throughout residency.

**Conclusions**
This curriculum has become a key aspect in the development of psychiatric foundational skills within the McMaster residency program. Feedback from residents has been consistently positive in terms of feeling more confident around key concepts in psychiatry in addition to being able to connect with their base program in a meaningful way. Arguably, a foundation block would be applicable and modifiable to any medical specialty and has the potential to enhance competencies by providing a firm foundation from which to build.

**094**

Emergency medicine with follow-up: A situated learning model for teaching inpatient medicine to emergency medicine residents

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**Introduction**
Inpatient medicine and pediatrics rotations have proved troubling for emergency medicine (EM) trainees. Significant time is spent on activities perceived as low-yield in terms of applicability to EM practice. Many EM residencies have removed these “ward rotations” from their curricula. Educators must ensure that important learning opportunities are not lost. We sought to capture these opportunities in EM with follow-up (EMFU), a curriculum to teach longitudinal concepts in inpatient medicine to EM residents.

**Methods**
Situated within the social-professional context of EM practice, twelve residents per year rotate on monthlong adult and pediatric EMFU rotations. Residents initiate care in the emergency department (ED), then follow all patients admitted to the hospital, visiting on subsequent days, reading daily notes, and interacting with inpatient teams to understand the hospital course. Faculty round weekly to stimulate discussion and reflect on practice decisions. Though not explicitly part of the inpatient care teams, residents can understand the longitudinal course and illness experience of patients and families.

**Conclusion**
The EMFU curriculum allows EM residents to evaluate the results of ED decisions over time. Strengths cited by residents include close working relationships with faculty, clinical experiences relevant to EM practice, and development of lifelong professional quality-improvement habits. Using situated learning - participation based in the social-professional context most pertinent to learners’ future practice - we have developed a residency training curriculum to teach longitudinal internal medicine and pediatric concepts to EM residents, introducing our learners into the community of practice of emergency medicine.
Promoting Professionalism through remediation in residency education

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Introduction
The Professional Role in the CanMEDS 2015 Physician Competency Framework underscores physicians' accountability to society and the privilege of physician-led regulation. Addressing unprofessional behaviors among residents promotes professionalism if remediation is embedded within the two communities of practice interacting in the academic health centers: the clinical workplace and the educational space (Kalet & Chou, 2014). We developed a strategy to address unprofessional behaviors with residents in order to achieve effective remediation to maximize healthcare and educational outcomes.

Method
We implemented a 4-level strategy adapting the approach by Hickson et al (2007) to address unprofessional behaviors and a remediation process for the “difficult trainee” who typically presents with behavioral problems as “personal conduct that negatively affects or potentially affects patient care” (Kalet & Chou, 2014). Level 0 “Informal Intervention” was a dialogue between the resident and the clinical tutor or chief resident; Level 1 “Professionalism Awareness” was a formal intervention by the program director (PD); Level 2 “Leadership Intervention” was a formal intervention by the PD, medical residency programs director (MRPD) and professionalism director; and Level 3 “Disciplinary Action” was a formal intervention by the Dean of GME, MRPD, PD, professionalism director and the Dean of Students Affairs.

Conclusions
The implemented strategy during 2015 with 6 residents’ cases included clear communication and documentation, enabling remediation and disciplinary action when indicated. It is necessary a model for faculty development to support remediation and residents’ professionalism education with the understanding that physicians are accountable to society, to their profession, and to themselves.

GOT foundations: Laying the foundation to maximize learning in the General Internal Medicine (GIM) transition to discipline phase using Entrustable Professional Activities (EPAs)

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Introduction
Transition to discipline for PGY 4 residents in the 2 year General Internal Medicine (GIM) subspecialty is marked by a significant change in role expectations. To fully maximize learning opportunities throughout residency, an appreciation of GIM's scope of practice, and the learning opportunities available is needed. We introduced a Transition to Discipline rotation to facilitate resident’s acquisition of skills and knowledge throughout their GIM residency by providing an in depth orientation to the competencies required to practice as a General Internist and discussion of how to attain these competencies.

Methods
A 2 week Transition to Discipline (GOT Foundations) rotation was developed for the University of Saskatchewan GIM residents in 2014. Feedback from the first cohort indicated that although the residents enjoyed the rotation the connection to their future practice was not immediately apparent. In the 2015 to 2016 year the rotation was restructured around 10 Entrustable Professional Activities (EPAs). Each EPA is introduced in the rotation but are then explicitly restated and revisited in applicable future half days and rotation objectives. This has ensured explicit relevance to future practice for all teaching venues and topics.

Conclusions
Positive narrative feedback has been received for all components. Narrative feedback throughout the year has indicated the residents continue to revisit the EPAs and understand their relevance to their future practice. EPAs to frame future skills to be obtained by graduating GIM residents has allowed us to build a Transition to Discipline rotation which maximizes their learning experience throughout their two year residency.
### 097

**An innovative addition to electronic workplace-based daily assessment forms to offer feedback on feedback**

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#### Introduction
Assessment in competency based medical education (CBME) is designed to support learning and competency decisions. Direct observation and formative feedback are foundational in CBME and used in workplace-based assessment. Preceptors often lack opportunities to receive feedback about the feedback they provide residents. The purpose of this qualitative pilot study was to design an addition to electronic daily assessments that provides feedback to the preceptors about the feedback they provide to residents.

#### Methods
Phenomenological design was used, based on the resident’s perspective of the feedback they deemed most useful. Family Medicine residents were invited to nominate feedback they identified as particularly useful in their learning and described why. Twenty entries were included.

#### Conclusion/Implication
Five themes emerged from this pilot that indicate feedback was most useful when it: changed and improved their practice; taught them something new; motivated them to learn more; confirmed they were doing the right thing; promoted reflection. Based on the findings, the electronic assessment forms were changed such that residents can now identify feedback that was of particular value to them, giving it the “thumbs up” and including their choice of the five themes. Enabling residents to identify feedback that drives their learning and to identify why, offers preceptors feedback on their feedback and supports residents to better understand their own learning needs. Providing preceptors information about the impact of the feedback they provide learners should allow them to tailor feedback to be more effective and useful for learners.

### 098

**Supporting change in practice: The role of agency, ownership and legitimacy**

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#### Introduction
Enhancing the quality of residency education involves developing a culture which promotes reflective practice and insight. Effective feedback, even in the busy clinical environment, is of central importance to achieving this. Enhancing feedback practice is challenging where those responsible are dispersed, nationally, across multiple hospital sites. The aim of this pilot project of the College of Anaesthetists of Ireland was to engage consultants and trainees in enhancing feedback practice, using a cascade model of training, with e-learning resources to support the process.

#### Methods
Consultant tutors (8) and trainees (6) in Anaesthesia were recruited and trained in the Advocacy Inquiry approach to feedback and in the use of fieldnotes, by a team of consultant and trainee anaesthetists a clinical psychologist and a medical educationalist. In preparation for the pilot, ‘champion’ tutors and trainees developed strategies for articulating the rationale and supporting their peers (100) in four training hospitals. Bespoke e-learning resources were developed to support these key agents as they implemented this innovative approach to providing and recording feedback.

#### Conclusions
The combination of experience and expertise in anaesthesia, psychology and education strengthened the training process. The cascade model gave participating consultants and trainees a sense of ownership over the process in their own sites and afforded greater legitimacy to the process. Peer-to-peer learning can contribute to developing a culture which values effective feedback. Engagement with key agents is central to acknowledging, anticipating and addressing issues of feasibility and in promoting change in residency education.
The “Consultant Chat”: A novel didactic method for specialist presentations to emergency medicine residents

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Introduction
While emergency medicine (EM) faculty are generally the most appropriate teachers for EM residents in the didactic setting, there are particular components of the EM curriculum that benefit from specialist input. Many outside specialists, however, have little appreciation for the limited resources or scope of EM practice. Residency leaders feel challenged delivering constructive feedback to consultants, as most are contributing their time without contractual requirements or personal benefit. We developed the “Consultant Chat,” a novel didactic format for specialists that are frequently consulted by the ED.

Methods
Expert consultants are selected by EM residents and invited for a one-hour “chat” during conference. These specialists are not asked to prepare a presentation; they simply answer questions and share their experience. Residents come prepared with questions that are specific, case-based, or pragmatic. Take home points are recorded and distributed to residents as a summary document of “clinical pearls.”

Conclusions
The “Consultant Chat” has greatly fostered collaboration with our specialists from other departments. These experts are motivated to share knowledge with our residents that will impact patient care and may even prevent unnecessary phone calls from the ED. They feel honored to be selected by the residents, there is minimal time commitment on their part, and the informal atmosphere is engaging for all parties, including EM faculty. The residents drive the discussion to meet their education needs and this self-directed learning style allows them to derive maximal value from the session.
Advancing digital health in medical education: Influencing change and training the trainers

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Introduction
As medicine enters the digital era, physicians must use new technologies effectively in their practices. While eHealth competencies are reflected in the CANMEDS 2015 framework, a recent environmental scan revealed gaps in eHealth training in curricula across Canadian medical schools. In response, AFMC and Canada Health Infoway are leading a national initiative to provide medical educators with tools to integrate eHealth into medical education content, and advocate for entrenchment of eHealth competencies into medical curricula.

Methods
Canadian eHealth and Faculty Development experts have developed four CME-accredited modules, featuring core eHealth content (clinical information management, clinical decision management, information sharing and patient safety) and cross-cutting themes such as privacy and consumer eHealth solutions. Modules are delivered via webinar to facilitate cross-country engagement, and an eHealth toolkit is available for health educators.

Parallel advocacy efforts promote curriculum enhancement in Faculties of Medicine nationally, while stakeholders such as the Medical Council of Canada collaborate to advance the integration of eHealth concepts into medical curricula.

Conclusion
This initiative supports the growth of national eHealth medical educational resources that can be used to instruct learners and peers. Promoting the integration of eHealth into medical curricula will ensure our next generation of physicians practices effectively in an eHealth-enabled environment.

Better consultation and referral, by design

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Context
Referral and consultation are important parts of medical practice, and skilled, effective communication between primary care physicians and specialists is essential for safe, high-quality referral processes. Unfortunately, substantial evidence suggests that such communication is frequently incomplete or inadequate. This incurs risk of delayed access to care, inadequate follow-up, partial compliance, duplication of services, and patient frustration. To date, few medical education programs offer formal work-based training and assessment for these important communication skills in the referral process.

Objectives
Quality Referral Evolution (QuRE) is a collaborative initiative to make education and support for quality consultation education part of the residency programs in Alberta, as well as for accredited self-study for practicing physicians and surgeons in the province.

Background
The QuRE WORKING GROUP (QWG) is composed of members of Universities of Calgary and Alberta, and Alberta Health Services. It represents family medicine, surgical and medical sub-specialties, the universities’ residency programs, and AHS Referral and access management. QWG is developing best evidence-based educational resources for teaching and learning the communication skills needed to provide quality referral and consultation. This includes continuous medical learning workshops eligible for Mainpro-C and RCPSC MOC credits.

Conclusion
By doing so, the QuRE program hopes to improve the quality of communication in the referral and consultative process, and, consequently provide better access to care for Albertans.
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**Postgraduate teaching of the non-medical expert CanMEDS Roles: Learning from the social sciences and humanities**

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**Introduction**
Teaching curricular material beyond the biosciences is a relatively new frontier in Canadian postgraduate programs, stimulated in part by the need to teach the non-Medical Expert CanMEDS Roles. In addition to uncertainty about what non-bioscientific content to teach, literature indicates that medical educators are also unsure which instructional methods (IMs) are most suitable to deliver such content. Since much of the knowledge underpinning these roles is generated by the social science and humanities (SSH), we decided to ask SSH experts for their recommendations on how to teach the non-Medical Expert CanMEDS Roles.

**Methods**
As a part of a larger study (reported elsewhere) in which 58 SSH experts were interviewed about several aspects of the non-Medical Expert CanMEDS Roles, we asked these experts to suggest optimal teaching techniques and curricular resources for each role. We extracted participants’ responses from transcripts and sorted IMs and resources by role into text and tabular formats.

**Results & Conclusion**
21 IMs were suggested, many of which are not widely utilized in residency education e.g. creative arts, games, and rhetoric. Notably, 5 IMs were suggested for all roles: critical methods, case studies, games, and reflective methods. These findings warrant further study on the feasibility and comparative outcomes of using the SSH experts’ recommendations in the postgraduate education context.

Our resultant 44-page document, with recommendations on IMs and curricular resources, is currently being used by educators at several Canadian universities as a part of a larger study on the integration of SSH knowledge into medical curricula.

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**Turk Talk: Enhancing language skills in learners**

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**Background**
As educators, we must assess the quality of graduates’ communication skills and clinical reasoning in patient care. Although virtual patients (VPs) are powerful educational tools for assessing clinical decision-making, they have been limited in their ability to interpret free text or spoken input, and in their ability to emulate challenging clinical encounters.

**Summary of innovation**
Turk Talk blends these partly automated online activities with key case sections intermediated by an online human facilitator. This allows for a much richer and nuanced learner experience while supporting multiple concurrent users in a distributed, networked environment. Turk Talk also accelerates case creation and the educational effectiveness of the cases. Turk Talk is a scalable, free, and open-source extension to OpenLabyrinth, and has been tested in Canada and Ireland, on a number of sites with various levels of participant expertise. Facilitators and learners have enthusiastically engaged with this novel approach. Detailed participant metrics and recording of all interactions afford rich quantitative and qualitative research potential, within a secure environment.

**Conclusion**
Turk Talk is a simple, low cost, scalable solution to assessing and improving the quality of patient interactions, that is easily implemented in a distributed education environment.
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Smoking cessation education for surgical residents: Challenges in driving change

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Introduction
Tobacco smoking is a leading cause of preventable death in North America¹;²; a brief smoking cessation intervention from a physician is known to be effective³. We previously found residents felt cessation counseling was important but fewer performed it, with worse performance by surgical residents⁴. Health promotion is a key component of both the ACGME and the CanMEDS Competencies⁵,⁶. We hypothesized that smoking cessation training would increase resident counseling interventions.

Methods
We conducted a smoking cessation training session for surgical residents at the University of Alberta (n=134). A pre-lecture survey was distributed to all residents attending our smoking cessation lecture; 64 residents in attendance returned their survey. Thirty-six completed a follow-up electronic survey 6 weeks later. Both surveys contained questions related to basic demographics and 5-point Likert scale questions focused on past training, attitudes and cessation counseling techniques. Pre-post analysis using Student’s t-test was performed.

Following our intervention, there was a significant increase in perceived benefits from role models (3.69 to 4.03, p=0.04) and recognition for counseling efforts (3.28 to 3.71, p=0.02) along with increased recognition of their role in smoking cessation (3.97 to 4.26, p=0.04).

Conclusion
Our training session did not increase surgical residents’ likelihood of performing smoking cessation counselling; however, it was associated with changes in some related attitudes. Changing smoking cessation counseling habits with a single intervention may not be effective. A concerted career-long effort may be required. Limitations include a low follow-up survey response rate. A 6-month follow-up is planned to investigate maintenance of attitudinal changes.

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Medical Intervention in Critical Event (MICE): An innovative simulation workshop for family medicine residents

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Family doctors encounters critical situations both in hospital and community. The Institut du savoir Montfort in Ottawa developed a course to prepare family medicine residents for unexpected critical interventions in both the medical office and hospital settings. Existing training opportunities have not addressed family medicine residents’ specific needs in terms of practical training for emergencies in the community, where resources are highly limited.

The Medical Intervention in Critical Event (MICE) course was developed as a two-day workshop based on recent guidelines for communication, leadership, critical care knowledge, technical skills and crisis resource management. MICE is structured to offer 73% of its course time for medical simulation and technical skills development, when most similar workshops dedicate only 32% for practical training and do not address the community setting. Through the MICE workshop, residents learn to identify early signs of clinical deterioration, to manage acute critical situations safely according to the patient’s needs and the available resources, and to initiate primary treatment for acute critical situations. Residents benefit from ten to twelve different simulations, seven technical skills development stations, and six interactive didactic sessions.

A total 16 residents participated in 2014-2015. Participants completed a post-session learning self-evaluation questionnaire. All participants recorded immediate satisfaction with MICE. 70% of participants improved their knowledge, skills and confidence by 100%. Medical simulation followed by a structured debriefing is a powerful learning modality allowing application of knowledge and skills.

Based on the success of this workshop, we plan to provide this course to the specialty residents.
Leading change: Using a case-study format to engage residents in local improvement

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Leadership by frontline clinicians is an important determinant of health care quality. Few residency programs, however, systematically include leadership training. Furthermore, residents often equate leadership solely with positions of authority. A leader’s function to produce change needs to be emphasized.

Residents often notice inefficiencies in their daily practice that they would like to see changed. To equip residents with the skills to make these changes and to illustrate how leadership can arise from patient care we developed a ‘Leading Change’ curriculum.

The ‘Leading Change’ curriculum consisted of pre-readings, a 1-hour case-study session, and a follow-up written assignment. The pre-readings were articles by J.P. Kotter (a guru of change management theory). The case-study session used YouTube clips to illustrate key concepts from the pre-readings and spark discussion. The assignment was a worksheet based on Kotter’s 8 steps for leading change. Each resident selected an issue from their patient care they wanted to change and described how by addressing each of the 8 steps.

7/8 residents attended the session. Resident satisfaction was high. The case-study format was a strength. Interestingly, while implementation was not mandatory, 4/8 residents went on to implement their described changes. Outcomes included a revamped handover list, a patient instruction sheet, and a telephone consultation documentation system.

A case-study format was an effective way to teach ‘Leading Change’ skills. The assignment illustrated the relevance of leadership skills to their daily practice and engaged residents to lead local improvements. This curriculum could contribute to building residents’ long-term interest in leadership.

Building a learning and teaching community for residency education in a large academic center by implementing a comprehensive quality system

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Introduction

The importance of quality assurance and quality improvement of clinical education is widely recognized (e.g. WFME standards). Quality of patient care has been shown to be affected by the quality of previous residency training. Among criteria for external accreditation adequate quality management is increasingly important. We developed a comprehensive quality management system to foster quality improvement and to prepare programs for external accreditation.

Methods

Our quality-system provides programs with an individual 5 years’ quality-cycle comprising: measurements using (validated) questionnaires, interviews. Quality reports compare results of consecutive measurement and provide a benchmark on the institutional level. Per program, facilitated reflective discussions among program directors, supervisors and residents including cross-pollination between programs take place every 30 months. Subsequently, educational advice is offered. Improvement plans are formulated by the programs themselves. Internal audits comprising peer review aim to ensure the execution of improvement plans, thus completing a Deming cycle half way and one year before external accreditation visits.

Summary of innovation

All 36 programs in our hospital participate. Since 2012 we performed 121 quality measurements. Over 450 supervisors (from 27/36 (75%) of programs) received personal feedback on teaching qualities from residents. 34 of 36 (94%) programs received feedback from peers during internal audits. Aggregated data on the institutional level are discussed yearly with the board of directors.

Conclusions

This comprehensive system for quality assurance and improvement may foster the quality of residency training on the institutional level by facilitating a continuous improvement spiral for individual programs supporting adequate preparation for external accreditation.
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Resident assessments of faculty physicians: An educational workshop

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Introduction
Resident assessments of faculty are integral to faculty performance reviews. We previously surveyed residents regarding their perspectives on the written assessments they complete of faculty physicians. Residents identified numerous barriers to providing honest assessments, and desired education around the process.

Methods
30 internal medicine residents attended the workshop. Residents were educated by the program director on the process by which their assessments of faculty physicians are collated and distributed. In three small groups, each led by a facilitator, residents discussed faculty teaching behaviours that are important and measurable on resident-completed assessments of faculty. Residents were then given three anonymized faculty assessments completed by previous residents. Using a previously validated tool for resident assessment, CCERR, which was adjusted for the purposes of faculty assessments, residents marked each resident-completed assessment on its utility. This activity facilitated discussion of strategies by which residents could complete faculty assessments in an objective, behaviourally-focused way to maximize utility while preserving resident anonymity.

Results
21/30 (70%) of resident attendees completed an evaluation of the workshop. The majority of residents (86%) felt this workshop should be hosted again next year, and would change their future approach to faculty assessments. Providing comments to justify ratings, and commenting with specific examples on assessment forms were frequently reported changes residents plan to make.

Conclusion
Residents believe this educational workshop was useful and will improve their future approach to faculty assessments. Future steps to measure the lasting impact of the workshop include comparing assessments completed by workshop attendees to non attendees.

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Meeting the needs: Innovative toxicology curriculum

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Background/Objective
There are an increasing number of toxicology-related cases seen in hospitals over the last two decades including opioids toxicity (Dart, 2015, Mowry, 2015). Trainees of different medical specialties need to have certain level of skills and knowledge to manage toxic patients appropriately. Competency in Toxicology is an expectation of the The Royal College of Physicians and Surgeons of Canada in certain specialty training programs. There is no structured curriculum to teach toxicology to emergency and internal medicine residents at most of the Canadian Universities in the literature. This submission describes development of toxicology curriculum to fill the need of such educational materials at McMaster University.

Method
Following CanMEDS guide for the health professionals (Sherbino, 2011) steps:
- Comprehensive needs assessment were conducted at four levels.
- Thorough educational objectives were developed to match three levels of milestones.
- Educational materials were created by four toxicologists and intensivists from different Universities that adapted team-based learning modules including 36 short educational online videos and PBL cases for group discussion.
- Evaluation and assessment methods were also developed to feedback into improving the learning experience of the residents.
- Curriculum was built targeting emergency and internal medicine residents at the Royal College training programs.

Conclusion
An innovative structured curriculum was developed using up-to-date curriculum design, infused with cognitive psychology of learning theories, adapting the new Royal College milestones and competency-based to fill a gap in education of emergency and internal medicine residents’ trainings. This curriculum is characterized by being mobile and flexible to fit learners’ and/or institutions’ circumstances.
Assessment and implementation of a simulated “Entrustable Professional Act” in orthopaedic surgery: A pilot study

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Introduction
Traditional measures of competency in surgical education are noted to be subjective and segmented. Entrustable Professional Acts (EPAs) provide holistic means of assessment of resident performance, and may address these gaps in evaluation within competency-based curricula (CBC). We hypothesized that an EPA could be a valid tool to assess residents’ competency in managing a patient with an ankle fracture, an essential competency of orthopaedic surgeons.

Method
A prospective cohort study design was implemented, with 12 first-year residents recruited at an academic centre. Outcome measures included: (1) structured oral examinations of pre-operative and post-operative care measured by global rating scale (GRS) and 5-point Likert scales of competency; (2) observed structured assessment of technical skills (OSATS) using artificial bone models; and (3) semi-structured interviews defining residents’ experience. Assessments occurred at the end of residency year 1 (T1), 2 months later (T2), and 5 months later (T3). Descriptive analysis was conducted with paired-sample T-tests (CI=95%, \( p<0.05 \)). Thematic analysis was undertaken for qualitative data.

Results
Five residents completed the study. While significant improvements in performance scores (GRS and Likert scores) were found from T1-T2 within the OSATS (\( T=-9.295, p<0.001 \) and \( T=-4.382, p<0.05 \), respectively), scores remained statistically unchanged at T3, suggesting knowledge retention. All residents favoured (i) immediate feedback and (ii) ongoing practice between times of evaluation.

Conclusion
This is the first study to show that EPAs can effectively assess residents’ competency level in performing surgical tasks, suggesting their value in CBC measuring residents’ progression towards unsupervised practice.

Cardiac anesthesia training competency based performance evaluation: Assessment of the Medical Expert CanMEDS Role

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Introduction
While CanMEDS competencies are a vital component of any training program, integrating the role of Medical Expert in highly technical subspecialties is more narrowly defined. In cardiac anesthesia, proficient performance of technical skills and focused communication is germane to the Medical Expert Role and the delivery of excellent patient care. There is currently no competency based tool to assess Medical Expert performance for anesthesia trainees in the cardiac subspecialty. The purpose of this study was to develop a competency based performance evaluation of the Medical Expert Role in this domain.

Methods
A competency based performance evaluation was developed using Likert scales in the domains of (1) non-technical skills (2) patient preoperative evaluation (3) anesthesia preparation and induction (4) intraoperative anesthesia and separation from cardiopulmonary bypass and (5) patient transfer and postoperative care. This performance evaluation was instituted over a 4 month period from October 2015–February 2016. Utility of the training tool was explored from the learner and faculty perspective using qualitative evaluation methods of face-validity, ease of use, and trends of completed forms over time.

Conclusion and Implications
Our performance evaluation was successfully implemented and showed a high degree of completion rates over time. Both student and faculty evaluations of the tool were highly favorable. Training gaps were more easily identified where specific remediation could be offered. Until now, assessment of cardiac anesthesia learners’ performance in the CanMEDS Medical Expert Role was largely subjective. The development of this tool allows for a more objective evaluation of learner’s performance.
Using the Entrustable Professional Activities framework in the assessment of procedural skills

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Introduction
The entrustable professional activity (EPA) framework has been identified as a potential approach to assessment in a competency-based education model. However, in order to use the EPA framework as an assessment tool, the essential skills necessary for entrustment to occur must be identified. Using EPAs as a framework, the purposes of this study were to: (1) define the essential skills required for entrustment to occur for the seven bedside procedures expected of graduates of Canadian Internal Medicine (IM) residency training programs; and (2) develop a rubric for the assessment of procedural skills.

Methods
An initial list of essential skills was defined for each procedural EPA by focus groups of experts at four academic centres using the nominal group technique. These lists were then distributed to representatives from all Canadian IM training programs in the form of a survey. Consensus (> 80% agreement) about the inclusion of each item was sought using a modified Delphi exercise. Qualitative survey data were analyzed using a framework approach to inform a final assessment rubric for each procedure.

Results
Initial lists of essential skills for procedural EPAs ranged from 10-24 items. A total of 111 experts completed the national survey. After two iterations, consensus was reached on all items. Following qualitative analysis, final rubrics were created.

Conclusion
A rubric for assessing procedural skills based on the EPA framework will provide a robust foundation for future studies to address implementation and evaluation of EPA-based assessment programs.
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The influence of first impressions on OSCEs: Does scoring format and type of assessment matter?

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Introduction
First impressions are judgements formed quickly, without much conscious awareness and are thought to represent the outcome of automatic cognitive processes (i.e. System 1). Factors that influence the degree a first impression correlates with other judgments are not clear. Specifically it is unknown if manipulating circumstances that could influence a rater’s use of System 1 processes will influence the accuracy of a first impression.

The purpose of this study was to explore factors that influence the accuracy of a first impression within the context of an Objective Structured Clinical Examination (OSCE).

Methods
The hypothesis is that scoring a summative assessment (vs formative) and using global rating scales (vs checklists) would prompt raters to rely more on System 1 processes leading to higher correlations between first impressions and total scores.

Physician examiners viewed six videos of examinees taking a history. Examiners made a judgment of the examinees’ clinical abilities after 60 seconds (first impression); then scored the remaining performance. Examiners were assigned to one of four conditions: summative/global rating, formative/global rating, summative /checklist and formative/checklist.

Results
The correlation between a first impression rating and a final score for the summative/global rating = .92, formative/global rating = .70, summative /checklist = .13, formative/checklist = .65.

Conclusion
The scoring format (checklist, global rating) appears to influence the relationship between a first impression and a final OSCE score but only when raters are instructed to think of the task as a summative assessment. Implications for how cognitive processes influence the use of first impressions will be discussed.

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Use of an entrustment scale to assess resident performance of a simulated open carpal tunnel release

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Entrustment of residents is emerging as a central concept in CBME. We explored validity evidence for the use of a short Entrustment Decision (ED) scale for assessing resident performance of an open carpal tunnel release (OCTR). It was hypothesized that an ED assessment would provide valid information when compared with existing technical assessment tools specifically, the Global Rating Scale (GRS) and the Detailed Checklist for Carpal Tunnel Release (DC).

Methods
Fifteen residents (PGY 1–6) participated in this study. Each resident performed an OCTR on a cadaveric limb. Resident performance was assessed by two surgeons using previously established metrics (i.e. DC and GRS), an ED scale and a pass/fail criterion. Residents self-assessed their level of entrustment using the same ED scale. The correlation between ED and other assessment tools was evaluated using Spearman’s rho. Paired rater and resident assessments for level of entrustment were compared with a Wilcoxon signed-rank test. Finally, Cronbach’s alpha was used to assess internal consistency between faculty raters.

Results
ED was strongly correlated with the GRS (rho=0.95, p=0.00), the DC (rho=0.89, p<0.0001) and with the PF (rho=0.75, p<0.002). Significant differences between resident and rater ED scores (p=0.04) were found. 7/15 residents rated themselves above the mean rater score, 3 below and only 5 were in agreement. Finally, internal consistency estimates demonstrated good to excellent reliability for DC (0.90), GRS (0.83), ED (0.88) and PF (0.78).

Conclusion
Validity evidence supports the use of an Entrustment Decision scale for the assessment of resident performance of OCTR.
Development and validation of an innovative milestones-based competency assessment tool for family medicine residents

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Introduction
With the adoption of its competency-based curriculum, the College of Family Physicians of Canada asks family medicine residency (FM) programs to provide faculty with tools to assist their judgment on residents’ progression. Therefore, the FM residency program at Université Laval aimed at developing an innovative milestones-based online competency assessment tool (CAT) for in-training evaluation and progress reports.

Methods
Faculty expectations for the achievement of a list of competencies (Laval Developmental Benchmarks Scale for FM) were first defined by a Delphi methodology. Computer programming then allowed to link faculty assessment of a resident’s level of self-direction (criterion-referenced form describing behaviour for close supervision/distant supervision/independence) to this scale, automatically identifying if each competency is reached before/at/later than expectations. An online assistant supporting faculty with educational diagnosis and treatment of challenging learning situations was also programmed based on a thorough literature review. Content validity and response process were ascertained. A pilot project where ten faculty assessed residents using the CAT during Summer 2015 allowed to test the tool before its implementation in Winter 2016. Comments about the tool were collected through semi-structured interviews. Transcripts were analyzed via content analysis.

Conclusions/Implications
The CAT was described as objective, clear, easy to use and representative of residents’ competencies. Adaptation to criterion-referenced assessment was the most common anticipated challenge. While initial results appear promising, a cohort study which started three months before implementation of the CAT will compare the previous and the new assessment tools and analyze the impact of the CAT on faculty and residents.

The relationship between words per item, item difficulty, and duration to answer multiple choice questions in a pediatric licensing exam

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Background
Words per item (WPI), is the count of words in a single MCQ. Item difficulty is the proportion of the total number of correct answers to the test item. The purpose of this study was to investigate the relationship between the words per item, difficulty index, and answering time duration of the MCQs in the Saudi Pediatric Licensing Exam.

Methods
This was a cross-sectional study based on secondary data analysis for the General Pediatric Licensing Exam conducted in 2014. The study unit were the one-best MCQs of the four options format. The WPI were categorized into four groups according to the words count: less than 50, 50-74, 75-99, and 100 words. Item difficulty level were divided into three subgroups: easy (> 0.8), recommended (0.3 – 0.79), and hard (<0.29).

Result
The result showed a negative association between item difficulty and WPI per MCQ (r = -0.08). There was a negative association between difficulty level and response time (r = -0.33). There was a strong positive association (r = 0.8) for the correlation between the mean time and the WPI. There was a significant association between WPI and difficulty level groups, items with WPI <50 were easier as compared to WPI >50 (p = 0.03).

Conclusion
Results showed examinees spend more time on questions with greater words counts as well as more time on questions that were more difficult. This research may aid in designing a protocol on how much time should be assigned to each individual item based on WPI.

Assessment: Cutting edge tools and practical techniques
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Daily encounter cards: Evaluating the quality of documented assessments

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Purpose
Daily encounter cards (DECs) are a common form of work-based assessment. In order to evaluate interventions designed to improve the quality of assessments documented on DECs, a quantitative measure of DEC quality is needed. The purpose of this study was to provide validity evidence in support of using the Completed Clinical Evaluation Report Rating (CCERR) to evaluate the quality of completed DECs.

Methods
Six experts in resident assessment from the Faculty of Medicine at the University of Ottawa grouped 60 DECs into three quality categories (high, average, poor) based on their perception of how informative each DEC was for reporting judgments of the resident's performance. Eight clinical supervisors (blinded to the expert groupings) scored the DECs using the CCERR. Mean scores were compared using a univariate ANOVA to determine if the CCERR was able to discriminate DEC quality. Reliability for the CCERR scores was determined using a generalizability analysis.

Results
Mean CCERR scores for the high (37.3, SD=1.2), average (24.2, SD=3.3), and poor (14.4, SD=1.4) quality groups differed (p<0.001). A pairwise comparison demonstrated that differences between all three quality groups were statistically significant (p<0.001). The majority of score variation was due to differences in DECs, and the reliability with a single rater was 0.95.

Conclusions
There is strong validity evidence to support the use of the CCERR to evaluate DEC quality. The CCERR can be used as a quantitative measure of change in assessor behavior when evaluating interventions aimed at improving the quality of completed DECs.
Development of a competency-based thoracentesis assessment tool

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Introduction
The use of validated tools to assess clinical performance is an essential component of competency-based medical education. Ideally, these tools assess performance along the continuum of skill development using milestones to provide useful feedback. At present, no such tool exists to address the commonly performed skill of thoracentesis.

Methods
A focus group was conducted to guide the development of the tool. A feedback rubric was favored, with defined milestones for progressive levels of competency. The focus group generated a 25 item list of potential competencies for thoracentesis. A modified Delphi approach was used to refine this list. Members of the Delphi group were selected to represent a cross-section of experts in respirology, critical care, and general internal medicine in both academic and community centers. Experts rated items from 1 to 5 (“not important” to “mandatory”) and recommended rewording and combinations. A response rate of > 80% was required to complete a round. Items scoring less than a predetermined mean score of 3.5/5 (< 70%) were eliminated. Items receiving 2 or more suggestions of rewording or combining were adjusted. Consensus was defined as an item receiving a score > 3.5/5 with no more than 1 correction.

Results
Successive Delphi rounds were completed until consensus was reached. A feedback rubric was produced using the resultant essential competencies.

Conclusion
We have developed an assessment tool for thoracentesis that has defined competency-based milestones and is informed by expert consensus. Further validation is planned involving simulation and deployment in a clinical environment.

Use of the surgical teaching rubric improves technical skills’ acquisition and retention

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Introduction
Many clinicians lack formal training as educators, and surgical trainees often report they do not receive adequate teaching and feedback. Hence, there is need for a more deliberate approach to surgical-skill teaching. We developed a teaching rubric (N.O.D.O.F.F.), which outlines use of Needs, Objectives, Demonstration, Observation, and Feedback. We hypothesized that N.O.D.O.F.F. will improve instruction and learning, and therefore, improve basic surgical-skills acquisition and retention.

Methods
Sixty-five medical students were recruited before their surgical clerkship to undergo basic surgical-skills pre-test (knot-tying and suturing) at the simulation center, then randomly assigned to a blinded 90-minute skills-session with an instructor trained to use N.O.D.O.F.F. (intervention) or standard instructor (control). Afterward, students performed post-test, followed by 1-month retention-test. All tests were scored by two blinded raters using validated assessment tools. Repeated-measures-ANOVAs were conducted to test for differences in performance scores over time (pre-post-retention). All participants completed questionnaires on use of N.O.D.O.F.F. Qualitative and quantitative analyses of questionnaires and observer notes were also conducted.

Results
Baseline-skill was equivalent across conditions. Improvements in surgical-skills performance was significantly higher for intervention than control F(1,60)=35.37, p<.001(suturing), F(1,60)=18.42, p<.001(knot-tying). Intervention continued to perform significantly better at retention than control for suturing, F(1,12)=12.91, p<.01. Analyses of questionnaires and observer notes revealed N.O.D.O.F.F. was easy to follow and improved instructors’ teaching and feedback.

Conclusion
The use of N.O.D.O.F.F. significantly improved basic surgical-skills acquisition and retention and can be used as a practical teaching tool for surgical-skills training. In future work, we plan to test it in the operating room.
Objective scoring of an electronic surgical logbook: Analysis of impact and observations within a surgical training body

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Introduction
Historically, objectively evaluating trainee operative case-logs was difficult due to mass-variability in operative complexities and degrees of participation.

Methods
A weighted-scoring algorithm was applied prospectively to surgical trainees’ operative logbooks in 2013 with web-based performance feedback using HTML, C# and SQL interfaces. We aimed to evaluate this novel scoring-system, its impact on trainee performance, while making meaningful observations on outputs including speciality and hospital-network variances. The algorithm was applied retrospectively to 2007-2014 trainees’ logbooks and comparative analysis performed of qualitative operative content of 2015 graduates’ with pre-algorithm era.

Results
45 Trainees completed 2-year Core-Surgical-Training in 2015 recording 33,677 operations, 748 operations/trainee (38.4% performed). 2007-2014 trainees averaged 430 operations/trainee (30.9% performed), without the scoring interface. 2015 graduates recorded significant increases in mean-total, performed and assisted operations of >45, 66 and 33% respectively (p<0.01). 58.3% of individual trainees and overall median of highest/lowest quartiles at year 1 remained in respective year 2 quartiles. Variations in operative case/work-loads existed between specialities; Trainees in one speciality recorded 106% and 205% more total and performed operations respectively than trainees in another. Speciality performances within training sites were not consistent with the top ranking general surgery site ranking the lowest in orthopaedics. Despite numerous factors since 2013 including the EWTD, operative goals in general surgery improved in 71% of parameters.

Conclusions
Introducing an algorithm to objectively score logbooks has positive impacts on operative numbers and is a worthwhile adjunct to a surgical training curriculum. It provides objective performance data on trainees, specialities and training sites.
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Residents’ perceptions of 360-degree evaluation

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Introduction

360-degree assessment is widely used in training programs. Research suggests that if trainees view feedback as valuable then it may improve performance. Our objective was to gather trainee perceptions of 360-degree evaluation.

We conducted an anonymous survey of all first-year Post-Graduate Trainees at Memorial University. The survey asked residents to rank each rater’s (Nurses, Allied Health Professionals, Senior Medical Students & Patients/Families) suitability to evaluate each CanMEDS competency on a 5 point Likert-type scale. Trainees were also asked if they believed they were qualified to evaluate Nurses or Allied Health Professionals competency. 22 (of 59 trainees) completed the survey. More than 70% of trainees agreed that Nurses, Allied Health, Senior Medical Students and Patients/Families should be involved in evaluating them on the Professional role. Greater than 70% of trainees agreed that Nurses should be also involved in evaluating them on the Collaborator, Communicator, & Manager roles. Greater than 50% of trainees disagreed that patients should be involved in evaluating them on the Manager, Medical Expert & Scholar roles.

68% agreed the 360-degree evaluation should be formative evaluation & only 24% agreed it should be used as criteria for promotion.

Male trainees were more likely to disagree that Nurses, Allied Health Professionals, Senior Medical Students & Patients/Families should be involved in evaluating competence for all CanMEDS roles. 59% of trainees agreed they were qualified to evaluate the competency of nurses.

Trainees perceived the 360-degree evaluation as a valuable tool for formative evaluation but not to be used as criteria for promotion.

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Trustworthiness of field notes in family medicine residency training: Does field note content provide evidence to support the validity of our decisions about residents’ competence?

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Introduction

The Calgary Family Medicine (FM) Residency Program implemented a new competency-based curriculum in 2012. To meet accreditation standards, the Program also implemented a new assessment program. As part of this, field notes (FNs) were introduced to record feedback and to provide data for decisions around competence and progress. Validation of inferences from data collected in field notes is sparse, particularly in relation to how the data can be extrapolated to competence and professional practice. This study investigates the quality and trustworthiness of FNs when their content is used to make decisions about a Resident’s competence.

Methods

Assessment data from FNs and in-program progress decisions were analysed for 20 purposefully selected Residents. The FN data was analysed, using a Formative Feedback Evaluation Tool (FFET) to score each field note for quality (scored 1-5). Independent, blinded raters used the FNs to decide on Resident progress and this was compared with the actual in-program progress decision for each Resident. The blinded raters also indicated their level of confidence in their decisions.

Results

On analysis of over 700FNs, the quality of the field note data was found to be sub-optimal (mean 2.22). The consistency of raters’ progress decisions was high (92%). Pearson product-moment correlation indicated a moderate positive linear relationship between the mean FFET score and the raters’ confidence level (r(34)= .68, p<.001).

Conclusion

The results provide evidence supporting the validity of assessment decisions based on data collected in FNs. The quality of the FNs appears important in supporting the trustworthiness of these decisions.
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Queen’s CBME: A community approach to institutional CBME adoption

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Introduction
The Royal College of Physicians and Surgeons of Canada (RCPSC) has begun the transition to Competency by Design (CBD). By 2022, all Canadian specialty programs are anticipated to have completed the CBD cohort process. Queen’s University has been granted approval by the RCPSC to embark upon an accelerated path (July 2017) to competency-based medical education (CBME) for all 29 postgraduate specialties. During this session we will highlight our change management process. Our unique institution-wide approach to CBD is the first of its kind across Canada. In this brief overview we share our approach to inform and support others as they prepare to implement CBME at their institutions.

Conclusion/Implications
In the first year, our CBME leadership team envisioned what implementation would look like institutionally and across each program in terms of resources and supports. We created networked working groups to support and enable the capacity building for CBME with a focus on scholarship, assessment, faculty development, project leadership, and program evaluation. Our Queen’s model supports a community of teachers, learners, and knowledge sharers working together through integrated networks. This has created opportunities to bridge and connect the various programs involved in the implementation of CBME on Queen’s campus, thus allowing us to build a community-based approach to the project in which residents, program directors and working groups are all actively engaged in CBME implementation and research.

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Implementing a competency-based approach to anatomy teaching: Beginning with the end in mind

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Introduction
In keeping with the CanMEDS 2015 Physician Competency Framework (Frank, Snell & Sherbino, 2015) this study sought to map the milestones for anatomy teaching according to the CanMEDS roles of medical expert, communicator and collaborator. Another goal of this research was to further test the hypothesis that a modified team-based learning (TBL) approach promotes increased student engagement and learning (Sutherland, Bahramifarid, & Jalali, 2013).

Methods
This study employed a mixed method approach. Quantitative data included student final scores. Qualitative data was employed via participant observation. A series of 8 anatomy labs were observed using a pre-designed interview protocol (4 using a modified team-based approach and 4 traditional labs).

Results
Through a series of direct observations comparing a Team-Based (TBL) approach to pedagogy versus a more traditional approach, we were able to demonstrate the students were more engaged (communicative and collaborative) in their learning through the TBL approach. Notably, we found students to spend more time on task (i.e., devoted more time engaging with the cadaver), as well as less reliance on the facilitator to “tell students the answers”.

Conclusion
Based on our findings, we have developed a matrix outlining appropriate milestones for the CanMEDS roles of communicator, collaborator and medical expert. It is anticipated that such milestones will enable students to better understand the progression and significance of their anatomy learning.
Defining competencies based on community needs: A case study on procedural skills in GIM

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Introduction
Competency based medical education mandates curricula to be organized around abilities required for graduates. A key step in defining competencies for independent practice is to better understand care needs of communities. This study defined training needs in procedural skills for Canadian General Internal Medicine (GIM) programs based on a Canada-wide survey of practicing General Internists.

Methods
Literature review and stakeholder input informed development of an online questionnaire covering 41 procedures performed by GIM physicians. The survey was sent to all Canadian Society of Internal Medicine (CSIM) members. Respondents were asked to comment on patterns of procedural practice by GIM physicians, community healthcare needs for procedures, and perceived training requirements for graduates. Survey data were corroborated in a symposium at CSIM’s annual meeting and triangulated with discussions at the GIM Specialty Committee of the Royal College of Physicians of Canada.

Results
127 practicing General Internists from a wide variety of practice settings completed the survey (11.4 % response rate). All 41 procedures were performed by at least 2 respondents. Triangulation of survey responses on practice patterns, community need, and skills for graduates generated consensus (>80%) for a proposed 17 mandatory procedures. Large group discussion (n=100) corroborated 14 of these. Consensus was finalized (> 80 %) at the GIM specialty committee for 14 mandatory procedures.

Conclusion
Practice patterns and community needs for procedures provided the foundation to achieve consensus on training requirements for procedural skills for GIM physicians in Canada. This allows educational standards to be built on community care needs.
Assessment of core procedural competencies amongst Canadian plastic surgery residents

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Purpose
Plastic surgery residency training programs are working towards integrating competency-based education into program curriculum and training, a key component of which involves establishing core procedural competencies. This study aims to determine the exposure of graduating Canadian plastic surgery residents to core procedural competencies.

Method
A retrospective review of case log procedure data using three databases (T-RES, POWER, New Innovations) from all 10 Canadian English-speaking graduating Plastic Surgery training programs between 2004-2014 was analyzed. Case logs were coded according to 177 core procedural competencies identified as ‘Core’ by the Delphi Method amongst an expert panel of Canadian plastic surgeons. Statistical analysis includes mean and standard deviation of aggregate data.

Results
A total of 58,377 procedures were logged by 55 graduating residents across Canada between 2004-2014 (average 1057.8±348.2 procedures/resident). Of the thirteen plastic surgery domains, 45% of all procedures were within either Hand, Upper Extremity & Peripheral Nerve (30.2%) or Non-Aesthetic Breast (15.0%). The most frequently performed core procedural competencies (average/resident) included: breast reduction (56.1±30.6), open carpal tunnel release (46.6±34.2), wound management (28.2±24.4), breast reconstruction–flap based (26.9±15.3), and non-melanotic cutaneous malignancy excision (26.8±34.7). Fifty-six of 177 procedures were logged on average less than once in 5 years of residency, including: escharotomy, temporal parietal fascia flap, Guyon’s canal release and soft tissue fillers.

Conclusions
This study identifies areas of significant exposure and underexposure of plastic surgery core procedural competencies, which can help focus surgical education on areas of greater need for surgical skills training and acquisition.

Early completion of specialty training: UK physician experience

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The Joint Royal Colleges of Physicians Training Board (JRCPTB) set the curriculum for the 29 recognised Physicnally specialties in the UK. It also makes recommendations to the General Medical Council (GMC) on each doctor’s completion of training. All specialties have had detailed competency based curriculum since 2007, but also relied on strict minimum training times based on completed years of training.

In 2014 a new policy was introduced to allow earlier completion of training provided all competencies had been acquired. This would normally be decided at the doctors ‘penultimate year assessment’ when the panel had detailed external scrutiny of the decision.

In the first year of operation the JRCPTB made 755 recommendations to the GMC and although the policy was operated very flexibly in the first year, only 19 (2.5%) early completions were actually recommended, for a mean of 6 months. The main reasons were for doctors who had already extended training in some way such as research, other out of program experience or prolonged less than full time training. During the same year 21 (2.8%) doctors had their training extended for a mean of 4 months because they were not making adequate progression.

We have found no evidence of a large unmet desire of doctors in training to accelerate their time spent in training. The numbers going ‘early’ and ‘late’ might suggest the current training time is about right in a UK, service heavy, context.

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**Competence By Design (CBD): Lessons learned during our first year**

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**Introduction**

The Department of Anesthesiology at the University of Ottawa launched its Competency By Design (CBD) residency program in July 2015. The launch was a culmination of several years’ intensive work by medical education experts, administrators, content experts, and faculty members. During the inaugural year of the program, multiple stakeholders, including faculty, residents, and administrators, met regularly to analyze program progress and challenges.

**Method**

A program evaluation framework was developed collaboratively by stakeholders. Key aspects of the framework were selected for ongoing analysis, including faculty development, technology-based teaching and assessment innovations, stakeholder satisfaction, teaching and assessment strategies, financial considerations, and scholarly dissemination. Multi-source information (from committees, resident focus groups, and evaluation survey results) was included in the analysis. Analysis was done using a debriefing framework: What went well? What was difficult? What would we do differently?

**Conclusions**

Extensive planning, expert input, and rapid response to program issues were all factors in the successful launch of the CBD Program at the University of Ottawa. Factors both internal and external to the program caused difficulties before and during the program’s first year. We recommend that those embarking on CBD be attentive to key issues such as quality and quantity of faculty development, stakeholder responses (faculty and residents), provision of technical support during the rollout of new technology, potential shortcomings of assessment strategies, prevention of cost overruns, and planning for scholarly dissemination. This analysis will be of key interest to the many programs beginning the transition to CBD-type frameworks.

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**Queen’s CBME curriculum development model: Designing with the end in mind**

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**Introduction**

Queen’s University was granted approval by the Royal College of Physicians and Surgeons Canada (RCPSC) for all residents entering July 2017 to follow a competency-based curriculum model. In order to support faculty in achieving this goal we developed the Queen’s CBME curriculum development model.

**Methods**

This curriculum development model brings together extensive work undertaken by the RCPSC with their Competency by Design (CBD) initiative, scholarly work conducted by medical education experts especially in the area of Entrustable Professional Activities (e.g., Ten Cate et al. 2015), and curriculum experts (Biggs & Tangs, 2011) and operationalizes it within the context of an institution-wide transition to competency-based residency education.

**Results**

Our six-phase curriculum development model includes: Defining stage specific outcomes (Royal College EPAs), estimating the length of stages, building consensus both departmentally and with the wider specialty communities, mapping EPAs to RCPSC enabling competencies, building programmatic assessment systems, and defining required ‘training experiences’ within this model, program design is conceptualized as an iterative process whereby previously completed phases are revisited and elaborated upon as program development unfolds.

**Conclusions**

We share our six-phase curriculum development model, discuss emergent adjustments, share tools we have created, and process support strategies we have implemented to realize our goal of institution-wide transition to CBME.

Take-home message: Curriculum development is an iterative process that must remain flexible to accommodate the cultural specificities among specialties and leverage learning gains across programs.
Effect of PGY training year on perceived readiness to perform Entrustable Professional Activities

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Introduction
The Family Medicine for America’s Health (FMAH) collaborative recently approved a set of Entrustable Professional Activities (EPAs) for the specialty, designed to serve as a codified set of activities that all practitioners in the specialty can reliably be expected to perform. One of the stated functions of EPAs is to allow the mapping of ACGME Milestones into clinical practice. The list of EPAs for family medicine was developed by the Board of Directors of the FMAH, with input from various North American family medicine societies. The extent to which family medicine residents, at graduation or at various stages of training, feel equipped to perform EPAs is not known.

Methods
This spring, twenty-four residents (six from each PGY class, and six incoming) will be asked to complete the “ProMedica Monroe Family Medicine Entrustable Professional Activities Survey,” which asks residents, for all 20 EPAs, to 1) identify their readiness to perform the EPA on a 9-point Likert scale, and 2) endorse their level of PGY training. The survey will be distributed and collected by the residency administrative staff.

Results
Readiness levels for each EPA will be assessed in the aggregate and separated by PGY level. Mean and standard deviations will be reported. Advanced statistics will not be used in this pilot study; rather, descriptive comparisons will be made between EPAs and training levels.

Conclusions
Intended conclusions will include the level of variability of perceived readiness among different EPAs, and the extent to which perceived readiness advances with progressive training levels.
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**From theory to practice: A framework for guiding the design, implementation and evaluation of competency-based medical education programs**


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**Introduction**—Competency-based medical education (CBME) consists of many interacting components. Under conditions of such complexity it is suggested that creating a shared framework can be a useful tool to guide program design, implementation and evaluation. The purpose of this research was to develop and validate such a framework for CBME.

**Methods**—Creating such a framework is a challenging task, particularly in the case of CBME where there is an absence of empirical data identifying which components may be critical. Consequently, development of a model began with a review of the literature and written materials. Next the framework was validated for content using a modified Delphi approach.

**Results**—The initial model featured five core components; framework, progression, tailored experiences, competency-focused instruction, and programmatic assessment. Although the existence of five components was supported, the use of the word ‘progression’ was identified as problematic. The idea that competencies can be progressively arranged and/or acquired was questioned. The framework was adjusted accordingly with the final version illustrating how each component is linked systematically to underlying conceptual frameworks, principles and practice.

**Conclusions**—This framework can serve as a useful guide to design and implement a CBME program with high fidelity. Understanding ‘fidelity of implementation’ is also important in program monitoring and evaluation. Developing such a framework however, is an iterative process. Future work will focus on convergent validation as the framework is applied across programs.

**Take-home message**—CBME is a complex innovation. Program design, implementation and evaluation can be strengthened using a core components framework.

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**Perspectives on the implementation of flexible and time independent PGME programs - the clinical work floor**

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With the introduction of CBME the field of medical education is changing rapidly, and although the full effects of CBME are still under debate we already see next level innovations: the emergence of flexible and time-independent curricula.

PGME and clinical service are interrelated, because residents play an important role in service delivered by teaching hospitals. Implementing flexible education in complex organizations like teaching hospitals can therefore be a hard process in which the effects are unknown. The purpose of this study is to explore the effects of flexible PGME on the clinical work floor.

**Methods**

Using a phenomenological design we conducted interviews with clinical teachers and department managers to gain insights into the experienced effects by the participants. We purposeful sampled 14 participants, eight clinical teachers, and six medical managers, representing six specialties, eight departments and six hospitals. The data was analyzed with the help of theories of innovation and change in complex organizations.

**Results**

Flexible, time independent curricula where seen as a logical consequence of outcome-based education, but the participants perceived substantial problems with the implementation of flexible curricula. We classified these problems under two main denominators: Effects on clinical service - problems in scheduling, effects on task allocation and health care quality. And the changing role of the clinical teachers and workplace based education – like fragmented supervision and declining responsibility by residents.

**Conclusion**

The results indicative that the implementation of flexible curricula can have severe side effects in teaching hospital organizations, manifesting on different organizational levels.
Supporting change: Survey of postgraduate obstetrics & gynaecology programs across Canada to inform the development of a pan-Canadian competency-based curriculum

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Introduction
The Royal College of Physicians and Surgeons of Canada has called for the implementation of competency-based residencies. An understanding of the structure of current Canadian OB/GYN residency programs is necessary to guide the development of a pan-Canadian curriculum, specifically: (1) The timing of rotations in OB/GYN residency programs; (2) The rotations in which CanMEDS and Royal College competencies are taught/assessed; (3) Identification of similarities and differences between program structures, and the teaching/assessment of training objectives.

Methods
The 16 OB/GYN residency programs across the country were invited by email to complete an online survey containing three sections: A fillable grid outlining the scheduling of rotations from PGY1-5, a second grid identifying rotations where intrinsic CanMEDS competencies are taught, and a third grid identifying rotations where each of the Royal College competencies are taught. Qualitative analysis of the data was performed to characterize similarities and differences between programs.

Results
The basic structure of residency training programs is similar, with few differences regarding the timing of rotations throughout training, and lesser discordance between the types of rotations in each program. Additionally, CanMEDS and Royal College objectives are addressed similarly across programs country-wide. Finally, training programs share similar deficiencies in meeting certain objectives.

Conclusion
These data support the feasibility of the development of a pan-Canadian competency-based residency program. Further qualitative studies are needed to gather input from those involved in curriculum development to inform the creation of such competency-based residency program.
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**Focusing change: Assessment of obstetrics and gynaecology faculty needs with respect to competency based medical education to inform Pan-Canadian faculty development priorities**

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**Introduction**

Faculty development and engagement will be crucial in implementing Competency-Based Medical Education (CBME). An understanding of faculty knowledge of CBME and perceived faculty needs will aid in the design of successful faculty development programs for CBME.

**Methods**

Faculty of OB/GYN residency programs across Canada were invited by email from their respective departments to complete an online survey that explored: 1) Current assessment challenges; 2) Perceived benefits/challenges of CBME; 3) Faculty familiarity with assessment tools; 4) Perceived faculty development needs and their relative priority; 5) Faculty expectations of the role of APOG in addressing these needs. Data from the 270 respondents was aggregated to inform pan-Canadian faculty needs to be addressed by APOG. Departments were given the data from their respective departments to address department-specific needs and for use in accreditation.

**Results**

1) Faculty believe that time and resources need be made available to allow for direct observation, assessment, and feedback; 2) CBME is viewed in a generally positive light but is not well understood; 3) Identified needs are for an improved understanding of: a) CanMEDS 2015, with focus on the Intrinsic Roles, b) assessment tools and schemas, c) techniques of feedback provision, highlighting strategies for the resident-in-difficulty, and 4) the need for development of simple electronic assessment platforms.

**Conclusion**

These data will help inform and prioritise the construction of faculty development resources both nationally and departmentally.

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**Informing change: Academic Professionals in Obstetrics & Gynecology (APOG) project to determine the current state of readiness for the implementation of competency-based medical education (CBME) in obstetrics & gynecology in Canada and to provide guidance as to development of resources by APOG to support the roll out of CBME in our specialty**

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**Introduction**

- It is important to explore faculty thoughts and experience regarding Competency-Based Medical Education (CBME) in light of the future implementation of competency-based residency training outlined by the Royal College. APOG is committed to support CBME development and implementation. Exploration of faculty experience with CBME, with emphasis on nuances of teaching, observing, and evaluating residents in a competency-based framework is needed to inform this process.

**Methods**

- At the December 2015 APOG Annual meeting APOG members interested in becoming involved in the implementation of CBME, with an emphasis on program directors, were invited to participate in a focus group facilitated by a European expert in CBME (REB# 32096). Data from the thirty-seven participants was transcribed and analysed using thematic analysis.

**Results**

1) CBME merely codifies and strengthens our current practices of ensuring that we graduate competent practitioners by employing familiar tools; 2) Need for pan-Canadian development of core content that can be tailored to local needs with sharing of assessment tools and schema; 3) Process issues including remediation, implementation of entrustment, and flexibility in training; 4) Importance of faculty development with emphasis on assessment and feedback skills, and CanMEDS 2015, focusing on the Intrinsic Roles; 5) Culture shifts are needed to support assessment and accommodations that allow for direct observation of trainees.

**Conclusion**

These data is being used by APOG to inform the development and implementation of CBME initiatives, with a focus on faculty development.
Initiating change: Implementing CBME in REI/PAG and MFM in the postgraduate obstetrics & gynaecology program at the University of Toronto

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Introduction
Competency-Based Medical Education (CBME) is central to the Royal College's current shift in medical education. A CBME pilot trialing frequent formative workplace-based assessment was launched in 2014 in selected sub-specialty rotations in our department. Assessment of the rollout aimed to address the research gap in culture change in Canadian implementation of CBME initiatives.

Methods
A qualitative approach to analysis of the rollout was performed after the first six months (REB# 30601). Four focus group sessions were held in January 2015 – two for residents (n=13), and two for faculty members (n=12) from REI/PAG and MFM respectively using an outside facilitator. Data was transcribed and analysed using thematic analysis and conceptually clustered matrices.

Results
Four major themes emerged 1) Lack of knowledge about CBME prior to rollout; 2) Overall experience - feedback was meaningful, but the process was cumbersome; 3) Advantages - improved feedback, evaluation of all CanMEDS roles, provision of a documentation trail and promotion of faculty-resident interaction; 4) Suggestions for improving CBME rollout - electronic evaluations, ongoing faculty development, reduction in evaluation frequency from daily assessment and implementing assessment in a more procedure-based rotation.

Conclusion
This information was used to guide our next steps. A smartphone based assessment platform was developed to make assessment and data collection/dissemination easier, the feedback goal was reduced to 3/week, a short assessment tool was added, and faculty development initiated. The pilot has been expanded to Urogynecology and Ultrasound rotations and rotation-specific assessment rubrics developed.
Educating for quality and safety
Formation en sécurité des patients

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This abstract has been withdrawn / Ce résumé a été retiré

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Learning handover: A qualitative analysis of internal medicine resident and faculty perceptions
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Introduction
Resident duty hour restrictions and increased interest in patient safety have highlighted the importance of handover in patient care. The Accreditation Council for Graduate Medical Education recommends that all training programs have formal curricula in handover but handover education for residents is variable. This begs the questions: how are residents learning about handover and how are faculty teaching it? No perceptions of what works, or what is missing, from the perspective of the learner or teacher is available to educators. Our study explored resident and staff perceptions of learning and teaching handover.

Methods
Semi-structured interviews were conducted with 16 residents and 15 faculty from the Queen’s University Internal Medicine program. The questions explored experiences related to handover education. Three investigators analyzed the interviews using grounded theory methods to identify themes that are important in handover education.

Results
Learning handover is identified as the development of a skill over the course of training. It occurs in tandem with the process of becoming a doctor and involves multiple roles within the CanMEDS framework. Both residents and faculty describe a lack of observation and feedback surrounding handover, although this is cited as an ideal method for teaching and assessing handover.

Conclusion
Learning handover is an experiential and developmental process that occurs over time in residency. The teaching of handover could be enhanced by interactive methods in addition to didactic teaching. The perspectives of residents and teachers can be taken into account by educators to enhance learning handover and further promote patient safety.

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Resource stewardship curriculum: Teaching internal medicine and pediatric residents to communicate effectively with patients to avoid potential harm from unnecessary diagnostic tests
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With rising healthcare costs and focus on quality, there is a growing need to promote the CanMEDS role of communicator in resource stewardship.

Objectives
1) Deliver a curriculum on resource stewardship to develop residents’ communication skills about unnecessary testing;
2) Evaluate the effectiveness of this curriculum in improving resident knowledge and communication.

Method – Participants were residents in postgraduate internal medicine and pediatrics programs.
Phase 1 was delivering a workshop on resource stewardship with a focus on developing communication skills to counsel patients about unnecessary testing.
Phase 2 was a formative observed structured clinical examination (OSCE) station used to evaluate residents’ communication skills with patients who are requesting an unnecessary diagnostic test.

Conclusion – Out of 83 residents, 57(69%) attended the resource stewardship workshop and scored significantly better on the knowledge questionnaire than residents who did not attend the workshop (4.25 ± 1.90 vs. 3.09 ± 1.65 out of 8, p=0.01). The mean score on the structured assessment scored by standardized patients was 3.95 ± 0.68 on a 5-point Likert scale. Both higher training level and higher score on the knowledge assessment were independent positive correlates on linear regression analysis of better overall performance on skills assessment.

This study demonstrates that an easily implementable resource stewardship workshop can improve residents’ knowledge, which in this study correlated with improved performance on a structured assessment of communication skills. This is one step in ensuring that these necessary skills can be transferrable into actual practice, to ensure delivery of high-value care and prevent overuse.
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Quality improvement and appropriateness in residency education: A novel example

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Introduction
A special addition to the 2015 CanMEDS guidelines for residents included system resource management. For the medical imaging specialty, this often translates to ensuring exam appropriateness, which has become a front line discussion topic and mounting concern in Canada, particularly due to the lack of timely access to magnetic resonance imaging (MRI) exams and the resultant health care system burden. The extent to which residents are being educated about appropriateness, or are able to provide input into such quality improvement concerns is unclear.

Methods
We conducted a nationwide study exploring current practice variation among MRI-related operations within Canada. All 16 Canadian academic medical imaging departments with residency programs were invited to participate in a facility-level survey. Data pertaining to residency education concepts were reviewed.

Results
The 13 participating institutions reported great variability in current MRI practices and utilization including scanner operating hours, request forms, prioritization/triaging processes and use of referral appropriateness guidelines. Furthermore, appropriateness training within Canadian medical imaging residency programs appears scarce and limited, with few strategies or methods currently available to enhance resident involvement.

Conclusion
The study revealed opportunities to create more standardized and consistent facility-level processes across Canada to minimize the occurrence of inappropriate MRI exams. Our study methods demonstrate a novel example of how medical imaging residents can become more involved in resource stewardship, appropriateness and improvement initiatives. We hope that by sharing our work and experiences, residents from all disciplines will be empowered to become involved in improving healthcare policies, quality, and patient safety.

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A collaborative approach to developing and delivering a multi-modal quality improvement and patient safety curriculum for emergency medicine residents

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Introduction
The 2015 CanMEDS has an increased focus on competencies related to Quality Improvement and Patient Safety (QIPS). A survey of the 13 Canadian FRCP Emergency Medicine Residency Program Directors revealed that 75% of programs have QIPS curricula with 84% of the curricula in the form of didactic lectures. Lectures alone do not expose learners to the practicality of conducting a QIPS project. Furthermore, QI initiatives require working in interdisciplinary teams. We therefore hypothesize that an effective QIPS curriculum will require multiple education methods delivered using a multi-disciplinary lens.

Method
A QIPS curriculum for emergency medicine residents at the University of Toronto (U of T) was developed using multiple educational methods by physicians and non-medical QI specialists. Three levels of QIPS training were addressed: Knowledge (lectures), practical skills at the clinical microsystem level (local QI project), and practical skills at the organization level (case method). The lectures are taught by physicians involved in QI at the departmental and senior management levels. The teaching cases were created with healthcare management consultants using data from a real hospital-wide QI initiative. PGY5s are taught using the case method, where learners dissect the issues, propose actions, and discuss their recommendations with management consultants, who then disclose the real case outcomes and the lessons learned.

Conclusion
A QIPS curriculum for emergency medicine residents at U of T was developed collaboratively. Multiple teaching methods address all three levels of QIPS training, including a novel use of the case method outside of business schools.
A national needs assessment survey for the development of a quality improvement and patient safety curriculum for Canadian emergency medicine residents

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Introduction
The 2015 iteration of the Canadian Medical Education Directives for Specialists (CanMEDS) framework emphasizes Quality Improvement and Patient Safety (QIPS). However, the opinion of Emergency Medicine (EM) program directors (PDs) regarding the need for QIPS curricula is unknown, as is the current level of knowledge of EM residents in QIPS principles.

Methods
We developed a national multi-modal needs assessment, including a survey of all Royal College EM residency PDs. We also evaluated the baseline QIPS knowledge of 30 EM residents at the University of Toronto (UT) using the Revised QI Knowledge Application Tool (QIKAT-R), a validated tool that evaluates understanding of system-wide issues and change initiatives.

Results
Eight of the 13 (62%) PDs responded to the survey, unanimously agreeing that QIPS should be a formal part of residency training. However, challenges identified included the lack of qualified and available faculty to develop and teach QIPS material. 30 of 30 (100%) residents spanning three cohorts completed the QIKAT-R. Median overall score was 11 out of 27 points (IQR 9-14), demonstrating the lack of poor baseline QIPS knowledge amongst residents.

Conclusions
QIPS is felt to be a necessary part of residency training, but the lack of available and qualified faculty makes developing and implementing such curriculum challenging. Residents at UT consistently performed poorly on a validated QIPS assessment tool, confirming the need for a formal QIPS curriculum. We are now developing a longitudinal, evidence-based QIPS curriculum that trains both residents and faculty to contribute to QI projects at the institution level.

Relevant and critical issues in implementing a patient safety and quality improvement program

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Introduction
Background/Objective: There is ongoing discussion on how best to integrate patient safety and quality improvement (PSQI) into residency education. Prior to onboarding a novel PSQI curriculum for first-year residents at the University of Saskatchewan we explored issues that would further guide its successful implementation. Specifically, this project was carried out to examine resident perceptions on how PSQI can be made relevant as well as the most critical issues in their programs.

Methods
322 (73%) residents responded to the on-line survey. The open-ended questions elicited a wide variety of responses; 9 and 10 themes were identified on relevance and critical issues respectively. Residents were placed into 2 groups (RCSC and CFPC) and data analyzed using percentages, the z-test for 2 population samples and chi-square test.

Results
Major themes on resident perceptions of making PSQI relevant are: applicability to current issues (16%); resident engagement (12%); provision of protected time (8.8%). Perceptions of RCSC and CFPC residents on 2 themes (make curriculum specialty-specific and provide PSQI materials were significantly different (p< 0.05). Transitions of care (16%), patient load (16%) and resident issues (e.g. fatigue, supervision 6.8%) were perceived as the top critical issues. Overall and on the themes around patient load and resident issues, resident perceptions were significantly different across the two groups.

Conclusion
Results of this study will particularly inform program-specific and system-wide issues to be addressed in order to ensure the smooth onboarding of the new PSQI curriculum. Identified critical issues would also guide the choice of QI projects.
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Resident perspectives on barriers and considerations for integrating quality improvement and patient safety into their training

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Background/Objective
Quality improvement and patient safety (QIPS) have become a fundamental component of residency training. However, the success of QIPS initiatives is contingent on their applicability in the settings in which they are provided. This study examined resident perspectives on barriers and the most important considerations for integrating quality improvement and patient safety into their residency training.

Method
An on-line survey was administered via fluidsurveys to all 443 residents in 21 programs at the University of Saskatchewan. Response rate was 73%, consisting of 84 CFPC and 238 RCPSC residents. Trainees were asked open-ended questions on barriers/challenges as well as methods for implementing QI and PS in their programs. Responses were coded into identified themes and data analyzed using descriptives, z-score and chi-square tests.

Results
Top perceived barriers were curricular (19%), learner (18%), and learning environment (17%) factors. Implementation strategies that had the highest percentages were: Incorporating into practice or training (20%); formal training integrated into curriculum (16%), and having a QI project or research (14%). Overall, and by theme, resident perspectives on barriers and implementation were not significantly different (p > 0.05) across residency programs (family medicine vs. specialty).

Conclusion
The results of this study will be useful in providing further direction for onboarding QIPS curricula to residents at both program and system levels. The identified themes may also be applicable to other settings including undergraduate medical education.

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A Patient Safety and Quality Improvement (PQSI) curriculum: A collaborative initiative between academic and clinical institutions

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Introduction
There is growing recognition that sustained healthcare improvement requires engagement of both academic and clinical stakeholders. Our goal was to examine the current state of Patient safety and quality improvement (PSQI) resident knowledge and training in the Saskatoon Health Region (SHR) and to develop a dedicated PQSI curriculum to extend current training programs.

Methods
A multiphase mixed methods design was employed. Phase I: Assessment of gaps: 450 residents and 17 programs were surveyed on PQSI knowledge. Phase II: Development of curriculum: An expert working group comprised of key stakeholders developed the PQSI curriculum. Phase III: Preliminary results on resident satisfaction on pilot curriculum were obtained.

Results
The majority of residents reported minimal-to-no PSQI knowledge (83%) and experience (72%). 94% of the programs identified limited QI initiatives; however, 57% of surveyed residents were not aware of any current projects. Curriculum development was aligned with existing PSQI orientation processes within SHR as well as RCPSC and CFPC. Deliverables included program blueprint and curriculum, flow map, online training modules, instructor guide, and program evaluation tools. The curriculum is currently being piloted in Medical Imaging; mid-program reaction survey of the residents (Mdn’s = 4; 1= completely unsatisfied and 5=completely satisfied).

Conclusions
Resident training in PSQI engages all stakeholders and can form a key element linking stakeholders across health regions and the curriculum can be adapted to meet the needs of residents in distributed sites.
Health policy and residency education
Les politiques sur la santé visant la formation des résidents

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Medical residency in Brazil: Preliminary results from a major transformation (an ongoing revolution?)

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Introduction
Since the approval of a new law called “Mais Médicos para o Brasil” (More Doctors for Brazil) by the Congress in October 2013, several actions were triggered in three major areas: expanding and improving health infrastructure, transformation of medical education according to the needs of the Brazilian Unified Health System, and emergency provision of physicians in critical areas. To ensure the universalization of medical residency positions by 2018, actions are also being carried out to increase the number in all specialties, mainly in Family Medicine - mandatory by law for virtually all graduates - which would involve multiplying by more than ten times the number of currently available positions.

Methods
The proposed changes in the legislation clearly point to a major reformulation in the health and educational systems, which should be integrated to a primary care model. Concurrently, efforts are being made in terms of preceptors training, financial incentives and enforcement of evaluation mechanisms of medical education across the country. As to this moment, the number of residency grants paid by federal agencies more than doubled and there were several initiatives for decentralized training preceptors through different educational institutions.

Conclusions
The results at this time are promising but monitoring tools for any adjustments must be guaranteed. Medical residency in Brazil is part of a highly complex context that involves political and technical articulation between government agencies, medical institutions, universities, training centers and the state and municipal health representatives.

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Graduating residents’ awareness and perception of the quality of training in the Saudi board of Urology

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Introduction
The scientific council of the Saudi board of urology (main training body) implemented its updated new core curriculum in 2014. This version incorporated the introduction of competency based clinical objectives and the CanMEDS framework. In order to assess the current status of urology trainees and their awareness of the existing resources as well as their needs to improve the training, a comprehensive survey was conducted on all graduating residents.

Method
Twenty graduating (PGY5) residents from the four main training regions (central, western, southern, eastern) were anonymously surveyed. The survey consisted of 57 questions covering social, demographic, training quality, availability of resources and needs.

Results
A 100% response rate was obtained. All residents believe that training had impacted their social life. There was discrepancy in perception of adequacy of clinical exposure between different regions (mainly in Pediatric urology, Urologic oncology, and infertility/Erectile dysfunction). There was a clear perception of deficiency in exposure to Female urology, laparoscopy/robotic, transplant and reconstructive urology across all regions. However, residents were satisfied with their training in endourology and trauma across the kingdom. Most residents were aware of their core curriculums’ contents. In addition, they believe that simulation, animal lab and research are integral parts of training, however, few programs have integrated them.

Conclusion
There is a clear discrepancy in training perception as well as resources between different regions. The scientific board will work to overcome these challenges by encouraging cross rotations between programs, increasing clinical exposure and incorporating additional educational, training and research methodologies.
Predictors of high scores in the American College of Radiology In-Training Exam (DXIT): A Canadian multicenter study

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Introduction
Training programs implement various methods to ensure trainees are attaining certain benchmarks during residency. The American Board of Radiology In-Training Exam (DXIT) is one example. We aim to identify predictors of high scores on DXIT.

Methods
An internet-based questionnaire was distributed to 263 residents in 11 Canadian radiology training programs inquiring about various study habits. DXIT results and residency levels were collected by a follow-up survey and from consenting residents' programs. Hierarchical multiple linear regression was performed.

Results
80 residents responded. DXIT scores were collected from 63 participants. The average number of hours spent studying per week was eleven (SD = 8.6). The average number of hours slept per night was 6.75 (SD = .9). The mean DXIT scaled score was 61.61 (SD = 10.8).

Controlling for participants’ residency training program, our model accounted for 61.9% of the variance of DXIT scores (p < .001). Significant predictors (p < .05) were the residents’ programs, the average number of hours slept per night and residency level. The number of hours spent studying per week was not a significant predictor.

Conclusion
Our results concur with non-radiology literature on the effect of sleep and residency level on exam performance and could help radiology residents’ exam preparation.

The detected significant difference among various accredited residency programs and non significance of the number of hours spent studying is unexpected and warrants exploration.

Investigating reasons for significantly different scores between universities could potentially enhance some programs’ performance.
Selection criteria for new urology residents in Saudi Arabia

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Introduction
Continuing and improving in Urology totally rely on upcoming residents, so choosing residents is critically important for improving surgical education and patient care. Unfortunately, there is no objective criteria can be used for selecting new residents in our country. Selection based on subjective criteria.

Method
a web-linked survey was distributed among the 8-urology training centers in Saudi Arabia, we applied the CanMed role as the framework of the survey.

Result
45 responses have been collected including (29.27%) 12 Head of departments (19.51%) 8 program directors and (51.22%) 21 staff, 4 skipped this question. The two important criteria found in personal block was enthusiasm as high important with (95.5 %) 43 followed by expressing him self with (84.4%) 38 of participant. In the knowledge part the two important was undergraduate college (60%) 27 and GPA (60%) as high important. In the social part the most important criteria was cope under pressure (77.78%) 35 as high important followed by good recommendation (57.78%) 26. Surprisingly more than 70% of participant thinks that marital status and gender have low or not important although female Urology residents are minority in Saudi Arabia.

Conclusion
This study clearly shows the important factors used in Urology resident selection in Saudi Arabia as its first study in this field. Although there is inter-urologist difference but there is general agreement regarding selection criteria. Enthusiasm and personal interest in Urology was the most important factors in general for selection.
An advocacy and leadership curriculum for medical students

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Introduction
Physician advocacy and leadership is increasingly recognized as an important part of our social responsibility, and many physicians practice advocacy on the patient, institutional and community/population levels. Frameworks, such as CanMEDS, have set out definitions of health advocacy and leadership for medical education. Despite the significant benefits of physician advocacy training, presently medical curricula do not usually teach practical advocacy and leadership skills to medical students. Ethically, advocacy must always take place in partnership with populations served.

Method
A collaboration of over twenty medical students and professors from across Canada worked over the past year to survey students, conduct curriculum mapping, examine current literature and Canadian practices in order to inform the creation of an Advocacy and Leadership Curriculum (ALC).

Results
A competency- and milestone-based ALC was created and reviewed. CanMEDS-based Learning Objectives, divided into theoretical, skills-based, and application-based categories, form the core of the program. The curriculum prepares medical students for real-world advocacy through longitudinal projects, interdisciplinary work, and community-based service learning. Engagement of other health professionals and physician advocates to act as advocacy preceptors is central to the curriculum.

Conclusion
The result of a wide collaboration, the Advocacy and Leadership Curriculum serves as a model for the training of socially responsible medical students who are conversant in advocacy techniques, able to advocate with patients, within institutions, and with populations, and are literate in health law and policy. Projects in service to communities will help to increase medical school social accountability.
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Towards a common, international competency based curriculum in medical leadership

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The CanMEDS Physician Competency Framework is an education framework that has been adopted and/or adapted internationally. In 2015, the Framework reframed the physician as Leader and increased emphasis on leadership competencies. As the optimal way of developing leadership competence in medical trainees is unclear, international experience and expertise can be harnessed to develop a common curriculum for leadership training.

Methods
In 2014, the University of Toronto and the Royal College (Canada) began annual international summits on leadership education for physicians inviting patients, learners, medical educators, leaders, health professional, medical and business faculty. Participants worked on the enablers and challenges with leadership development and on curriculum development. Authors independently reviewed transcribed notes, Twitter feed data (#tislep2014) and Powerpoint presentations and distilled emergent themes.

Results
Sixty-four participants attended the 2014 summit. Three themes emerged: Knowing yourself – medical leadership rests on “being” as well as on skills; Understanding others – leaders must be attuned to others’ perspectives and appreciate the local context; and Attending to both process and outcomes– leaders do the right things the right way and adjust to meet measurable outcomes. These themes were noted to align with the LEADS leadership framework.

Conclusions
The initial effort at developing a common curriculum in medical leadership has been a success, attracting engaged participants and generating important themes on which to base further work. Synergy in curriculum development may be achieved by overlaying a competency-based education framework such as CanMEDS with a leadership framework such as LEADS. Work is underway in this regard.

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Experience, efficacy and motivation: Factors influencing leadership behaviors and developmental readiness in resident leaders

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Introduction
Physician leadership is a key competency in Canadian medical education. However, no validated model and theory for leader development exists. Research has demonstrated the importance of developmental readiness (DR; ability and motivation to learn) before the onset of leader development. This study explored factors of leadership experience, motivation and efficacy in resident leaders and the impact of these factors on DR for leadership and leader behavior.

Methods
Survey data from 25 Chief residents (CRs) was used to measure the relationship (correlations) between leadership experience, motivation and efficacy and examined between-group differences (Kruskal-Wallis tests) of these variables on DR (goal orientation, self esteem, self concept, meta cognitive ability) and leader behavior.

Results
No associations between leadership experience, motivation or efficacy were observed (p’s>.05). Differences in leadership experience did not impact any aspects of DR or leader behavior (p’s>.05). However, CRs with higher levels of leadership motivation had significantly higher levels of goal orientation (X²(1)=6.56, p=.01; less concern about impressing others or making errors); CRs with higher leadership efficacy scored higher on meta cognitive abilities (X²(1)=4.55, p=.03; increased knowledge about cognitive processes) and had significantly higher scores on transformational leader behaviors (X²(1)=6.55, p=.01; visionary vs. managerial style of leadership).

Conclusion
Results highlight how important individual factors such as leadership efficacy and motivation can positively impact approaches to learning, thinking and behaving in a leadership role; leadership experience yields less effect. Understanding the attributes of learners and how this affects leadership development is paramount to better structure leadership training initiatives in residency.
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**Leader and Collaborator CanMEDS Roles: Development of a new curriculum using a b-learning methodology**

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In order to improve patient care, the CanMEDS framework has identified different competencies that should be promoted and be part of the training to medical residents. The challenge, is to provide training within a very busy and demanding program. We describe two courses developed using b-learning methodology, based on the CanMEDS Roles of Leader and Collaborator, offered as part of the residency programs of a School of Medicine in Chile. Using b-learning strategies (which combines face-to-face and online lectures), we provided residents (43 in total) with knowledge and skills about teamwork and leadership, aiming to develop and promote competencies required by these Roles as part of their academic and professional training.

The courses included contents and activities defined by CanMEDS for these roles. A psychologist, expert in leadership and teamwork, supervised this work and the material developed. Each course was divided into seven online lectures and three face-to-face workshops. The online lectures included videotaped lectures, Powerpoint presentations, homework and reading assignments. Practical activities were planned in the workshops in order to promote skills development.

Students completed two written examinations and a weekly homework (application and reflection on the topics reviewed), as part of the evaluation. We assessed attitudes towards these roles and satisfaction, using surveys. A preliminary analysis indicates high satisfaction with the courses and positive attitudinal changes towards these roles. Our results suggest that this methodology can be successfully used to promote these roles among residents, who have very busy schedule and trouble finding time to develop these competencies.

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**Uncovering the rationale behind medical leadership frameworks**

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**Introduction**

It is widely acknowledged that doctors should gain leadership capabilities. Numerous medical leadership frameworks have been developed which describe a range of leadership related factors, from ‘challenging the status quo’ to ‘empowering employees’. However, it is not made explicit to which theoretical models these components relate. This is problematic, since this way a large body of knowledge on how different leadership forms and styles can be developed is left unused. This article aims to uncover the rationale behind leadership frameworks by looking at the frameworks through a theoretical lens.

**Methods**

General leadership literature was consulted in order to develop a literature driven coding scheme. The content of the coding scheme was discussed during 30-minute expert interviews and adjusted accordingly. After the interrater reliability of the coding scheme was found satisfactory, all medical leadership frameworks were coded by the research team.

**Results**

Three forms of leadership were identified: lead self, lead daily practice (informal, inherent to doctor role) and lead others (formal). Moreover, three levels of impact were distinguished: impact on a micro-level (self), on a meso-level (teams) and on a macro-level (society). These results related different leadership models, including self-management, proactive behaviour, organizational citizenship behaviour, work engagement, leader-member exchange theory, transformational- and transactional leadership and ethical leadership.

**Conclusion**

Medical leadership frameworks are the sum of many leadership models, put together through Delphi studies and expert opinions. By explicitly disentangling the different leadership models, a big body of theoretical knowledge can be used in order to develop great physician leaders.
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Developing a digital platform that facilitates medical resident collaborative learning: The MedEngine usability testing protocol

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Introduction
We completed the first development phase of a comprehensive e-learning platform, MedEngine, designed to assist medical residents to actively collaborate with their peers to develop a shared understanding of the complex topics included in their training. The present beta-version platform is available as a website and on iPad and is currently being used by residents and clinical educators. It facilitates three types of interaction shown to increase the effectiveness of e-learning: learner-content, learner-teacher and learner-learner interaction. In this study we plan on testing the usability of our file hosting and social media platform for graduate medical education.

Methods
Eligible participants are residents rotating through or clinical educators based at the University Health Network or Mount Sinai Hospital in Toronto, Ontario. Approximately 50 users will have enrolled at study completion. Qualitative assessment of the application’s usability will take place in two ways: 1) Users will be asked to send ongoing feedback to the investigators via an in-app feedback button, and 2) At the end of each month, users will be asked to complete a survey and participate in an interview both relating to the usability of MedEngine.

Conclusions/Implications
Initial results indicate that residents and staff most frequently use the platform for sharing learning resources and less so for communication. Survey comments suggest that deficits in usability and low user interest in communication contribute to low usage of the communication features. Survey and interview results will inform the next phase of development that hope to improve the platforms usefulness and usability.

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Development and pilot of an online pediatric antimicrobial stewardship virtual patient learning module

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Background
Antimicrobial stewardship (AMS) programs are coordinated interventions to assess and improve the appropriate use of antimicrobials. AMS principles include optimization of diagnostic evaluation, antimicrobial selection, dosing, administration route, and treatment duration. A proposed method for prescriber education about AMS principles is the virtual patient (VP) learning module. VP modules are simulation-based computer programs that interact with learners to enhance clinical reasoning. The effectiveness of VP modules in AMS education has not been evaluated. We developed a VP learning module to educate pediatric residents regarding AMS principles.

Methods
A team of pediatric infectious disease (ID) physicians and ID clinical pharmacy specialists designed the VP module using the online platform DecisionSimTM. The clinical scenario was complicated pneumonia. Decision points were based on AMS principles. The module was evaluated for content validity by 4 faculty reviewers using a reviewer checklist. The appropriateness of the case and ease of navigation were evaluated by 3 residents from other ID and pediatric programs using a validated survey.

Result
All 4 faculty reviewers agreed that the case represented a typical clinical scenario. Three of 4 reviewers agreed that the case triggered the learners’ clinical reasoning. One reviewer felt that the case encouraged over investigation. The case was edited based on reviewers’ comments. All 3 residents agreed that the module was easy to navigate and reflected a real life case.

Conclusion
AMS principles were incorporated into a clinically relevant VP learning module. Evaluation of the effectiveness of this module for improving learners’ AMS knowledge is ongoing.
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Online resident learning of chest x-ray interpretation: A study of mixed versus blocked practice

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Introduction
Learning complex visual diagnostic skills may be facilitated by instructional design choices such as blocked versus mixed practice. While educational literature favours mixed practice, foundational knowledge may be required before its benefits are realized. Furthermore, mixed practice may hamper learning by increasing cognitive load. Should medical residents, who have a basic approach to CXR interpretation, learn common elements through blocked practice or distinguishing features through mixed practice?

Methods
University of Toronto internal medicine residents (PGY1-3) were randomized to one of two self-study modules. The blocked module presents practice CXRs after each category is taught, while the mixed module presents the same images in random order after all categories are taught. Participants interpreted 20 novel radiographs immediately and 2-weeks after module completion. The primary outcome was immediate post-test diagnostic accuracy.

Results
Forty-four residents participated (23 blocked; 21 mixed) with seventeen and sixteen completing follow-up respectively. Training level (1.4 vs. 1.8;p=0.05), CXR experience (3.1 vs. 3.3/5;p=0.2) and module difficulty (5.0 vs. 5.2/9;p=0.6) were similar between blocked and mixed groups. We found no significant difference in mean diagnostic accuracy between blocked and mixed practice on immediate or 2-week testing (14.2 vs. 14.7/20;p=0.5; and 13.7 vs. 14.8/20;p=0.16). Post-test scores were not correlated with training level (R=-0.02;p=NS) or module completion time (R=-0.05;p=NS).

Conclusion
Similar performance on CXR interpretation between groups suggests that even at the resident level, mixed practice may produce cognitive overload from contrasting numerous elements simultaneously. Alternatively, two-week data may indicate a small benefit, which this study was underpowered to detect.

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Pilot study of online learning modules for hemoglobinopathies education for Canadian hematology training programs

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Introduction
In Canadian hematology training programs, there is wide variability in hemoglobinopathy learning. Residents and program directors have expressed strong interest in e-learning modules to address gaps in case mix to standardize curricular needs. (https://ash.confex.com/ash/2014/webprogram/Paper71742.html).

Methods
Based on current hemoglobinopathy-related RCPSC Objectives of Training, two online modules were created using two software platforms, Virtual Interactive Case (VIC - http://pie.med.utoronto.ca/vic/) and Articulate (https://www.articulate.com). Initial beta-testing of modules by recent Hematology graduates and study collaborators (hematology faculty members) (n = 7) found both platforms to be equally preferred among users. Based on this feedback, eight online modules using a mixture of both platforms have been developed. Modules have been implemented as a pilot study in four Canadian hematology training programs using a distributed practice model. Learning is supplemented with bimonthly module review sessions with expert faculty. In programs where the program directors did not identify a local faculty member with content expertise, review sessions were run by web conference. Surveys and focus groups have been used to collect data on usability, learner satisfaction, and relevance to educational needs.

Conclusion/Implications
In this pilot implementation study, online hemoglobinopathy modules were shown to have high usability and user satisfaction with content. After completion of anticipated 12 modules, all hematology residents will complete the annual National Hematology Online Practice Exam. Comparison of the differences in hemoglobinopathy results between the 2015 and 2016 exams in participating and non-participating programs will serve as a measure of whether participation in the e-learning curriculum correlates with improved hemoglobinopathy-related knowledge.
Using innovative technologies for medical education
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Perceptions towards video technologies and augmented reality in psychiatry education

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Background
In psychiatry, the most recent application of technological advances are limited to the usage of tele-technologies for training, educational smartphone applications and virtual reality technologies in role-play simulation. Several other disciplines have described the added efficacy of augmentation of students’ education needs using video technologies and augmented reality.

Objective
The objectives of the current research are thus to (a) to determine whether undergraduates students will be receptive towards clinical psychiatry videos and augmented reality technologies in enhancing their learning experience in psychiatry.

Methodology
An online video vault was set up along with augmented reality features. A user perspective survey was administered to the students, right after the completion of their end of posting clinical assessment.

Results
There has been a cumulative total of 58,635 independent views of the videos online. For the augmented reality features incorporated, a response rate of 78.3% was obtained for the interactive elements on the cover pages and a response rate of 83.3% was obtained for the interactive elements on the OSCE grids in the book. A total of 185 students participated in the perspective survey and 92.5% of the students perceive that clinical OSCE videos have been helpful for their psychiatry education. Further statistical analysis conducted revealed there is also no noted difference between gender and student’s perception of having clinical OSCE videos (χ² = 1.278, p=0.865.

Conclusions
This is one of the initial studies that have demonstrated the effectiveness of including videos and augmented reality to augment psychiatry education.
Collaborative leadership: Qualitative research informing improved practice provides the needs assessment for curriculum development

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Introduction
Clinical learning opportunities in settings such as Clinical Teaching Units (CTU) consist of unintended learning outcomes with individual variation in experience between residents. The implementation of Competency by Design, informed by CanMEDs 2015 competencies, will require intentional learning in clinical settings for consistent and accountable learning outcomes. Research and quality improvement initiatives designed to transform healthcare delivery will also inform learning activities for medical education.

Method
Qualitative research (focus groups, ethnography) for the purpose of revealing collaborative practice and quality improvement initiatives in interprofessional (IP) rounds was undertaken with results provided to the IP team members. The same qualitative data and results were used for curriculum matrix development of a collaborative leadership learning module for senior internal medicine residents as (IP) team lead.

Results
Learning outcomes, structured learning activities and assessment tools were informed by the healthcare research. Learning outcomes include role identification, and demonstration and reflective discussion of shared leadership and decision making. Structured learning activities include a review of the study results, selected reading on collaborative leadership, and a portfolio entry of the resident’s individual strategy as collaborative team lead. Assessment tools, encounter cards for direct observation and an end rotation 360 degree assessment, incorporate study results and learning goals identified by the residents in their portfolio entry.

Conclusion
Improvement initiatives for healthcare delivery, when applied to curriculum development, can result in more defined and consistent learning opportunities as implicit concepts in collaborative leadership identified in the healthcare research become explicit in the learning activities.

Exploring intra-operative decision making and related influencing factors for creating scenarios and an IODM training

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Intra-operative decision making (IODM) is a high cognitive activity and surgeons need to do it under pressure and uncertainty. The purposes of this observational study were to define the key points of IODM and related influencing factors in the clinical setting and to created scenarios for developing an IODM training by using simulation.

From February 2012 to May 2013, CC Yeh observed total 79 procedures performed in the UK and Taiwan by using a self-developed observation sheet with a coding system—important surgical moment, relate to the environment, relate to instruments, and relate to team member. The episodes and the events impacted on IODM had been analysed.

65 procedures were observed and the observation time was 15415 minutes. 179 episodes of IODM were remarked. Majority (124/179, 69.3%) were categorised as ‘important surgical moment’. The episodes related to ‘the environment’, ‘instruments’, and ‘team member’ were 5(2.8%), 18(10.0%), and 32(17.8%). Anatomic variation, bleeding, unexpected finding, unclear plane were major causes for IODM in important surgical moments. Noises from members and CO2 gas empty were related to ‘the environment’. Functions and availability of instruments were crucial for IODM. Communication skills and competences of team members had impacts on IODM. 25 scenarios have been created for an IODM training based on these observations.

In summary, using observation with a self-developed observation sheet in the clinical setting was feasible for exploring IODM and related influencing factors. Scenarios for future IODM trainings could be collected and created in such conditions.
Incentives for recruiting trainee participants in medical education research

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Introduction
The field of medical education research has grown substantially, making participant recruitment challenging. Incentives, either tangible (e.g., gift cards) or intangible (e.g., novel experience), may be offered to encourage participation. This study aimed to better understand the range of incentives offered and explore the relationship between study quality and incentives in medical education research.

Methods
We reviewed all research studies that used medical trainees as participants and were reported in any of five major medical education journals in 2008. Tangible and intangible incentives used in recruitment were extracted by two researchers. MERSQI score was calculated (for quantitative studies) and subsequent citation counts were tracked for each article.

Results
220 articles met inclusion criteria. Approximately 90% did not report whether any incentives were offered or may have played a role in the decision to participate. Tangible incentives (range $15-$60) were offered to participants in 6% of studies. Of the approximately 50% of studies that provided identifiable intangible incentives, less than 5% specifically discussed their use. The use of tangible incentives was correlated with a higher MERSQI score (p <0.001) and with the number of times an article was cited (p <0.001).

Conclusion
Most studies do not describe the incentives that drive participation. Information regarding these incentives should be reported in all research studies to potentially improve future recruitment efforts and to better understand the context in which the study was conducted. Higher quality studies may have more funding and therefore be more likely to offer tangible incentives.

Breastfeeding and residency: Attitudes and experiences at Dalhousie University

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This study explores the attitudes and experiences around breastfeeding during residency among resident physicians at Dalhousie University.

Are residents supportive of fellow residents who breastfeed/pump?
What are the experiences of residents who have breastfed during residency? What barriers or facilitators have they faced breastfeeding/pumping during residency?

Method
All (540) resident physicians were asked to complete an online survey exploring attitudes and experiences related to breastfeeding/pumping during residency. Residents who identified as having breastfed/pumped during residency were invited to participate in interviews. Eighty-seven surveys were completed and five residents participated in interviews.

Statistical analysis consisted of theme categorization, descriptive analysis, and combining survey responses into a percentage of agreement to statements.

Conclusions
Thirty-nine percent of respondents worked directly with a resident who breastfed/pumped at work, sixty percent of these did not believe extra demands had been placed on them by residents who breastfeed/pumped, and two-thirds of them believed they supported the breastfeeding/pumping resident while at work. Most survey respondents (65.6%) felt residency programs should have a written policy to support the needs of breastfeeding residents.

Breastfeeding residents had a spectrum of experiences breastfeeding/pumping during residency, ranging from feeling well supported, to apathy, to being told breastfeeding/pumping at work is disruptive and reduces productivity. Most (70%) breastfeeding residents stopped pumping earlier than expected, and half of formerly breastfeeding residents stopped breastfeeding before expected: work-related factors were the most commonly identified reason.

Lack of appropriate space, breaks, and variable levels of support are barriers to residents successfully breastfeeding/pumping during residency.
**The use of primary medical care by resident physicians: A cross-sectional study of University of Toronto trainees**

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**Background/objectives**

Interactions between physicians and the healthcare system as patients is complex. Finding a general practitioner for primary medical care is time-consuming. Obtaining informal ‘corridor consultations’ from peers is convenient behaviour learned in training. The objective of our study was to determine how residents obtain primary care. Our secondary objective was to determine whether a resource could help residents find a general practitioner.

**Methods**

We conducted a cross-sectional study of University of Toronto second year residents using two online questionnaires. During recruitment, we disseminated a resource listing general practitioners accepting patients. Questionnaire 1 explored how residents obtain primary care and 31/121 (25.6%) invited residents responded. Three months later, 18 (14.9%) responded to Questionnaire 2 that explored usefulness of our resource. Results were expressed as percentages. Odds ratios were calculated for subgroup comparisons.

**Results**

Of 31 Questionnaire 1 respondents, 80.6% had a general practitioner. Though 64% found their physician during residency, 19.4% reported residency programs had resources to help find primary care. Of 31/121 (25.6%) invited residents responded. Three months later, 18 (14.9%) responded to Questionnaire 2 that explored usefulness of our resource. Results were expressed as percentages. Odds ratios were calculated for subgroup comparisons.

**Conclusions**

We determined the majority of residents had a physician they found independently. Despite this, seeking care from peers and faculty was prevalent. Resident wellness initiatives should explore factors contributing to this behaviour and its implications.

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**A personal development and wellness program for residents: Challenges and key interventions**

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Pontificia Universidad Católica de Chile, Santiago, Chile

**Introduction**

Residency training is an intense period were residents face multiple stressors that can affect their mental and emotional health. Factors that may affect their wellbeing are: Heavy workload, educational environment and demands related to the life cycle. Therefore, there is a need to implement wellness programs.

**Objective**

To describe the personal development and wellness program (PDWP) at the Pontificia Universidad Católica de Chile aimed to improve the quality of life and mental health of residents.

**Methods**

- The PDWP consists on interventions related to prevention, early diagnosis, counseling and referral, including:
  - Personal work with residents, with a holistic approach.
  - Group counseling that enhances the wellbeing competences of the residents.
  - Training opportunities for faculty members on prevention and crisis management.
  - Courses for residents that emphasizes self-knowledge and self-care.
  - Evaluation of the educational environment and burnout.

**Results**

The PDWP have been positively evaluated by the residents. During 2015, 22% of residents have received personal counselling, and almost 40% of them assisted to more than 4 counselling sessions. Annually, almost 110 residents (18%) participate in courses related to wellbeing. Last year, 5 group interventions were implemented. Results from the Annual Educational Environment and Burnout Survey showed the importance of prevention and educational environment.

**Conclusions**

The PDWP evaluated and generated significant initiatives regarding life conditions, work and educational environment of residents that have contributed to their wellbeing. There is a need to develop prevention strategies, early interventions and to provide a positive educational environment.
Physician health and wellness
La santé et mieux-être des médecins

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Preventing resident burnout: A longitudinal study of resident burnout and resilience in the Queen’s University internal medicine training program

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Background
Burnout - a syndrome of emotional exhaustion, depersonalization and decreased sense of personal accomplishment - affects medical students and residents at alarming rates, ranging from 27-78%. Resident burnout has been shown to negatively impact on patient care with correlation to perceived clinical errors and increased medication errors. Understanding the factors influencing resident burnout is a focus of the Core Internal Medicine training program at Queen’s University. As such, a resident-driven leadership team engaged in resident wellness was formed in 2015, with the goal to investigate the level of burnout within Queen’s University Internal Medicine trainees, as well as explore potential interventions, such as mentorship programming, or structured debriefing groups, to prevent its occurrence.

Methods
Internal Medicine residents in the Core Internal Medicine program at Queen’s University (n=80) participated in a de-identified survey monitoring the level of resident burnout, perceived stress and resilience throughout their training. Study participants answered a composite questionnaire of validated scales measuring burnout (Maslach Burnout Inventory), perceived stress (Perceived Stress Scale), and resiliency (Brief Resilience Scale) at three month intervals during their training.

Results & Conclusion
The information gathered by these surveys will be analyzed on a cross-sectional and longitudinal basis to assess key periods of high stress and burnout during internal Medicine training. Initial data collection began in February 2016 and is ongoing. Results at the time of abstract publication are currently pending; preliminary data will be available at the time of presentation.

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Bullying during residency, a phenomenon behind the curtain: Can mistreatment ever be “beneficial” to a physician’s training?

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I have no memories of my residency, only scars.

Introduction
The topic of bullying has begun gaining visibility, with growing concern about this trend at educational institutions worldwide. The medical community is also concerned with bullying at both the graduate and undergraduate levels. Although this has led to a greater number of publications on medical residents bullying, academic forums have yet to broadly address the topic.

Objective
To promote new researches about the influence of bullying on residents learning process and on their physical, psychological and emotional health.

Results
According to an extensive review of the literature, medical residents do experience bullying, with results that vary according to how the term is defined. Between 45-90% of residents say that they have suffered some type of bullying incident. Different types of mistreatment during a physician’s training include educational abuse, psycho-emotional abuse, discrimination, physical violence and sexual harassment. There is a low reporting rates for such incidents.

Conclusions
To highlight a certain belief about education that appears to exist among both professors and residents. According to this belief, a certain level of mistreatment can be “positive or beneficial” within the culture of medical training. This paradoxical definition will be useful in explaining the persistence and the replication of this phenomenon.

This naturalization of situations of mistreatment hinders the possibility of change since it renders such practices invisible. In this way, bullying is transmitted during residency as part of the implicit knowledge of the informal curriculum, making it appear an inherent and almost necessary part of the process of learning in the field of medicine.
Formal mentorship in a surgical residency training program: A prospective interventional study

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Introduction
Otolaryngology-Head and Neck surgery resident physicians (OHNSR) have a high prevalence of burnout, job dissatisfaction and stress as shown within the literature. Formal mentorship programs (FMP) have a proven track record of enhancing professional development and academic success. We sought to determine the effects of a FMP on the well-being of OHNSR.

Methods
8 OHNSR participated in the voluntary FMR program. Demographics, Perceived Stress Survey (PSS) and the Maslach Burnout Inventory (MBI) were administered at baseline and then at every 3 month intervals. World Health Quality of Life Questionnaire (WHQOL) was administered at baseline and at 12 months.

Results
Baseline statistics found a significant burden of stress with an average PSS of 18.5 with a high MBI of 47.6, 50.6, and 42.5 for the emotion, depersonalization, and personal achievement domains respectively. Quality of life was also found to be low (WHQOL = 71.9). After implementation of the FMP, PSS was reduced to 14.5 at 3 months (p=0.174) and a statistically significant lower value of 7.9 at 12 months (p<0.0001). Participants were also found to have lower emotional scores (14.9, p<0.0001), levels of depersonalization (20.1, p=0.005), and personal achievement (16.5, p=0.005) on MBI testing at 12 months. Overall quality-of-life using the WHQOL was found to be significantly improved (37.5, P<0.0001).

Conclusions
This is the first study to show that FMP can not only alleviate high levels of stress and burnout within a surgical residency program but also achieve higher levels of personal satisfaction as well as overall quality of life.
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Integration of simulation: Curriculum and faculty development for a simulation program in emergency medicine

Oman Medical Specialty Board, Muscat, Oman

Background
Simulation provides a learning environment where programs can develop and assess clinical competence. Comprehensive simulation curricula can capitalize on concepts of adult active learning and deliberate practice required in residency programs. Literature has shown that a driving force for the integration of simulation is the improvement in learning while major implementation mechanisms include curricula & instructor training. The purpose of this work is to describe the process of integrating simulation into emergency medicine (EM) curriculum.

Methods
A targeted needs assessment of the current EM curriculum revealed that the program lacked a formal simulation curriculum and faculty trained in simulation education. Administrative and leadership changes were undertaken in order to establish an EM simulation curriculum. Training was conducted to develop faculty skills in writing scenarios, running the Sim activity and debriefing skills. Annual number of simulation activities increased to 12 in comparison to an average of 3 activities from 2009 to 2014. The sessions were evaluated by the residents and reviewed periodically to ensure continuous improvement. Of a total of 32 faculty, four core faculty were trained as simulation instructors, and 12 are currently involved in sim education. 15 residents were trained as sim instructors, accounting for 32% of total residents in the program.

Conclusion
A structured method targeting faculty and consolidated by ongoing recruitment of residents resulted in formation of a simulation program. Therefore conducting a comprehensive analysis of the curriculum and following systematic curriculum development models result in a simulation curriculum that integrates well into the formal curriculum.

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Just-in-time procedural simulation: A novel method of teaching bedside procedures to internal medicine residents

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Background
Proficiency in bedside procedural skills, including paracentesis, thoracentesis, and lumbar puncture, is an essential competency in postgraduate Internal Medicine training. Review of the literature consistently demonstrates that the majority of Internal Medicine residents are uncomfortable with these core procedures, a sentiment that has in part been attributed to the lack of opportunities for procedures during clinical rotations. This translates into resident performance, as audits of academic hospitals demonstrate deficiencies in procedural success rate, appropriate ordering of investigations, and proper documentation. Residents and faculty echoed these concerns at our institution.

Resulting Innovation
The Just-In-Time (JIT) procedural simulation centre was developed as a novel resource to address this deficiency. Trainees have 24-hour access to review and practice procedures both at their convenience as well as immediately prior to performing live procedures. The centre currently has stations for paracentesis, thoracentesis, and lumbar puncture that contain ultrasound-compatible simulators. Ten-minute, non-synchronous, instructional computer modules outline materials, indications and contraindications, suggestions for appropriate investigations, as well as video-guided, step-by-step instructions for procedures based on existing best practices. Pre-filled consent sheets, standardized procedure checklists, and documentation notes are automatically printed.

Conclusion
The Just-In-Time program represents a novel ‘one-stop’ method of teaching core procedural competencies to Internal Medicine residents. We anticipate that it will increase resident comfort and success with bedside procedures, enhance documentation, and ultimately improve patient safety. To our knowledge, no such program exists in Ontario.
Teaching and learning in residency education
L’enseignement et l’apprentissage dans la formation des résidents

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Communicating when the stakes are high: An interprofessional learning opportunity for healthcare learners

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Introduction
Medical errors due to human mistakes are estimated to result in 98,000 preventable deaths per year in the United States. Strategies to improve patient safety often rely on healthcare workers’ ability to speak up with concerns. This becomes difficult during critical decision-making as a result of conflicting opinions and power differentials; themes underrepresented in many IP initiatives. These elements are prominent in our IP initiative, namely Crucial Conversations® training. We sought to evaluate CC (1) as an interprofessional learning opportunity (IPLO) for healthcare students (2) as a way to foster IP collaboration and (3) as a method of empowering students to vocalize their concerns.

Method
The attributes of CC as an IPLO were evaluated using the Points for Interprofessional Education Score (PIPES). The University of the West of England IP Questionnaire was administered before and after the course to assess changes in attitudes towards IP learning, relationships, interactions and teamwork.

Conclusion
CC strongly attained the principles of IP education on the PIPES instrument. A total of 38 volunteers completed the 16 hours of CC training: 15 (39%) medical rehabilitation, ten (26%) medicine, seven (18%) pharmacy, five (13%) nursing, one (2%) dentistry. Baseline attitude scores were positive for three of the four subscales, all which improved post-intervention. IP interactions remained negative possibly due to the lack of IPLO along the learning continuum, the hidden curriculum, as well as the stereotyping and hierarchal structures in today’s healthcare environment preventing students from maximizing the techniques learned in CC.
A mixed-methods evaluation of a social pediatrics block rotation for pediatric residents

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Background
Poverty and social injustice are linked to health outcomes. Social Pediatrics (SP) focuses on the child within the context of society, environment, school, and family. We endeavoured to determine knowledge uptake and characterize barriers and enablers to involvement in advocacy activities from an innovative rotation focusing on social determinants of health (SDOH).

Methods
SP rotation was embedded in the second year of a postgraduate pediatric curriculum. Knowledge and attitudes of resident participants before and after the rotation was assessed with written tests and surveys. A qualitative descriptive study of community partners and resident perspectives was completed with semi-structured interviews, thematic coding and analysis via an inductive-iterative approach.

Results
From 21 residents’ pre-and post-written tests and 12 residents’ optional attitudinal surveys, knowledge increased from 68% prior to rotation, to 80% (p < 0.001) post-rotation. All residents indicated increased likelihood of participating in future advocacy. Themes from 6 resident and 5 community partner interviews included: enhanced knowledge of SDOH, unique exposure to practices with vulnerable populations, the opportunity to develop advocacy partnerships, multi-disciplinary learning opportunities, and the need for more community mental health placements during residency.

Conclusions
Pediatric residents demonstrate increase in knowledge of social determinants of health and an increased interest in community advocacy and vulnerable populations following a block rotation in ‘social pediatrics’. Community partners valued engagement with pediatric residents, identifying key learning opportunities in these unique environments and report few barriers to continued involvement. Future directions include impact on advocacy work or career decisions, and multi-centre collaboration.
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Beyond reading images: A national survey of radiology residents’ study habits

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Background
Our goal was to identify radiology residents’ study habits across the country and to rank their top reading resources.

Methods
An online survey investigating various study habits was distributed to residents in 11 university-based radiology programs. The survey was adopted from the literature and designed to measure study habits unique to radiology. 263 residents were emailed, 80 responded.

Results
Outside working hours, the mean number of hours spent studying per week was 11.

Recommended reading lists provided by other residents were considered important in guiding 70% of respondents’ reading.

Only 54% of residents had specific reading goals in terms of material to cover during the year.

Textbooks were most ranked as the top educative source for radiology reading (39%), followed by case-based books (24%) then the online website STATdx (20%).

43% of residents decided upon a radiology textbook. These included Fundamentals of Diagnostic Radiology (59%), Primer of Diagnostic Imaging (26%) and Diagnostic Imaging series and STATdx (9%).

As for journals, Radiographics was considered an important study source by 87% of residents, Radiology by 56%, The American Journal of Radiology by 44%.

83% of residents try to keep daily reading relevant to the rotation they are doing and 88% try to read about pathologies they encounter in daily work.

Conclusion
Residents tend to focus their readings to specific resources. Reported results can guide new residents to trusted sources, saving them time and money. Our survey could be used for detection and eventual guidance of low-performing residents.

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Objectives and motivation of postgraduate trainees in a multi-specialty global health education program

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Introduction
The Global Health Education Initiative (GHEI), is a two-year co-curricular program for postgraduate trainees from all specialties. >80 faculty have taught >200 participants from 23 specialties (2009-2016). Program objectives are aligned with CANMEDs competencies, and were developed after broad consultation and extensive empirical study. Acceptance is competitive and involves an application asking trainees to describe their motivation and 4 objectives for participating in the program.

Method
Data were collected from electronically submitted applications. Motivations were open-coded by theme and content; prompts were: motivations I aspire to, motivations I can tolerate and motivations I prefer to repress. Objectives were open coded, and frequencies reported. Data was analysed using SPSS21.

Results
Of 561 motivation statements, aspirational themes included “saving”, “helping”, “enhancing skills/knowledge”, “reducing inequity”; tolerable themes included “adventure”, “travel”, “cultural experiences”, “personal enjoyment; repressible themes included “career aspirations”, “social standing”, “hero complex”.

Of 743 objectives, “networking” was the only frequently cited objective not prominent during program development studies. Themes mapped to overall course objectives including: general global health knowledge, global health ethics, low resource skills, public health, cross cultural knowledge, and others.

Conclusions
Overall, solicited objectives and program objectives were highly congruent. Detailed analysis of applicant motivations and objectives not only informs the curriculum of postgraduate Global Health Education, but also provides insight into global health ethical issues in PGME. The considerable overlap between motivations considered tolerable and those trainees would rather repress is an area to be explored with residents during the program and frames GH education guidelines.

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Objectives and motivation of postgraduate trainees in a multi-specialty global health education program

B. Pakes¹, J. Kopelow¹, E. Fremes²
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Beyond reading images: A national survey of radiology residents’ study habits

F. Toonsi¹, W. E. Kattan², F. Essbaiheen³, J. Chankowsky²
¹McGill University, Montréal, QC; ²McGill University, Montréal, QC; ³University of Ottawa, Ottawa, ON

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83% of residents try to keep daily reading relevant to the rotation they are doing and 88% try to read about pathologies they encounter in daily work.

Conclusion
Residents tend to focus their readings to specific resources. Reported results can guide new residents to trusted sources, saving them time and money. Our survey could be used for detection and eventual guidance of low-performing residents.
Rigorous needs assessment: Approaching transition to practice curriculum through the appropriate lens

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Introduction
The necessity of practice management (PM) training for residents has long been established in the medical education literature. To address this CanMEDS Leader competency, needs assessments recognizingly undergird PM curriculum but are typically informed by clinician educators or residents rather than those directly impacted: new-to-practice physicians. This study aimed to explore the practice management needs of this specific group of physicians.

Method
All physicians who graduated from a Schulich Medicine residency program within the past five years were invited to complete a needs assessment survey (73/648 [11.4%]) refined by a literature review and three focus groups.

Results
Initial results of this targeted needs assessment highlight PM topics deemed most important and those least understood. Ratings of topic importance were overall high across all topics (M=5.89). Participants’ knowledge ratings of 11 topics immediately following residency were overall low (M=3.87). Contract negotiation, M=2.79, 95% CI[2.48, 3.11], and setting-up practice, M=3.10, 95% CI[2.74, 3.45] were rated as significantly lower, and privacy and confidentiality was significantly higher, M=5.60, 95% CI[5.33, 5.87].

Conclusions and Implications
There is a pressing need to adequately prepare residents for independent practice, particularly as Transition to Practice is now an explicit phase of training in the Competence by Design framework. Pertinent needs assessments are required to accurately develop PM curriculum that most suitably prepares resident graduates for this transition. To more comprehensively inform the identification of suitable curricular learning objectives, the data will be further stratified to analyze demographic differences.

Facilitating the “STEPS” from junior to senior resident

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Background
The junior internal medicine residents at our teaching hospital indicated they felt unprepared to take on the responsibilities of a senior medicine resident (SMR). To address their concerns a two-day intensive training course, the Senior Transition Education Program and Simulation (STEPS), was introduced at the end of their first year of training.

Methods
Day 1 of the STEPS program consisted of lectures given by attending staff. Topics included leadership, professionalism in the ER, a day in the life of an SMR, responsibilities of an SMR as teacher. Additional sessions involved rotations through six small group learning stations that covered a variety of topics residents felt were pertinent to know.

Day 2 consisted of mock code blue simulations. Residents were surveyed pre/post attendance of the STEPS course in regard to confidence and preparedness.

Results
Twenty-five of the 26 first year residents completed the STEPS program. Participation was voluntary. Residents self-rated their confidence and preparedness (1 not prepared at all, 5 being fully prepared). After the STEPS program, significantly more residents described themselves as fully prepared for the following: assuming the role of an SMR (27.3% to 86.7%); managing a CTU (46.7% to 86.7); running a Code Blue (26.7% to 73.3%); discussing end of life decisions with patients and family (71.4% to 100%); assuming the teaching roles (6.7% to 57.1%); knowledge about the ER algorithm (66.6% to 85.7%).

Conclusion
Narrative feedback from the residents was unanimously positives, affirmed by our survey. STEPS is now an annual part of Internal Medicine core training.
Easing the transition to residency: A post-match course for fourth year medical students

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Background/Purpose
The transition from undergraduate medical education (UGME) to residency is inherently stressful for learners and has been associated with increased patient mortality and decreased efficiency of care. To ease this transition, we developed a post-match, specialty-targeted, multicomponent, undergraduate transition course.

Methods
We developed a needs-based 5-week course comprised of 5 components: 1) reviews of topics representing potential gaps in UGME or matters of patient safety; 2) targeted sessions for specific specialties; 3) general skills and simulation sessions; 4) communication skills sessions; and 5) Medical Council of Canada Qualifying Examination preparation. Online evaluation surveys were completed following course completion and eight months into residency.

Results
At course completion, students (N=57) evaluated the course positively; agreeing that it prepared them for residency (M=3.89; SD=0.82) and provided new information not previously encountered (M=3.89; SD=0.80). Lab abnormalities, DVT/PE prophylaxis, wound care, anatomy review, croup, and central line sessions were ranked highest. Comments highlighted the utility of simulation but unexpectedly identified differential experiences in distributed sites, and resentment around specialty-based access limitations.

Follow-up surveys (N=29) confirmed early results, though residents were more equivocal on the course’s utility as preparation for residency (M=3.23; SD=95). Comments re-highlighted simulation, particularly for emergent or critical situations. Learner resentment related to site discrepancies and specialty-based access to procedural sessions persisted.

Conclusions
Transition courses offer value to senior medical students that may ease their transition to residency. However, targeted training based on matched specialty may create perceptions of unfairness that undermine that value.

Perceptions of resident excellence

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University of Saskatchewan, Saskatoon, SK

Background/Objective
Medical educators have established that excellence in residency is associated with certain qualities or attributes (both academic and non-academic). Indeed, certain resident characteristics are more desirable in resident applicants (e.g., trustworthy, hardworking etc.). The purpose of this project was to explore perceptions from different stakeholder groups, across both family medicine and specialty programs, of what qualities or attributes contribute to excellency in resident performance.

Methods
Opinions on ‘what makes an excellent resident’ were obtained from 198 stakeholders (program administrators, faculty, chief residents, program directors, site directors, and residency training coordinators) through an on-line survey. Content analysis was used to categorize the open-ended responses into major themes.

Results
Five overarching themes were revealed across stakeholder groups (professional orientation, learning orientation, workplace behaviors, personal traits and skills, and wellness). Stakeholders identified task-oriented workplace behaviors as the most important resident characteristic (25%; e.g. hard work) followed by personal traits (20%; e.g. personality) and self-directed learning (19%). Less reported characteristics included interpersonal skills (12%), Knowledge and skills (12%), professionalism (8%), and work-life balance (3%). This trend was also apparent within each of the 15 surveyed programs separately.

Conclusion
The attributes of an excellent resident are consistent across programs and fall into both stable (traits) and dynamic (learned skills and knowledge) domains. The results from this study have been used to guide the development of new sessions for a resident boot camp and, overall, have implications for resident selection and learning.
### Barriers and best practices for integrating CanMEDS Health Advocacy role into residency training

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University of Saskatchewan, Saskatoon, SK

#### Introduction
The Health Advocate role has been identified as the most difficult CanMEDS roles to integrate into residency education. The purpose of this project was to examine the residents’ views on how the health advocate role has been integrated into their training in a clinically relevant manner.

#### Methods
In 2016, 322 residents responded to two open-ended questions on an online survey that asked about barriers and best practices of the health advocate role in their training. 73% of the residents responded. Thematic analysis was conducted and followed by a two proportion z-test to compare Family Medicine (FM) to Specialty (SP) proportions on each thematic category.

#### Results
35% of the residents perceived no barriers or issues to the integration of the health advocacy role with significant difference by program (55% FM and 31% SP). Lack of awareness of resources available for patients was the dominant barrier for FM residents and significantly higher than for the SP residents (4%). Conversely, Time was the dominant barrier for the SP residents (16%) and significantly higher than FM (10%). The residents views on best practices were categorized into 13 themes with a dominant theme being the Teaching of health advocacy (e.g.; academic days).

#### Conclusion
The findings provide evidence of some positive outcomes to the implementation of the health advocate role. Additionally, there are some gaps identified wherein some can be rectified more easily than others. Insights of the study can inform programs in the integration of the health advocate role both locally and across Canada.

### Impact of a web based module on trainees’ ability to interpret neonatal cranial ultrasound

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#### Background
Accurate interpretation of Neonatal Cranial Ultrasounds (CUS) is an important skill for physicians in neonatal intensive care (NICU), to identify babies at risk of poor neuro-developmental outcome who may require follow-up care. To assist pediatrics trainees in acquiring those skills, we designed and implemented a web-based learning module. We aimed in this study to assess whether the knowledge and skills acquired from the module have improved trainees’ performance and were actually put into practice.

#### Methods
Twenty-three trainees studied the module over 6 months period of implementation; we used simple, one group, time series pre-post-test design. We created two separate sets of knowledge tests and two performance tests where trainees have to interpret a full CUS studies. Each performance test had ten US studies and each study had ten points of interpretation. Only 20 trainees completed both the pre and the post performance test.

#### Result
The mean baseline knowledge test score was low at (42%). Scores increased to (76%) in the posttest (p<0.001). In the performance tests, there was 200 answers in each set, 99 were wrong answers in the pre-test and only 17 wrong diagnosis in the post-test (8%) (p< 0.001). There were only 52 complete answers in the pre-test compared to 126 in post-test (p< 0.001). Percentage of incomplete answers was similar in the pre and post-tests.

#### Conclusion
A web-based neonatal cranial ultrasound module significantly improved trainees’ understanding of this topic and their ability to put their knowledge into practice. This encouraged us to plan for similar modules in different areas of neonatal medicine.
A systematic needs assessment for point of care ultrasound in internal medicine residency training programs

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Background
Point of Care Ultrasound (PoCUS) is an ultrasound examination performed by the clinician to answer a focused clinical question or guide the performance of an invasive procedure. Few Internal Medicine (IM) residency programs teach a formal PoCUS curriculum and little is known about IM staff and resident current PoCUS comfort and utilization. The objective of this study is to conduct a systematic needs assessment for a PoCUS curriculum in an IM program.

Methods
A survey was distributed to all IM staff and residents. Participants rated their comfort, training, and use of PoCUS on a 5-point likert scale ranging from strongly agree to strongly disagree. The survey also assessed which diagnostic applications and procedures should be taught. Descriptive statistics, including means and standard deviations were calculated using SPSS. Differences between residents and staff were analyzed using independent t tests or chi-squared using SPSS.

Results
Ninety-three out of 109 (85%) residents and 40 out of 83 (43%) staff completed the survey. Participants self-identified as “neutral” on comfort for using PoCUS for diagnostic applications and many lacked formal diagnostic training (9.7% in residents vs 32% in staff, χ²=10.5, P=0.002). Despite this inexperience, 26.9% of residents use PoCUS for diagnostic applications. Both groups strongly agreed that a PoCUS curriculum should be introduced. Staff identified central line insertion (100%), paracentesis (93%), and thoracentesis (98%) as procedures that should be taught using PoCUS.

Conclusion
Despite increasing demands for PoCUS, residents lack formal training and both groups feel PoCUS should be introduced to the IM curriculum.
Assessment of small group teaching (seminars) by residents during intensive care unit rotation

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Introduction
Small group teaching (SGT) is frequently used in residency education. In this methodology, with the help of a facilitator, students work together to actively achieve common learning goals. The facilitator should stimulate the participation and interaction of all students.

The aim of this study was to evaluate the residents’ assessment of seminars they attended during the Intensive Care Unit (ICU) rotation.

Methods
Between March and December 2014, residents from 4 different programs (internal medicine, surgery, anesthesiology and emergency medicine) anonymously evaluated the seminars of the ICU rotation. Residents answered this survey, qualifying each statement from 1 (never) to 5 (always):
1 - The seminars were consistent with the learning outcomes.
2 - The contents were clearly explained.
3 - There was time for questions.
4 - The facilitator encouraged learners to participate.
5 - You studied the topic before the seminar.
6 - The seminars helped you clarify doubts.

Results
89 residents (all residents who rotated during the study period) answered the survey. Most of them (more than 80%) answered that the different statements were met “always” or “frequently”, except for statements 4 and 5. Only 57% considered that the facilitator encouraged them to participate and only 25% admitted that they studied before the seminar.

Conclusion
Although this activity was well evaluated by the residents, the facilitators should improve their role. As shown in this study, a common problem associated with SGT is that facilitators do not encourage students to actively participate. Several strategies have been described to promote dialogue between students during SGT. Facilitators can use these strategies as well.

Developing a cross-discipline evidence-based palliative care curriculum for pediatric, neurology, anesthesia and ICU residents

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Background
All graduating residents require general palliative care skills. In Canada, there is currently no standardized palliative care curriculum for specialty residents.

Objective
Develop an evidence-based palliative care curriculum designed to provide pediatric, neurology, anaesthesia and ICU residents with the general palliative care skills required for providing patient care along the continuum of life.

Methods
A needs assessment was performed. Focus groups in neurology were held with physicians, allied health and senior residents; semi-structured interviews were held with patients and caregivers. The Kolb learning style inventory (LSI) was used to determine the learning styles of various specialty residents. Residents completed questionnaires on breaking bad news (BBN); a knowledge test; and the Palliative Medicine Comfort and Confidence Survey.

Results
Based on the Kolb LSI, 5/7 (71.4%) of ICU residents are “convergers,” 9/16 (56.3%) of neurology residents are “assimilators,” while paediatric and anesthesia residents were more evenly distributed across the four learning styles (assimilating, accommodating, diverging and converging). Within paediatrics, ninety percent of residents requested additional training in BBN; fewer than ten percent strongly agreed with the statement “I feel confident in my ability to break bad news.” General principals identified for curriculum inclusion included: symptom management, communication, psychosocial aspects of care, care coordination and access, and myths and pitfalls in palliative care.

Conclusion
This project identifies various learning styles and establishes baseline palliative care knowledge of paediatric, neurology, anaesthesia and intensive care residents. This information will serve in the development of a novel, cross-discipline, palliative care curriculum.
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Current status of mentorship in general surgery residency programs in Canada and a measure of their effectiveness

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Background
Mentorship has a positive impact on personal development, career success and research productivity. Residents report having a mentor is critical to surviving residency, but the current state of mentorship in General Surgery residency programs in Canada is unknown.

Methods
An electronic survey was developed, validated and distributed by e-mail to all 601 General Surgery residents in Canada to obtain their perspective on (1) existing mentorship, (2) effectiveness of existing mentorship and (3) characteristics of ideal mentorship. Data analysis was largely qualitative and chi-squared and ANOVA were used when appropriate.

Conclusion
A total of 179 (29.7%) residents completed the questionnaire. The majority (97%) felt that mentorship was important for their training but only 67% identified a mentor. Residents most commonly (45%) reported no mentorship program in their residency program. Common reasons for not having a mentor included lack of support from residency programs (50%) and inability to identify someone who reflects their needs (48%). Mentee satisfaction with mentors was not significantly associated with having an established mentorship program (p=0.603) or having selected their mentor rather than being assigned one (p=0.892). Residents felt an ideal mentor is someone who works in General Surgery or a General Surgery subspecialty (93%), does not have an influence on their academic training (61.8%) and is chosen by them (55%). Residents most commonly (45%) favored having a mentoring program that is required but not monitored by their residency program. Implementing a mentorship program tailored to what residents need will help ensure tangible outcomes and benefits.

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Canadian national survey for cataract surgery teaching

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Background/Objective
With our aging population, the annual volume of cataract surgery is projected to increase by 43% by 2026. The primary objective of our study is to identify features that are associated with increased numbers of unassisted cataract surgeries performed by residents in an ophthalmology residency program to maximize competence at graduation.

Methods
A cross-sectional comprehensive web-based survey was created and distributed to program directors at all 15 Canadian ophthalmology residency programs.

Results
A response rate of 73% (11/15) was achieved. Only two (20%) institutions had formalized training for faculty in methods of cataract surgery teaching and only one (10%) institution had a formalized and documented step-by-step plan in place for teaching. The average number of “full” cataract surgery cases completed by the cohort of 2015 graduating residents was 450, ranging broadly from 100 to 1001 cases per resident. Formalized faculty training in cataract surgery, regular resident feedback, collaboration between cataract surgery teaching staff, and increased OR exposure are factors that were associated with a larger number of unassisted cataract surgeries completed by a resident during their post-graduate training.

Conclusions
There are key differences in how Canadian ophthalmology residency programs deliver their training that may account for the wide range in the number of unassisted cataract surgeries residents complete upon graduation. Information obtained from this study may serve to assist program directors in structuring their residency program curricula so as to increase resident involvement in cataract surgery, and ultimately improve residents’ comfort and competence in performing cataract surgery.
### Teaching and learning in residency education

**L’enseignement et l’apprentissage dans la formation des résidents**

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**Fellows as teachers: Development, implementation, and evaluation of a cardiovascular intensive care unit curriculum**

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**Introduction**

At our institution’s cardiovascular intensive care unit (CICU) we recognized a significant gap in resident education. Cardiovascular fellows were well suited to assume a teaching role both to enhance resident education as well as to afford fellows formal teaching opportunities. To our knowledge there are no published studies on the efficacy of cardiovascular fellows as teachers or effective models of on-the-ward CICU teaching.

**Methods**

An interactive CICU curriculum was designed and implemented by fellows drawing on input from a needs-assessment survey administered to sixty-three internal medicine residents. Teaching scripts were created to guide discussions and create succinct and readily available aides. Nineteen residents participated in the curriculum. Efficacy of the curriculum was evaluated via the Kirkpatrick method using follow up surveys and a knowledge based test, student’s t-test was used to compare survey responses.

**Results**

Pre-test respondents reported low preparedness with multiple CICU topics and commonly employed devices. For nearly all covered topics there was an increase in resident's self-reported preparedness (pulmonary hypertension, wide complex tachycardia, cardiac tamponade, acute valve failure, pulmonary artery catheters, intra-aortic balloon pumps, and temporary pacemakers (p<0.05 for all)). The curriculum did not affect compliance with duty hours, clinical tasks, or attendance at other teaching conferences.

**Conclusion**

This is the first study describing the creation, implementation, and effectiveness of a fellow-driven CICU curriculum. Residents reported an increased self-perceived knowledge of common CICU topics and an improved educational experience. Our experience can inform others wishing to implement similar curricula or a fellows-as-teachers model.

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**Research opportunities for Public Health and Preventive Medicine (PHPM) residents at the University of Toronto: Environmental scan and needs assessment**

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**Introduction**

University of Toronto (UofT) Public Health and Preventive Medicine (PHPM) Program residents must complete 1 academic project as part of family medicine training. All other research is optional. This project aimed to assess the adequacy, interest, and expansion capacity of research opportunities for the Program’s residents.

**Methods**

A mixed-methods approach with 4 components was used: literature review; informal surveys of the 4 other Ontario PHPM Programs; anonymous e-questionnaires completed by UofT PHPM residents/fellows, recent graduates, and faculty (with ~100 prospective respondents); and 5 key informant interviews with UofT PHPM faculty. The e-questionnaires and interviews assessed research perceptions and interests.

**Results**

Two of 4 other Ontario PHPM Programs responded to the informal survey, both describing research opportunities similar to UofT’s. The e-questionnaire response rate was 57% for residents/fellows and recent graduates, but only 9% for faculty. Important findings included: i) ~100% residents and faculty were interested in future research opportunities; ii) the most frequently cited barrier was a lack of time (indicated by 92% of residents and half of recent graduates, fellows, and faculty); and iii) the most frequently suggested additional support was connecting residents with supervisors. All faculty interviewees were at least somewhat interested in supervising research in the future, but some were concerned about available resources, and ≥80% thought (longitudinal) research should not be mandatory.

**Conclusion**

There is interest and a probable capacity to expand UofT PHPM residents’ research involvement. Key recommendations include providing a database of faculty supervisors, protected research time, and more formal elective research options.
Learner perception and adoption of an evidence-based morning report curriculum

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Introduction
A resident-led morning report curriculum has existed for the past two years at the Saint John distributed site of Dalhousie Internal Medicine. In accordance with the recent literature surrounding morning report, revisions to our curriculum were made emphasizing the general principles of patient care and evidence-based decision making. Our objective was to evaluate the learner perception and adoption of these revisions.

Methods
A recently admitted patient’s case was presented to residents and clerks (n =25) twice weekly for interactive discussion. Following the session, learners would generate questions for a librarian-assisted literature search. The most relevant articles were forwarded to all learners. A questionnaire was used to measure the proportion of articles read by the learners as well as the learners’ perception of the usefulness of the selected articles.

Results
Participants included 25 learners over 14 learning sessions. Learners consisted primarily of PGY1s (44.0%) and clinical clerks (40.0%). Only 2 learners indicated they read the articles, reading an average of 87.5% of the articles from the sessions they attended. Eight learners skimmed the articles from 61.5% of the sessions they attended. Of those who read or skimmed articles, 100.0% indicated the articles were helpful with the management of similar patients, while 60.0% found them helpful for the management of the patient presented.

Conclusion:
Adoption of a librarian-assisted literature search was not well utilized by learners, although articles were perceived to be useful when read or skimmed. Results of learner satisfaction of the sessions and effect on patient outcomes is ongoing.
Feasibility of a web-based portal and smartphone application for psychiatry education

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Background & Objectives
The increasing popularity of smartphones has led to recent developments in web-based technologies and further advances in mobile phone technologies. Previous studies in various fields of medicine have clearly highlighted the importance of web-based technologies and smartphone technologies in the augmentation of educational models. However, there are limited application of these technologies in psychiatry. Hence, our research question was as follows: Are undergraduate students receptive to smartphone applications that help them to master psychiatry, and if so, what are their perspectives with regard to it?

Methods
The Mastering Psychiatry Online Portal and web-based mobile application were developed using HTML5 as the core programming language. After their end-of-posting clinical examination, students were recruited to complete a survey questionnaire related to their perspectives on the application. Statistical analysis was conducted, comparing differences in gender's perspectives.

Results
Our initial analytical results showed that from the inception of the online portal to the time of this study, there were 15,803 views, with 2,109 copies of the online textbook downloaded. A total of 5,895 viewers watched the online training videos, and 722 used the application. 185 students who participated had positive perspectives about having a smartphone application in psychiatry. There was a significant difference between males and females in their perception towards having textbook content in the application.

Conclusions
This study is one of the first to demonstrate the use of the internet and smartphones in psychiatric education. Our methods could apply to future research involving the use of technology in education.

Internal medicine procedural skills development project

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Common bedside procedures are required skills for Royal College certification in Internal Medicine. Developing a curriculum to ensure regular performance and skill consolidation is a challenge due to limited supervision and opportunities. Radiological referral trends have resulted in attrition of skills among Internists, widening the gap between scope of practice and teaching expectations. Deliberate instruction with longitudinal practice opportunities, initially in a simulated setting, is now the educational expectation towards competence. Regulatory bodies are looking to educators on how best to achieve competency. Our project hopes to address these challenges and contribute to the conversation.

The objective is to develop, deliver and evaluate a curriculum for residents with respect to bedside procedures.

In this work in progress, a needs assessment confirmed limited skill development opportunities. A literature review proposed training strategies. Common challenges identified were: limited longitudinal practice opportunities, supervision, and, lack of regulatory guidance on standards. Course materials, checklists and program evaluation tools have been compiled and validated. A 3-phase pilot was delivered including web-based tutorials, simulated skills workshops and projected consolidation through supervised clinical procedures. Post workshop feedback was very positive. Follow-up assessment of procedural knowledge will occur as part of the in-training examination process. Further documentation of supervised clinical procedures will also be collected.

Program evaluations will be reviewed. Lessons learned will be shared including successes and barriers to skill retention.
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A handbook of radiation oncology for learners on elective rotations

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Introduction
Radiation oncology is a complex specialty to which students and residents have little exposure. Despite this, they will frequently treat patients who have undergone radiation treatments in whichever field of medicine they choose. A needs assessment revealed that learners participating in radiation oncology electives struggled with core concepts, including basic physics, radiobiology and treatment techniques. To our knowledge, there are no comprehensive introductory resources to fill this gap. We developed a handbook of radiation oncology, designed to deliver introductory concepts for learners on elective radiation oncology rotations.

Methods
A pocketbook format was selected due to its ease of use, cost-effectiveness, and reliability as compared to an e-format. Content was composed by a senior resident and edited by a radiation oncologist; based on primary source material including textbooks and peer-reviewed journal publications, and converted to a level appropriate for medical students and non-radiation oncology residents.

Results
Creation of a 38-page spiral-bound 5” x 8” pocketbook proved feasible at minimal cost. Basics of radiation biology and physics, use of radiotherapy, the detailed treatment process, the side-effects, and additional resources were integrated. A quiz was included to measure the learning impact and perception of the handbook by elective learners. The content was validated for content, accuracy, and clarity.

Conclusion
The creation of an introductory handbook for learners on radiation oncology electives proved feasible and can be reproduced by any specialty introducing new and complex concepts to beginners. Its impact will be evaluated by an incorporated quiz and survey.

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Crosscultural examination OSCE examiners: Do examiners from different cultures examine differently?

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Background/Objective
Cross-national differences have been reported in doctor-patient communication without research about their differences in conducting Objective Structured Clinical Examination (OSCE), the accepted standard for clinical examination. With the establishment of Ottawa-Shanghai Joint School of Medicine (OSJSM), knowing that Chinese examiners will examine similarly during evaluations will help standardize its evaluation methods with Canadian schools.

Method
Previous research has demonstrated the feasibility of the remote OSCE (reOSCE) in comparing local to remote examiners, which calls for remote cameras to be installed in 6 stations of a 10 station OSCE in the 6th People’s Hospital in Shanghai, China. Local examiners will be paired with Canadian OSCE examiners in each remote OSCE room, and their examaination scores will be compared.

Results
Phase 1 compares local Chinese examiners with remote examiners to see if the results of the reOSCE can be duplicated in China. Phase 2 compares local Chinese examiners with remote Canadian examiners’ checklist and global rating scores using paired sample T-tests and correlations. In phase 3, using the results of the phase 2 comparison, we will alter the examination characteristics to test our hypotheses.

Conclusion
Understanding the potential differences between examiners may lead to a better understanding of how to translate the Canadian OSCE format into a Chinese context. It also may avoid bias in future examinations where examiner backgrounds are mixed. Ultimately cultural differences in OSCE examination may lead to a unique “Chinese OSCE” that would be culturally sensitive and optimized to the Chinese medical education context.
Implementing CanMEDS Competency in Saudi Arabia: Lessons learned and ways forward

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Postgraduate medical education moves towards a competency-based curriculum. Saudi Commission for Health Specialties has adopted CanMEDS competency framework for developing curriculum for post-graduate training programmes.

Objective
The purpose of this presentation is to share the process and tools to be used for the SCHS’s plan to complete CanMEDS competency framework implementation in all post-graduate training programmes and to identify potential barriers to implement newly developed curricula and suggest strategies to overcome the barriers. Four themes are pre-identified as focal points of discussion: a) Dissemination, b) Stakeholder Engagement, c) Faculty Training, and d) Monitoring.

Methods
Based upon the review of the literature, one-one interviews with key stakeholders involved with post-graduate training within the SCHS and international advisors, the development of process and outcome proposal were iteratively reviewed amongst SCHS education committee members. Over the last one-and-half years, Saudi Commission has been working with several residency and fellowship programmes to develop formal curricula. Two content expert facilitators have been involved in coordinating the process of curriculum development.

Results
During this presentation, we will share the proposed curriculum framework and the tools created along with learned lessons for those embarking upon advancing competency based curriculum approaches nationally.

Conclusion
As CanMEDS curriculum focuses on improved quality of care, it is important for programs to measure their outcomes. The products of residency programs in Saudi are physicians ready to begin practice in their specialty areas providing care to Saudis.
Assessment of an educational intervention to improve knowledge and clinical skills in ophthalmology of second-year medical students

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Introduction
Early medical student exposure to ophthalmology aids in providing physicians with the knowledge and clinical skills required to meet their professional needs. The purpose of this study is to assess the effectiveness of an OSCE-based clinical skills session on second-year medical students’ knowledge in ophthalmology.

Methods
Medical student’s knowledge and skills were measured by self-assessment questionnaires administered pre- and post educational intervention in the form of OSCE-based clinical skills sessions. Research participants were second-year medical students (n=149) from McMaster University. Students were divided into four groups: three groups (n=113) completed both pre- and post- questionnaires based on the session contents and a fourth group (n=36) completed only the post-questionnaire immediately after the sessions. Their knowledge capabilities were evaluated using their questionnaire assessment score and compared using SPSS software, upon the successful completion of the following ophthalmology task skills: history taking; visual acuity measurements and pupillary examination; extraocular muscle movements and visual field testing; external eye and slit-lamp examination; intraocular pressure measurement and pachymetry; fundoscopy; pediatric examination and strabismus measurement; and trauma management.

Conclusions
The results suggest early exposure to ophthalmology through “hands-on” teaching workshops can positively influence the knowledge and clinical skills of medical students, as demonstrated by the improved test scores upon the successful completion of relevant clinical tasks. This can be provided by an ophthalmology-based integrated medical curriculum and further consolidated by learning experiences, gained through practical workshops, under the supervision and mentoring of academic-oriented ophthalmologists. Ophthalmology workshops implemented into the family medicine residency program may improve resident knowledge and skills.

Competency By Design (CBD), policy and public health: Developing and piloting a CBD approach to health policy, systems, evaluation and planning training in the University of Toronto’s Public Health and Preventive Medicine (PHPM) residency program

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Introduction
The Royal College has embraced CBD as the way forward for medical education. Most residency programs focus on competencies for individual-level patient care; PHPM residency programs must equip graduates with competencies for leading complex population-level interventions.

Method
A small group of University of Toronto PHPM faculty collaborated to develop a new Health Policy, Systems, Evaluation and Planning (policy) field rotation curriculum, integrating a CBD approach. We drew on the CanMeds 2015 CBD Competence Continuum; previous resources; supervisory, theory and practice expertise; and draft Entrustable Professional Activities (EPAs) commissioned by Queen’s University. We consulted iteratively with faculty, residents and program directors throughout the rotation development process and initial pilot period. Additional formative evaluation is planned for summer 2016, using key informant / group interviews and thematic analysis.

Results
We introduced new, pilot PHPM policy rotation curriculum explicitly situated at the core of the discipline stage, which enables residents to develop EPAs in a range of policy content areas (e.g., health promotion, communicable diseases). The first resident-supervisor dyad successfully piloted the rotation in winter 2016 at Public Health Ontario. The development process illuminated challenges and opportunities for CBD in PHPM policy rotations, including integration of cross-cutting content areas (e.g., ethics, equity) and CanMeds roles (e.g., Communicator, Professional) into EPAs.

Conclusion
Integrating a CBD approach facilitated innovation in PHPM policy rotation curriculum development, with encouraging early results from the pilot period. Our findings can inform ongoing quality improvement for this policy rotation and future efforts to align CBD and PHPM training.
Implementing a research curriculum in the research rotation for cardiology residents

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Background
In the Adult Cardiology Residency Program at the University of Ottawa, two blocks have traditionally been allocated for trainees to pursue research. To improve the residents’ research experience, we solicited their feedback on these rotations. While all appreciated the time, many wanted more training and guidance regarding research methodology. Our primary objective was therefore to design and implement a research curriculum to help residents learn about and produce medical research. Our secondary objective will be to evaluate resident satisfaction and productivity resulting from the newly implemented curriculum.

Methods
We created a dedicated research rotation for first-year (PGY-4) cardiology residents at the University of Ottawa (the “C1 Research Rotation”). All first-year cardiology residents participate in the C1 Research Rotation simultaneously. During these four weeks, residents receive specific training in research ethics, systematic searches of the literature, interpretation of statistical evidence and manuscript writing. Residents are also exposed to potential supervisors who discuss their research areas of interest. The on-call schedule is coordinated so that no resident is post-call on a day with contact learning. Specific deliverables are made explicit, including certification in Good Clinical Practice. After completion of the research rotation, residents will be asked to complete a questionnaire addressing the effectiveness of the curriculum.

Conclusions
We have created a structured rotation that affords residents not just time to do research, but an opportunity to learn how to do research. We will study its effects by assessing resident satisfaction and by comparing resident research productivity before and after its implementation.

Marking exams to improve examsmanship: Senior resident involvement in writing and marking of practice exams

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Background/Objectives
Since 2009, the McMaster University Royal College Emergency Medicine program has run local practice Short Answer Question (SAQ) examinations to help residents test their knowledge and gain practice in answering exam-style questions. However, marking this type of SAQ exam is time-consuming.

Summary of Innovation
To help address that we require senior residents to mark at least one exam per year along with faculty. In order to ensure that the identities of the practice examinees are kept anonymous, we assign a random number to each resident, which is only decoded after marking. Aggregation of marks is done by faculty only.

The senior residents and faculty members all share sequential marking of each question. Each question is reviewed, and exemplar “best practice” answers are discussed. As novel/unusual answers appear, instantaneous fact-checking (via textbooks, or the internet) and discussions occur allowing for real-time modification to the answer keys as needed.

A recent focus group has shown that residents feel quite positively about this process. With the anonymization process, residents do not object to their colleagues seeing and marking their answers. Senior residents found this process informative, and have felt that this process helps them gain insight into better “examsmanship”.

Conclusions
Having senior residents assist with marking is a useful way to not only improve their understanding of the information but also spread some of the work of marking around.
MINIMAD: A cost effective technique for teaching CanMEDS Roles to a diverse group of residents

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Introduction

The McMaster Multidisciplinary Academic Days (MAD) augment traditional half-day sessions by creating two university-wide half-day conferences each year which focus on intrinsic CanMEDS roles. However, instructional techniques are limited with very large group sessions and they are expensive to facilitate. We sought to supplement our MAD curriculum with “miniMAD”, smaller interactive sessions targeted towards interested residents from all programs that specifically addressed their learning needs.

Method

We surveyed residents participating in our regular MAD event to determine perceived learning needs. We then created a small group event capped at 40 participants to address this need (clinical teaching in this case). A guest speaker with content expertise was invited and delivered an interactive session on teaching junior learners. The participants were then surveyed to determine satisfaction with the session, how it compared to the traditional format, and whether they learned anything. We compared per resident cost for the two types of events.

Conclusion/implications

The miniMAD was more cost effective ($13.51 for miniMAD vs ~$52.41 for MAD per resident). 100% of respondents felt they learned something in the session and the majority preferred the small group format to our standard MAD events. All respondents said they would attend more miniMAD sessions. This is a very small, self-selected group of residents, and it is difficult to generalize their perceptions. Given the overwhelmingly positive response and the low-cost of these sessions, it would be worthwhile implementing several miniMAD events in the next academic year.
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**Practice eligibility route assessment in psychiatry: A novel form of workplace competency based assessment**

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Certification examinations for specialty medicine in Canada have been developed as assessment tools for physicians who have just completed residency training and thus focus on broadly based knowledge in a specialty, leaving other competencies to be assessed within the program. The Practice Eligibility Route assesses physicians in practice without the benefit of recent in residency assessment, thus requiring the development of alternative approaches to assessment. In 2015, Psychiatry ran the first cohort of candidates through this new assessment process.

A post assessment survey was completed by 8 of 11 candidates and 9 of 12 assessors. Another 15 candidates will be assessed in March 2016, with additional survey results to follow.

All of the candidates agreed that the assessment was a fair assessment of their competence, and that the assessment was as good or better than the current examination. Of the assessors, who were either experienced Royal College examiners or peer assessors, all reported that the assessment was as good or better than the current examination with all agreeing that the assessment was a valid and useful assessment of competence and that the level of difficulty was appropriate.

Using a combination of chart reviews and discussion, OSCE’s, and observed interviews of a standardized patient, the PER Route B Assessment in Psychiatry for physicians in practice in Canada as specialists appears to be an appropriate and valid assessment of clinical competency that is judged to be as good as or better for this purpose than the traditional Royal College Examination in Psychiatry.

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**Resident-driven peer simulation curriculum**

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Memorial University of Newfoundland, St. John’s, NL

**Introduction**

At the postgraduate level, simulation provides a safe way for residents to learn collaboratively and take leadership roles during acute clinical scenarios. At Memorial University, few Internal Medicine faculty members have had simulation expertise, representing a major barrier to expanding simulation in the core Medicine program. MUN residents were recruited to design and facilitate simulation scenarios and debriefing exercises. Now in its third year, this project aims to make high-fidelity simulation an integral part of the core Medicine training program.

**Methods**

Residents were scheduled in small groups to attend two half-days of simulation and to participate in a new scenario. Resident-facilitators designed these scenarios, led the debriefing exercises, and presented short lectures. High-fidelity patient simulators were used and required residents to identify, assess, and manage unstable patients and apply ACLS training. Each resident completed a comprehensive standardized simulation evaluation following the session.

**Conclusion**

Resident evaluations were strongly favourable. Participants commented that their comfort in managing acute events on call improved after the sessions. The pairing of junior and senior residents in small groups was seen as facilitating a supportive learning environment. The difficulty of balancing the time commitment with existing clinical duties was, however, seen as a barrier to full participation.

Simulation training has been established as a productive and valuable training tool for MUN Internal Medicine residents. Building a simulation case library and recruiting residents to take on the responsibilities of organizing simulation half-days will be important parts of securing the future of the simulation program.
Impact of a minimal resource letter-writing workshop on the quality of consultation letters dictated by internal medicine residents

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Introduction
High-quality written communication between physicians is essential for good patient care [1-3]. Few studies have evaluated the quality of consultation letters written by residents or reported on educational interventions targeting this important skillset[5, 6]. The aim of this study was to improve the quality of consultation letters dictated by Internal Medicine residents after a formal educational intervention.

Methods
We performed a case-controlled, before-after, randomized study at an academic teaching center in Alberta, Canada. We designed a novel half-day workshop for internal medicine residents that incorporated both didactic and collaborative learning strategies. Outcomes included overall and subcategory ratings on 2 dictation letter assessment tools for 19 residents (a validated tool was used by internal medicine reviewers and a novel tool was used by family medicine reviewers). Mean values between first and second dictations and intervention and control groups were compared using a paired t-test.

Internal medicine reviewers detected a statistically significant improvement in mean overall letter score (baseline 3.52 and post intervention 4.23 out of 5, t=-4.07, p=0.001) in the intervention but not control group.

Conclusion
Our study found significant improvement in letter scores following participation in a formal half-day workshop. We feel that our study can be used as a starting point for future research on interventions to improve written communication skills.

While this study provides promising results, a major limitation was the small sample size, which does not permit the calculation of construct validity of the novel assessment tool presented here.
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**Non Published Abstracts (see page 1) / Résumés non publiés (voir la page 1)**
AC-01

Residency accreditation reform town hall: New directions for the 21st century

C. Watling1, E. Peters2, J. R. Frank3, A. MacLellan4, R. Almond5, S. Taber6, P. Wasi7, S. Schipper7

1Western University, London, ON; 2Université de Montréal, Montreal, QC; 3The Royal College of Physicians and Surgeons of Canada, Ottawa, ON; 4Collège des médecins du Québec, Montréal, QC; 5College of Family Physicians of Canada, Mississauga, ON; 6McMaster University, Hamilton, ON; 7University of Alberta, Edmonton, AB

The Royal College, the College of Family Physicians of Canada and the Collège des médecins du Québec have partnered together to evaluate, review and update the Canadian accreditation system for the 21st century. Together with input from various postgraduate and program level stakeholders, the three college partnership, now entitled the Canadian Residency Accreditation Consortium (CanRAC), have developed a framework for a new conjoint accreditation system for Canadian residency education. Included in this Town Hall session will be a discussion of the key components of the reform. Specifically, the session will address how the new conjoint accreditation system will preserve the strengths of the current system, such as national standards, onsite evaluation of programs, and peer review, while also addressing specific areas identified as needing major transformation.

In particular, new general standards are being developed by expert working groups which will provide greater clarity for programs and surveyors without becoming unnecessarily prescriptive. Presenters and an expert panel will discuss how the new standards will reflect the new content of the CanMEDS/CanMEDS-FM Framework and support the transition to competency-based medical education, while continuing to support programs that will have not yet transitioned upon implementation of the new standards.

This session will also describe the work that has been done to-date by a number of working groups to advance process development. Specifically, presenters will address how the CanRAC is developing new accreditation processes that will make the most efficient use of program and university's time dedicated to accreditation related activities as well as supporting continuous evaluation and quality improvement through a more continuous accreditation cycle with ongoing data monitoring. Support for the all accreditation-related processes and activities, including continuous quality improvement, will be facilitated via the introduction of a digital Accreditation Management System (AMS). The discussion of the new AMS will focus on how it will eliminate paper-based processes and introduce automated tools to assist programs, universities, and surveyors.

Following the presentation overview, attendees will have the opportunity to engage in discussion with an expert panel to understand the accreditation reform from multiple perspectives.

AC-02

Outcomes-based education deserves outcomes-based accreditation: Accreditation for the 21st century

E. Holmboe1, P. Wasi2, F. Scheele3, S. Taber4

1Accreditation Council for Graduate Medical Education, Chicago, IL; 2McMaster University, Hamilton, ON; 3VU University Medical Centre, Amsterdam, Netherlands; 4The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

Postgraduate medical education (PGME) accreditation is a powerful tool for program quality improvement and driving change, ensuring residency programs are teaching and assessing learners according to applicable standards, and developing the best possible physicians, in an environment that maximizes learning. Traditional models of accreditation in many jurisdictions emphasize the evaluation of structures and processes as proxy measures of educational quality; however, with an increasing trend towards competency- or outcomes-based education in residency education worldwide, there is also increasing emphasis being placed upon the learning outcomes of residents, and the ability of programs to prepare residents for independent practice upon graduation. In addition, there is emerging evidence from the United States that demonstrates the importance of residency training programs for long-term outcomes: as Asch and his colleagues demonstrated in 2009, the program in which a physician trains predicts his or her clinical practice outcomes for the duration of practice. This growing movement towards CBME, coupled with new emerging data, is leading to new calls for new models and approaches to residency education accreditation, ones that place greater emphasis on learner outcomes as a measure of program quality.
Using Clinical Competency Committees (CCCs) for programmatic assessment to drive quality improvement in curricula and assessment systems

K. Hauer¹, J. Sherbino², A. Ekpenyong³
¹University of California, San Francisco, CA; ²McMaster University, Hamilton, ON; ³Rush University Medical Center, Chicago, IL

Accrediting institutions in the United States, Canada and beyond are adopting milestones-based systems of assessment. In conjunction with the use of this new assessment framework, residency programs are required to create clinical competency committees (CCCs) whose primary function is to review residents’ progress on their achievement of specialty specific milestones. This half-day pre-conference workshop is tailored to those just starting to develop their CCCs and to those with existing CCCs who are seeking to improve their processes.

The session is designed to answer three questions: 1) what are best practices for running a CCC meeting? 2) what assessment data will the CCC need and how should it be organized for CCC meetings? and 3) how can CCCs be used to foster quality improvement in residency programs (program evaluation)?

Presenters will engage participants through discussions and small group exercises. Participants will have the opportunity to discuss specific challenges that occur during CCC meetings, analyze CCC data and brainstorm about ways to use this information to determine areas for curricular change and improvements to resident assessment. Through these activities, participants will receive practical tips and deliverables that they can implement at their home institutions. Concepts discussed will be applicable to participants from all specialties and the session format is will emphasize active learning techniques and the opportunity to become familiar with the literature on CCCs and residency program evaluation.
A contemporary approach to assessment validation: Argument, inferences, and decisions

D. A. Cook¹, R. Hatala²
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Assessments guide decisions, such as what feedback to give a resident on his or her communication skills, or whether a resident should be promoted to the next year of training. 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 combine in “programmatic assessment” to inform 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.

Defensible decisions require evidence to support the validity of our assessments and the related inferences and interpretations. Contemporary validity frameworks help us to examine and structure our validity argument, and hence understand the strengths and limitations of the assessment tools we employ. 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 in planning and evaluating the validity argument for an educational assessment: scoring, generalization, extrapolation, and impact/decisions.

This workshop will offer a concise, practical introduction to Kane’s framework using a variety of hands-on activities. We will focus on crafting a defensible validity argument: identifying anticipated decisions, identifying critical assumptions and needed evidence, and synthesizing this evidence to support the key inferences. Participants will have the opportunity to practice applying this framework to an assessment commonly used in residency education. We will presume that participants have a basic understanding of validity, but no prior familiarity with Kane’s framework.

Competency-based learner dashboards to promote lifelong learning

K. Hauer¹, E. Warm², R. Cavalcanti³
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Medical learners benefit greatly from comprehensive feedback on their activities and performance to help guide them in developing competence. However, it is challenging to provide them with this information. Learning dashboards are data-driven tools that visually display performance information to learners and help them chart their individualized course through a curriculum. An integrated view of performance data provided in a dashboard allows learners to gauge their relative strengths and areas for improvement across multiple essential competency domains. Dashboards are particularly useful to help support competency-based training, as they provide evidence of each learner’s readiness for unsupervised practice. Personal performance data can highlight patterns about individual learners, allowing them to gauge their progression towards milestones and their position relative to other learners. Using this information, learners can partner with their faculty mentors to develop action plans for improvement and seek further feedback, thus aiding them in achieving competency in required domains. In this interactive session, participants will learn the fundamentals about dashboards and see 3 examples of learner dashboard implementations. They will also engage in small group interactive exercises on how to plan, implement and maintain dashboards for their own contexts. The workshop will further discuss resources, engagement and support needed to maintain a dashboard, as well as examples of how to coach students in personal development planning.
Assessment: Cutting edge tools and practical techniques
L’évaluation : outils d’avant-garde et techniques pratiques

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| **Write what you mean and mean what you write: Narrative assessment of clinical performance**  
**N. Dudek¹, F. Bhanji²**  
¹University of Ottawa, Ottawa, ON; ²McGill 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 regarding the entrustment of trainees to independently perform clinical duties.

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) receive feedback on their own narrative assessments.

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| **Designing and implementing competency-based assessment tools: Lessons from the division of orthopedics at a Canadian training center**  
**N. Wagner, A. Acai, C. McCarthy, B. Petrisor, R. Sonnadara**  
McMaster University, Hamilton, ON  

Many surgical licensure bodies are moving towards competency-based training models in an effort to improve the training of new surgeons. This shift will require training programs to come up with more effective ways to determine when trainees have reached proficiency. Additionally, training programs will need to improve the way that feedback is used to support the learning process. In our workshop we will share our experiences designing, implementing, and evaluating the reliability of assessment tools for surgical training programs that are making the transition to competency-based medical education (CBME) frameworks. We will highlight key lessons and examples from our recent work with the division of orthopedic surgery at a Canadian training center, where we have developed competency-based tools for a number of orthopedic procedures. Our tools promote learning through feedback, while also providing an assessment of a trainee’s competence. We believe that this framework will help improve teaching and provide educators with more meaningful measures of clinical competency. We also hope that it will enhance the training experience for residents and might serve as a template for other programs.

We will engage participants in an interactive discussion about the role of feedback and assessment in CBME. Following a summary of the development and implementation process of our assessment tools, participants will have the opportunity to create their own assessment tool in small groups. Participants will be invited to share and get feedback on specific challenges they encountered in the design process. Additionally, there will be designated time to discuss any specific needs that they may have re: CBME implementation at their home institutions.
AS-07

Learning analytics: Tools to gauge learning and accelerate education?

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¹University of Toronto, Toronto, ON; ²University of Cincinnati Academic Health Center, Cincinnati, OH; ³New York University School of Medicine, New York, NY

Data on learners’ performance is increasing exponentially with the advent of electronic assessment tools and computer enhanced learning activities. Modern IT tools provide solutions for combining and visualizing this data for the benefit of learners and supervisors. Analogous to flight instruments, like speedometers and altitude indicators, these learning analytics tools can provide feedback to learners on their progress and attainment of skills. This in turn can help focus learning and allow learners and tutors to tailor instruction. However, the field is developing rapidly and educators are still articulating best practices in implementation.

This interactive lightning round session will be facilitated by an international panel and is designed to provoke discussion. Participants will learn the key concepts in learning analytics, share practical examples and debate pros and cons of these tools, including privacy, development costs and curricular integration.

AS-08

Assessing competence: Is there a valid tool or do I need to develop one?

B. Mema¹, A. Kawamura²
¹Hospital for Sick Children, Toronto, ON; ²Holland Bloorview Kids Rehabilitation Hospital, Toronto, ON

Competency based medical education (CBME) involves outcomes driven education and assessment. CBME requires strong multifaceted assessment tools. Noel et al found that faculty fail to detect 68% of errors when observing a trainee and the use of a tool increases error detection significantly. However, assessment tools and the judgments that are made as a consequence of those assessments are important and 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. The authors call for increased numbers of robust studies with strong validity evidence. We share our experience of having built an assessment tool using a modified Delphi method for content evidence and Messick’s five-point, unified framework for collecting validity evidence.

This workshop focuses on how to develop an assessment tool by using a modified Delphi method and preparing the necessary data for validity evidence of the tool based on Messick’s five-point, unified construct validity framework. The participants will then judge the validity of some of the already published tools.
AS-09

Assessing trainees: How validity evidence can assist preceptors in making decisions

C. Touchie¹, E. Wong², F. Bhanji³
¹Medical Council of Canada, Ottawa, ON; ²College of Family Physicians of Canada, London, ON; ³The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

With the implementation of competency-based medical education, there is an expectation that assessments in the workplace will be more rigorous. As a preceptor/supervisor of trainees, how valid are the conclusions that you make about your trainees? How do the tools that you use in your assessment help you with these decisions? This workshop will review validity evidence for the assessments in the workplace from the perspective of individual preceptors. Participants will demystify the modern validity framework as it applies to workplace based assessments and review strengths and limitations of various assessment tools in providing information for judgments about learner competence.

AS-10

A novel curriculum for assessing competency in resuscitation at the foundations of discipline level of training

T. Chaplin, A. K. Hall
Queen's University, Kingston, ON

Junior residents are often the first physicians who attend to the acutely unwell floor patient, especially at night and on weekends. Over the past 5 years Queen's University has been offering a simulation-based course to ensure junior residents have the necessary competencies to enable them to initiate management of these acutely unwell patients. The ‘Nightmares Course’ at Queen's University was designed to address an Entrustable Professional Activity (EPA) relevant to several specialties at the ‘Foundations of Discipline’ level of training: “Recognize an acutely unwell floor patient, call for appropriate help, and initiate a basic assessment and management plan”.

This session will review the literature informing the principles of competency-based medical education (CBME) as it applies to the Nightmares Course. Specifically, we will discuss the importance of frequent formative feedback, direct observation of learners, and the learners’ demonstration of their abilities (not just knowledge).

We will discuss the development and implementation of the Nightmares Course and its integration into a competency based framework at Queen's University. We will highlight the logistical challenges of introducing a longitudinal simulation-based curriculum for junior residents from several specialties. We will review the formative and summative assessment tools used in this course.

This session will introduce a framework for the assessment and evaluation of competency for an EPA common to several specialties. Participants could apply this course template to various EPAs at their respective institutions.
AS-11

**Entrustment anchors for competency based assessment tools: Why they work**

*W. T. Gofton, N. Dudek*

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 should improve the quality of feedback and assessment. This interactive 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 and tool modification using modern validity theory.

AS-12

**KeyLIME: Best assessment literature**

*E. Holmboe¹, J. Sherbino²*

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

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.
Competency-based education
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CB-01
Remediation in an era of competency-based education

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Remediation can be challenging for faculty, administrators, and residents. The shift from time-based to competency-based education places new demands on those responsible for remedial training. Using experiential methods to activate prior learning, this workshop will explore the complexity of remediation in an era of competency-based medical education (CBME). Reflective exercises and interactive discussions will encourage creative and effective approaches to designing and implementing remediation, and supporting faculty involved.

Drawing on the work of the Dalhousie University Remediation Task Force, current remediation practices within Canadian Universities will be reviewed. Facilitated discussion on the effect of CBME remediation practices will follow, and research on faculty development and remediation will be presented.

Participants will view two video cases of simulated residents requiring remediation. One case will address the medical expert competency, and the other intrinsic role competencies. Working in small groups, participants will develop a customized approach to each case, followed by a large group discussion where participants share their insights and ideas.

Focusing on best practice as informed by the literature, a model approach to resident remediation will be described. The small groups will then re-visit the initial task, to determine whether changes need to be made in approach or content.

Participants will then view a video in which a supervisor working with a resident from the earlier cases expresses frustration to the program director about the remediation. Participants will be asked to identify the supervisor’s needs, and share strategies to support and educate faculty.

A summary of learning will be provided at the end of the session. Participants will be encouraged to fill out a self-addressed card committing to an innovation or improvement related to remediation they plan to make at their site. Cards will be collected by the facilitators and sent out to participants three months after the workshop.

CB-02
Program evaluation for competency-based medical education: Are we making a difference?

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With an emphasis on defining competencies required for practice, competency-based medical education (CBME) is rapidly being adopted across the globe (Carraccio et al, 2015). It has been proposed that CBME should be adopted as the primary curriculum approach to guide residency education (Frank et al, 2010). Consequently, we are in an unprecedented position to evaluate if CBME is making a difference. Unfortunately, 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 logic model that focuses on these common elements: elements that set the stage for an effective, scholarly, robust evaluation of CBME. This logic model will be used to discuss the range of possible evaluation questions and methods. Consideration will also be given to resources required and strategies for building capacity to support evaluation initiatives.
Co-production and learning: A strategy to realize the promise of CBME

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1Accreditation Council for Graduate Medical Education, Chicago, IL; 2Sunnybrook Health Sciences Centre, Toronto, ON

Co-production and co-learning is a useful philosophy and approach to help implement and operationalize competency-based medical education. In a CBME program, residents and fellows must be highly self-directed in their own learning and assessment. Everyone in a program also needs to have shared mental models of competencies and faculty need to possess proficiency in the requisite competencies in order to teach, assess and provide feedback effectively. Frameworks such as Milestones can serve as a method to develop shared mental models through developmental narratives and enable co-production of learning and assessment. In this workshop the participants will explore how competencies, milestones and entrustable professional activities can facilitate the co-production and co-creation of effective professional development. However, substantial research shows faculty struggle with many of the current competencies, especially “newer” competencies such as quality and safety system science, interprofessional teamwork, evidence-based practice, person-centered care and shared decision making. Co-learning is a mechanism to help both trainees and faculty acquire critical competencies for 21st century healthcare. This highly interactive workshop will explore key principles of co-production and co-learning, use of narrative frameworks to enable the development of shared mental models, and key concepts in co-production and co-creation for learning and assessment.
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**CB-06**

**Developmental EPAs in the Royal College format**

**J. Karpinski**
The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

EPAs are a critical component of the Royal College’s Competence by Design (CBD) initiative; EPAs have been uniquely adapted to the needs of this project. A Royal College EPA identifies the activities of a resident at one of the four stages of residency training.

CBD is anchored in the CanMEDS 2015 competency framework. A new feature of this framework is the Competence Continuum which defines the stages in the professional development of a physician from the beginning of residency through to retirement.

Like other EPAs, Royal College EPAs reflect the integration of multiple competencies, but these competencies are specific to the stage of that RCEPA. The Royal College uses the term milestones to describe the abilities of an individual along this developmental continuum. Similar to the CanMEDS Roles and framework, the CanMEDS 2015 milestones are written to reflect the broad competencies of all physicians.

The set of EPAs at a given stage describes the professional work of a resident in that discipline at that point in training. Each stage will have multiple EPAs – varying based on the duration and focus of that stage of training. As one progresses through the stages of training, the EPAs are likely to become more complex as the resident demonstrates competence to take on more responsibility for tasks of the profession.

**CB-07**

**Highly-effective clinical observations: Crafting credible feedback for CBME**

**C. Watling**
Western University, London, ON

Competency-based medical education depends on timely, meaningful feedback that can steer learners efficiently from one milestone to the next. Feedback must be credible to be meaningful, and direct observation of learner performance is a crucial support for credibility. But teachers and learners alike are often ambivalent about observation.

In this Lightning Round, we will explore the individual and cultural challenges to direct observation in residency training, and examine the constituents of meaningful feedback. We will strategize around three key challenges: 1) How can we make direct observation a routine part of our teaching and learning practices? 2) What makes for effective clinical observation? 3) How can we use our observations of learners to craft influential feedback?
**CB-08**

**Periodic review of resident performance: A key component of competency-based assessment**

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Regular periodic review of resident performance implies a series of scheduled meetings between resident and dedicated faculty, where assessment information from multiple sources can be collated and reviewed together, to ensure that competence is developing in all the specialty’s required dimensions. They should include clear expectations of performance that are understood by faculty and learners, empower learners to be willing and effective participants in guided self-reflection, be done outside of regular clinical supervision (to ensure separation of daily feedback from periodic summations), and occur frequently enough to allow for redirection and adjustment of both short and long term learning goals. They also can include a component of continuity of the faculty-learner relationship when done by the same faculty over time, and thus be a useful educational alliance in residency training.

Constructed as such, they satisfy several of Schuwirth and Ash’s 2013 criteria for holistic Competency-Based assessment.

The workshop will include a short overview of these concepts, and will allow participants the opportunity to share their own program’s approach to this task, including the necessary preparation for, and documentation of the review, as well as to share with others possible enhancements in their own program’s approach. Small groups will review a mock resident file, view a “periodic review conversation” and practice the tasks essential to this assessment process. The “hands-on” section will be followed by a discussion centred on the content and process of the review, including the role of these reviews as part of an overall programmatic approach to Competency-Based assessment.

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**CB-09**

**Competence By Design: The Royal College’s CBME model moves to implementation**

J. R. Frank¹, J. Fulford¹, W. T. Gofton¹, J. Karpinski¹, C. Campbell¹, K. A. Harris¹, A. Oswald³

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In 2012, the Royal College of Physicians and Surgeons of Canada embarked on a major educational reform program called Competence By Design (CBD). CBD is a unique, national competency-based medical education model that involves fundamental changes in both residency education and continuing professional development. This session will update the medical community on the latest CBD design features, the functions of the CBD eportfolio, and the pathway to implementation of the first cohorts. Anyone interested in CBME or in Canadian specialty education will not want to miss this!
Are we ready for (curriculum-) change?

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In postgraduate medical education (PGME), programs are being restructured according to competency-based frameworks. Implementation of these curriculum changes can be challenging in daily practice. How do you get your fellow colleagues on board (buy-in)? How can you recognize strengths and pitfalls in the implementation processes?

To answer these questions, organizational readiness for change (ORC), seen as a critical precursor for a successful implementation of change initiatives, could offer help. ORC consists out of factors such ‘pressure to change’, ‘need for change’ (e.g. what/why do we need to improve?) as well as ‘involvement’ (e.g. are you sufficiently informed?). During this workshop, theoretical background about organizational readiness for change and resistance to change will be presented. Participants will be challenged to face their own response to change. Furthermore, during group discussions, participants will be encouraged to reflect on their own experiences with implementation of curriculum change, get practical insight and share best practices.

Core principles of assessment in competency-based medical education

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The International Competency Based Medical Education (ICBME) Collaborators state that the meaningful assessment of competence is critical to the implementation of effective CBME (Medical Teacher, 2016). Two fundamental and yet essentially different rationales are inherent in newer systems of assessment: assessment of learning and assessment for learning. Before the introduction of CBME, the former was emphasized; however, as CBME becomes established, the focus is shifting to assessment for learning. If the primary purpose in assessment in CBME is to drive learning, and our secondary purpose is to make judgments about readiness to progress, we need to design assessment programs accordingly.

Five core principles inherent in this approach are (1) timely ongoing assessments, with comprehensive periodic reviews to ensure continued progress; (2) the best use of multiple assessors and assessments to enable the right assessment to be made at the right time for the right purpose, while avoiding assessor fatigue; (3) a synthesis of data collected through group processes to reach judgments about competence; (4) faculty development for all assessors, who, as observers of trainees in the workplace, are the true measurement instrument; and (5) optimized relationships between the givers and receivers of formative feedback to enhance the incorporation of feedback into practice.

This session will present the conceptualization and evidence leading to the five principles. It will provide an opportunity for participants to explore and debate each of the principles within the context of their educational programs and specializations. It will enable participants to explore the practicality and feasibility of the principles, particularly considering the resources required to design and implement an assessment program. There will be an opportunity for participants to describe how they are transforming their assessment systems to better align with CBME assessment principles and identify their next steps towards implementing newer assessment processes and procedures.
Managing the challenges of implementing a competency-based training program: Lessons learned from 7 years of competency-based training in the division of orthopaedic surgery at the University of Toronto

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1University of Toronto, Toronto, ON; 2McMaster University, Hamilton, ON

In response to growing concerns that the traditional, time-based model of training has become inadequate at preparing new physicians for practice, training programs around the globe are presently undergoing a paradigm shift towards competency-based medical education (CBME). Several medical education competency frameworks have been established, including the Royal College of Physicians and Surgeons of Canada’s Competence by Design initiative and the Accreditation Council for Graduate Medical Education Outcomes Assessment Project competencies in the United States. In addition, the Division of Orthopaedic Surgery at the University of Toronto has run a pilot residency training program in CBME for the past 7 years.

The University of Toronto’s experience has shown that despite the numerous successes of the program, many challenges have had to be overcome. While the paradigm shift towards CBME is largely expected to be beneficial for improving postgraduate training, it will also pose a serious challenge to training programs and their licensing bodies as these initiatives rely on a significant re-design of how residency education will be delivered. This workshop will discuss the lessons learned from the University of Toronto experience and how they relate to the current (and future) CBME initiatives in Canada. The workshop will discuss issues related to: developing the appropriate infrastructure to implement a CBME paradigm; creating a new curriculum and assessment tools that support a CBME paradigm (which include the use of simulation); resident and faculty development; and financial considerations of implementing and supporting a new training paradigm.

Linking competency-based education to advancement

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In 2006, the Education Innovations Project (EIP) was developed by the Accreditation Council for Graduate Medical Education (ACGME) with the goal of improving clinical care, and transforming resident education from a process-based to an outcomes-based system. Seventeen internal medicine programs were selected, with several focusing on the development and assessment of milestones as a framework for competency-based education (CBE).

This workshop will explore the ten-year experience of Baystate Medical Center/Tufts University School of Medicine, one of the 17 original EIP programs with the creation, implementation and evaluation of CBE through developmental milestones. The international spotlight on CBE offers a remarkable opportunity to advance and implement innovative techniques to teach and assess trainees. Medical educators must distinguish key transitions and develop methods to objectively assess competency for graduated responsibility in training. Linking advancement to CBE helps faculty balance supervision and autonomy for individual trainees, optimizing education and impacting patient care.

This highly interactive workshop begins with a brief introduction and needs assessment followed by an open discussion of the history and contemporary state of competency-based medical education. The Baystate Learner, Manager and Teacher model of CBE will be appraised, highlighting learner development through competency-based milestones.

As a group we will examine how a structured team-based paradigm for ambulatory care facilitates CBE and how health center infrastructure contributes to resident development and patient outcomes, highlighting the utilization of explicit resident advancement criteria for progressive autonomy.

We will conclude with a discussion of effective methods to differentiate trainee competence requisite for the development of individualized education plans and progression within your program.

Expert facilitators from Baystate and the ACGME will support small group learning activities and inspire collective discussion. Small group members will collaborate in the design of problem-solving concepts for advancing CBE at their home institutions.
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**CB-14**

**Assessment in competency-based education: Principles, opportunities and challenges**

**E. Ruano, M. Dandavino, E. Constantin, R. Sternszus**
McGill University, Montreal, QC

Competency-based education (CBE) is an outcome-based approach to medical education, structured around an organizing framework of competencies. CBE is centered on the concept that residency training should be personalized and adapted according to each trainee’s learning needs. Thus CBE represents a major shift from the traditional time-based apprenticeship education model.

Numerous medical councils across the world are currently mandating their training programs to adopt CBE. This reform provides opportunities for improving medical education to best meet society’s needs by ultimately producing competent physicians who are best prepared for independent practice. This reform however also brings forward a number of challenges. In particular, residency training programs will need to invest in providing trainees with a more effective program of work-based assessment if CBE is to be successfully implemented.

Several strategies that enhance the quality and accuracy of the assessment of clinical performance exist and are consistent with CBE principles. These include frequent structured direct observation with timely feedback, criterion-reference anchors in assessments tools, and mixing narrative and formative assessments. However, there are many reported barriers to the implementation of such strategies, namely inadequate assessment tools, the lack of faculty development, faculty time constraints and limited administrative support.

This workshop aims to 1) provide clinician-educators with tools to identify and address their local institutional CBE needs and to 2) facilitate the transition of their current assessment program to the CBE model. The experience in our institution with the development, implementation and evaluation of a CBE program of assessment will be used as a case-study, and serve as the basis for discussions and small group activities. Several CBE assessment tools for use in different clinical settings will be presented with an opportunity for hands-on practice. A framework to develop a strategic plan aligning local assessment programs with CBE will also be used.

**CB-15**

**Clinical Competency Committees (CCCs): How we made it work**

**A. Ekpenyong¹, K. Hauer², T. M. Chan³**
¹Rush University Medical Center, Chicago, IL; ²University of California, San Francisco, CA ; ³McMaster University, Hamilton, ON

Clinical Competency Committees (CCCs) are now required in graduate medical education programs. Program directors working with CCCs have the responsibility to gather and synthesize resident performance data to render judgments about each resident’s progression along milestones toward readiness for unsupervised practice. CCC members can review and interpret it for each resident. Committee chairs must be prepared to solicit information from all members and guide the group to rendering evidence-based, well-reasoned judgments. With these and other challenges, residency programs are seeking guidance about best practices in order to run their meetings as efficiently and productively as possible in order to provide feedback to their residents and their curriculum designers to optimize residents’ education and patient care. We plan to run this session as a workshop that takes participants through the planning stages of setting up a CCC, and to think about implementation issues that they can bear in mind when beginning these committees.
**CB-16**

**JDocs framework: Residency training from Australia and New Zealand (RACS)**

**S. A. Tobin, S. Langley, L. Malisano, J. Heath**

Royal Australasian College of Surgeons, East Melbourne, VIC

During 2014-15, the Royal Australasian College Of Surgeons (RACS) developed JDocs, to support prevocational doctors to ensure that the doctor entering any procedural specialty program would be well-prepared and perform clinically at a competent level. The program covers the typical 3-5 postgraduate years, between medical school and specialty training, in Australia and New Zealand.

This session will present the consultative development of the JDocs framework and how it relates to the nine RACS competencies. JDocs describes the many tasks, skills and behaviours the junior doctor should achieve at defined postgraduate levels. It identifies the performance standards required for application to a specialty training program.

This session will explore the flexible self-directed learning required, as well as the assessment opportunities and recording of progress as well as procedural experiences. All of this can be uploaded into eportfolio capturing personal achievements, effectively building-up the junior doctor's application, and noting readiness, for specialty residency.

This session will discuss the ‘key clinical tasks’, being EPA-style constructs around daily clinical work activities. Promoting authentic workbased assessment, these ‘tasks’ have been shown to be valid based on research with entry level surgical trainees. Both the research and the evaluations during 2015-2016 will be presented. The relationship to reference reports for applications will be covered. The open access jdocs.surgeons.org as well as the subscription component (eportfolio, log experiences, anatomy resources and resources to support examinations) will be displayed for discussion. Positive feedback from other Colleges and the hospital sector will be presented.

Participants will be able to recognise the trends in postgraduate medical education supported by RACS; judge applicability to their own systems; understand the RACS approach to workbased assessment; be aware of the professional standards and learning outcomes thought important for junior doctors in Australia and New Zealand.

**CB-17**

**Changing medical education: The complex organizational dynamics of implementing flexible PGME in teaching hospitals**

**T. van Rossum¹, F. Scheele², H. Sluiter³, I. Heyligers¹**

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Competency Based Medical Education (CBME) in Post Graduate Medical Education (PGME) has made a worldwide introduction. CBME not only changes the structures and content of PGME programs, but it also affects the way PGME is organized in teaching hospitals. The transformation from Time-Based Medical Education (TBME) to CBME introduces new organizational challenges; both on the hospital administration level as on the clinical work floor. We observe that these challenges often lead to friction and barriers in this complex setting.

This workshop addresses the following questions: How do these organizational challenges manifest in teaching hospitals? How they can be revealed? And how can they be dealt with. During interactive case studies the participants discover the impact of implementing CBME in PGME programmes from an organisational perspective. During these case studies participants get familiar with an analytical perspective based on complexity theory, discover and share best practices and formulate practical strategies. During these case studies participants are encouraged to reflect on their own experiences with the transition to CBME.
Educating for quality and safety / Formation en sécurité des patients

**EQS-01**

**Integrating qualitative evidence to support quantitative findings for evidence syntheses: Using mixed-method approaches to enhance understanding**

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As medical education research productivity increases it is anticipated that evidence syntheses will see a parallel increase. Training scholars and researchers in the conduct and reporting of various evidence syntheses is critical for building capacity in the field. Given the multiplicity of emerging synthesis methods, it will be important to ensure research questions map to the most appropriate method or approach.

This session is a highly-interactive session that will provide a comprehensive introduction to fundamentals of evidence syntheses with an emphasis on the strengths and limitations inherent to traditional synthesis methods including but not limited to: systematic reviews and meta-analysis and scoping reviews. The session will also provide a rich overview of emerging synthesis methods including realist and integrative synthesis of both quantitative and qualitative information.

This workshop will provide an introduction to fundamentals of integrative synthesis of both quantitative and qualitative information. Specifically, this workshop seeks to respond to the following questions: What decisions do you make differently when you integrate qualitative information to a traditionally quantitative synthesis? How does the integration of qualitative evidence support practice or education? The workshop is intended for advanced clinician-educators and education scientists.

Session faculty will also discuss and summarize important relevant reporting guidelines, evidence and open source resources.

**EQS-02**

**Clinical bedside teaching in the era of quality and patient safety**

**A. Oswald¹, D. Richardson², D. Panisko²**

¹University of Alberta, Edmonton, AB; ²University of Toronto, Toronto, ON

Clinicians who teach at the bedside must balance teaching and patient care and ensure patient safety while managing limited clinical time. They are also challenged to teach about quality and stewardship in the context of clinical care to maximize its relevance for trainees and to promote active learning. Education theory and scholarship may assist even excellent clinical teachers to improve their teaching practice.

The characteristics and skills of excellent teachers have been described and theoretical models and evidence for effectiveness of specific strategies are available. Emerging models for the teaching of quality and patient safety also exist.

This workshop is aimed at intermediate to experienced clinical teachers. Following a brief overview of the characteristics of an excellent clinical teacher, participants will work in small groups on the topics of: activating learners’ in the clinical setting, teaching when clinical time is limited; and incorporating patient safety and quality into case based bedside teaching. The concluding discussion will outline education evidence to inform excellent clinical teaching in general and with a focus on patient safety and quality.
EQS-04

More than just disclosure: Supporting residents following a harmful patient safety incident

E. Tsai
Canadian Medical Protective Association, Ottawa, ON

The key and enabling competencies related to the disclosure of harmful patient safety incidents have been incorporated into the CanMEDS Communicator role. Teaching disclosure is a challenge for educators because it occurs infrequently, is often a high-stakes encounter, and is generally perceived to be very stressful for everyone involved. As a result, not all faculty members feel comfortable teaching or providing feedback to trainees on this key concept.

The CMPA Good Practices Guide was developed to support faculty in the education of medical trainees, with resources on patient safety that can support competency-based residency education. We recently added a new faculty resources index, which organizes all of the teaching assets in the CMPA Good Practices Guide, cross-referenced to each of the CanMEDS 2015 roles.

Workshop attendees will have the opportunity to review their own knowledge on the disclosure of harmful patient safety incidents, including differentiating between errors and judgment, the importance of addressing blame, and supporting the second victim. There may also be opportunity to discuss the subsequent response to harm from healthcare delivery, which is captured in the key concepts of patient safety and quality improvement under the CanMEDS Medical Expert role.

Participants should consider attending this workshop if they want to:

- Review current guidelines on the disclosure of harmful patient safety incidents;
- Learn about faculty resources in the online CMPA Good Practices Guide;
- Brainstorm with colleagues about strategies to teach and assess disclosure-related competencies.

This interactive workshop will include an overview of the CMPA Good Practices Guide, highlighting relevant resources to educate residents on the key concept of disclosure (including narrative exercises, interactive video and text case studies, and role play scenarios). Participants will be able to review their own knowledge and brainstorm in small groups on how to better support residents following a harmful patient safety incident.
Educating for quality and safety /
Formation en sécurité des patients

**EQS-05**

**Optimizing the clinical learning environment**

**R. Wagner**
Accreditation Council for Graduate Medical Education, Chicago, IL

In 2012, the ACGME established the Clinical Learning Environment Review Program (CLER) to provide formative feedback to the leaders of graduate medical education and the executive leaders of the hospitals, medical centers, and ambulatory sites where resident and fellow physicians receive their training. This formative assessment addresses six focus areas: patient safety, healthcare quality, care transitions, supervision, fatigue management and mitigation, and professionalism. The underlying premise of the CLER program is that leaders will use the formative feedback to build upon strengths and identify and act on opportunities to improve the clinical learning environment with the ultimate goal of improving patient care while optimizing the educational experience for learners.

This workshop will begin with an overview of the CLER program followed by a series of small group activities in which participants will review the CLER pathways and properties for achieving an optimal clinical learning environment and key findings from the first CLER national report and discuss and share the relevance to their own clinical learning environments.

**EQS-06**

**How to organize a patient safety curriculum: Recognizing and responding to patient safety incidents**

**A. Ginzburg¹, A. Pisesky²**
¹University of Toronto, Toronto, ON; ²University of Ottawa, Ottawa, ON

Patients may suffer harm unexpectedly when patient safety incidents occur. Effective communication with patients by the healthcare team can restore trust and improve patient outcomes. Medical trainees are aware of their own errors; when they are involved in a patient safety incident they want the ability to be honest without fear of reprisal, to learn from the event and to mitigate the risk of similar events happening to others. Co-led by two ASPIRE faculty (staff physician and a resident), this interactive workshop will focus on two CanMEDS 2015 enabling competencies: the recognition and initial response to harm from healthcare delivery, and disclosure of harmful incidents to patients and families. Effective strategies to incorporate these competencies into residency curricula will be discussed. Instructional and assessment methods will be outlined and demonstrated.
What is this thing called research in medical education

G. Norman
McMaster University, Hamilton, ON

Research in medical education, as an academic pursuit, began in Buffalo NY under the leadership of George Miller in the 1960. While it was initially more of a cottage industry, pursuing questions of practical more than theoretical interest, with somewhat rudimentary methods, the subsequent half century has seen an enormous maturation of the field. Methodological contributors to the field now are eminently qualified in their host disciplines, and the model of research teams comprised of intensive collaborations between practitioners and scientists has been shown to be enduring and effective. The field continues to grow, with number of publications doubling every 5-10 years, and more and more academics attracted to the domain.

Evaluative thinking to enhance innovation in medical education

S. Chahine
Western University, London, ON

Being innovative in education often requires educators to experiment without a clear picture of the potential outcomes. Evaluation on the other hand requires a systematic analysis of well established approaches and outcomes. Beginning innovative in practice is conceptually in conflict with being evaluative. There is an increasing demand for educators to be innovative in medical education from simulation, to teaching interventions and large scale movements such as Competency Based Education. While there is a strong theoretical foundation of why these innovations ought to work, in truth the effects are unknown. As a result, many educators innovate without having a clear picture of how to evaluate for formative or summative purposes. Evaluative thinking to innovation in medical education offers a lens by which evaluation maybe integrated in the innovation to allow for progressive improvement and continuous feedback to enhance innovations. This workshop draws on developmental, utilization focused, and theory based evaluation to introduces learners to strategies that can be used to enhance the educational innovation.
Getting started in medical education scholarship

D. A. Cook
Mayo Clinic College of Medicine, Rochester, MN

How can front-line clinician-educators get their foot in the door with education-related scholarship? In this interactive workshop participants will explore a scholarly approach to the design and evaluation of educational projects and activities. First we will review the importance of educational scholarship, and identify aspects of medical education practice that require more complete understanding. We will then discuss a three-step approach to planning scholarly projects: 1) Identifying the scholarly question; 2) Using appropriate methods; and 3) Selecting appropriate outcomes. We will conclude with a discussion of challenges and pitfalls facing education scholars, and review practical ways to overcome these challenges. We will emphasize throughout that there are no one-size-fits-all solutions and often no easy answers. Rather, the numerous questions, methods, and outcomes available for a given project will each have their own strengths and weaknesses. Rather than prescribing a specific, algorithmic approach we will discuss frameworks to guide choices most appropriate to individual circumstances.

Co-creating synergy between a culture of safety and a safe learning environment

A. Matlow¹, S. Brien²
¹University of Toronto, Toronto, ON; ²The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

A culture of safety is integral to the delivery of safe healthcare, and is associated with improved outcomes and patient satisfaction. In the CanMEDS 2015 Competency Framework, the physician as ‘leader’ must “contribute[s] to a culture that promotes patient safety”. Similarly the other CanMEDS roles include competencies relevant to a culture of safety. Less well articulated is the impact of a culture of safety on the learning environment.

Culture, ‘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. A culture of patient safety further assumes a focus on patient-centredness. All these attributes are the same as those that both foster and nurture a safe learning environment. In the course of acquiring patient safety culture competencies, faculty and staff are in actuality co-creating a safe learning environment which iteratively improves patient safety.

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; the reciprocal relationship between a safety culture and a safe learning environment will be explored through a novel framework and interactive exercises.
EQS-11

Building a formal quality improvement (QI) infrastructure from scratch: How to transform your program’s approach to QI

E. Kwok
University of Ottawa, Ottawa, ON

Over the past few years, the Dept of Emergency Medicine at the University of Ottawa has transformed from having no formal structure or overall plan to tackle quality improvement and patient safety issues, to implementing an official departmental Quality Plan and robust QI infrastructure. This session will describe our journey and the critical components that led us to successfully tackle a vast array of quality improvement projects, including standardizing best practices, actioning morbidity/mortality issues, and examining individual physician performance metrics. We will discuss the importance of educating and developing local expertise in QI methodologies, aligning with corporate strategies, engaging resident participation, and incorporating academic dissemination. Participants will leave with a framework to help transform their own programs/departments’ approach to QI.

EQS-12

Reviving your M&M rounds: Using incidents to teach clinical reasoning, quality improvement and reflective practice

T. E. MacMillan, S. Rawal, S. Gauthier, R. Cavalcanti
University of Toronto, Toronto, ON

Mortality and morbidity (M&M) rounds serve multiple functions, including hospital-mandated review of medical errors, housestaff debriefing on adverse events, and case-based teaching. The design of M&M rounds often prioritizes the hospital’s need to systematically review and analyze adverse events and deaths, with a focus on system improvement. As a result, the educational potential of these rounds may take a secondary role. In this workshop, we will systematically analyze the functions of M&M rounds, identifying tensions between them. The objective is to provide participants with a framework that allows a redesign of M&M rounds to emphasize education.

This workshop is aimed at clinician educators and program directors with an interest in enhancing learning during M&M rounds in three key areas: quality improvement, clinical knowledge and reasoning, and reflective practice. Using a case-based, interactive format, the workshop will help participants identify areas for improvement in M&M rounds and improve their knowledge and skills in those areas. Through table-based and large group discussions, workshop attendees will learn practical strategies to identify learning opportunities and translate these into effective learning activities.

Specific content covered in the workshop will include: 1) For quality improvement and patient safety: systems thinking, human factors, and hierarchy of effectiveness; 2) For clinical reasoning: identifying cognitive biases, dual-processing theory and a critical review of de-biasing; 3) For reflective practice: the workshop will review both processes and levels of reflection identifying techniques that participants can use to promote personal expression and facilitate reflective debriefing. All principles will be illustrated by using cases to demonstrate how these principles can be applied.
Faculty development
Le perfectionnement des corps professoraux

FD-01

Understanding, diagnosing, and teaching residents with clinical difficulties am

L. Fredette, R. Bounds, A. Ruest, J. McGhee

Christiana Health Care System, Newark, DE

With the increased emphasis on Competency Based Education (CBE), educators are tasked with evaluating and addressing resident deficiencies more than ever before. Most front line clinical educators can identify a resident who is behind their peers, or just “doesn’t get it.” But clinicians receive little to no training in the assessment of specific clinical or cognitive deficiencies. Moreover, once these issues are discovered many educators struggle with developing an approach to teach and mentor residents in overcoming their individual deficiencies.

This session will first cover practical ways to evaluate residents’ clinical skills through direct observation. Participants will then learn about the most common cognitive challenges that lead to clinical difficulties including data gathering, data reporting, data synthesis, and development of management plans. Lastly, we will explore specific methods in teaching and mentoring residents to overcome such difficulties.

At the end of the session participants will have an improved understanding of the common reasons why residents struggle in the clinical setting, as well as some practical tools to improve their teaching to address specific cognitive challenges.

FD-02

Boot camp for program directors

L. Snell, A. Atkinson, F. Ankel, S. Gauthier

McGill University, Montréal, QC; The Hospital for Sick Children, Toronto, ON; Regions Hospital, St. Paul, MN; University of Toronto, Toronto, ON

By the end of this workshop program directors will be able to:

• List roles and responsibilities of a PD – what they should be doing, and what they should not!
• Discuss common challenges faced by PDs and propose ways of addressing them
• Describe tips and trick for leading and managing a residency program
• Outline models for mentoring and practice mentoring skills
• Describe the influence of generational differences on the daily work as a PD
• Explain the PD role in leading change using CBME as an exemplar
FD-03

Intersections between the quality agenda and education: The role of clinician educators in curricular design

R. Cavalcanti¹, B. Wong², K. Hauer³
¹University of Toronto, Toronto, ON; ²Sunnybrook Health Sciences Centre, Toronto, ON; ³University of California, San Francisco, CA

As exemplified by this year’s ICRE conference theme, the field of quality improvement is having increasing influence on how clinician educators approach curricular decisions. Topics such as sign-over, resource stewardship, standardization of care and performance measurement have become key priorities. The overall objective of improving patient care cannot be questioned, and quality improvement initiatives have the promise markedly enhance the education of medical trainees. However, translating the quality movement into effective curricula will require careful input from educators. This year’s program will promote a scholarly discussion about what curricular steps are needed in developing effective QI and patient safety curricula. This highly interactive session will be facilitated by an international panel of speakers in an engaging format over dinner.

FD-04

Crucial conversations with residents

G. Bandiera¹, I. W. Incoll²
¹University of Toronto, Toronto, ON; ²Australian Orthopaedic Association, Sydney, NSW

Crucial conversations are those conversations that support a resident’s development during their time in training and set them up for good educational experiences.

They can focus on mastery as compared to competence, team engagement or career pathways. They can be as simple as an education “pre-flight” safety warning – where to go to when things aren’t right.

Elements that facilitate these conversations will be discussed.

Several models to help plan and orchestrate difficult conversations will be discussed and experiences among the attendees shared.
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<td><strong>Growth and development for teachers: Using frameworks to scaffold teaching and learning practice</strong>&lt;br&gt;&lt;br&gt;A. Walsh¹, A. Boucher², K. Leslie³&lt;br&gt;¹McMaster University, Hamilton, ON; ²Association of Faculties of Medicine of Canada, Ottawa, ON; ³University of Toronto, Toronto, ON&lt;br&gt;&lt;br&gt;With the move to competency based education and the growing body of research in medical education has come increasing emphasis on the importance of clinical teachers and their need for continuing support for their development that aligns with emerging needs. Recognition of the joys and challenges experienced by clinical teachers has led to the creation of numerous frameworks for faculty and teacher activities. In Canada, the CanMEDS 2015 Scholar role includes milestones for teaching, and the College of Family Physicians of Canada has developed the Fundamental Teaching Activities Framework. Such frameworks can be helpful to those engaged in preparing teachers and facilitating their development.&lt;br&gt;&lt;br&gt;However, such frameworks differ in approach, focus and type of teaching, and may be confusing to both teachers and program leaders.&lt;br&gt;&lt;br&gt;In this session, Canadian frameworks each with their own various tools will be presented and discussed, using case examples. Participants, considering the utility of each to their own context and the tools provided, will apply them to address their own educational context.&lt;br&gt;&lt;br&gt;By the end of the session, participants will have designed a plan to align and integrate the materials presented into their own teacher development system.</td>
<td><strong>Short film genre: An innovative, arts-based clinical teaching method</strong>&lt;br&gt;&lt;br&gt;M. Montalvo&lt;br&gt;Queen’s University, Kingston, ON&lt;br&gt;&lt;br&gt;Rationale/ Background&lt;br&gt;The patient encounter is the cornerstone of clinical medicine. Every patient tells a story. In the emergency department, patients may arrive experiencing chaos or uncertainty to see an unfamiliar face in the attending physician. Gaining trust and establishing a close connection with patients within a short time can be critical for physicians to obtain important and relevant information for quality care. Experienced clinicians can often obtain a richer understanding of the patient by asking certain questions, which at first may not appear centrally relevant. “How did you prepare the chicken you ate before your abdominal pain started?” “What kind of fish were you fishing for when the hook became lodged in your thumb?” Those aspects of the patient history can help create colorful visual vignettes that help to enrich the clinical encounter as well as the experience of the clinician.&lt;br&gt;&lt;br&gt;In medical education, case presentations traditionally omit non-medical content and instead focus on objective findings. The short-film genre can be used as an innovative method for communicating case information in a more holistic manner to enhance learning and to deepen the learner’s appreciation of patient experiences.&lt;br&gt;&lt;br&gt;Instructional Methods&lt;br&gt;Participants will watch an original 10-minute short film of a case presentation that has been used successfully in medical teaching at Queen’s University. Participants will be introduced to the art of filmmaking, including script writing, storyboarding, inputting sound and editing. Participants will then collaborate in small groups to create a short film script and select a few potential accompanying visual images. Each small group will present to the whole for discussion and reflection.</td>
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FD-08

Everything I ever needed to know about being a program director I learned at ICRE #2: Managing the resident in difficulty

A. Atkinson¹, T. Baron², M. B. Ladhani³, S. Manos⁴, H. Writer⁵

¹The Hospital for Sick Children, Toronto, ON; ²Northern Ontario School of Medicine, Sudbury, ON; ³McMaster University, Hamilton, ON; ⁴Dalhousie University, Halifax, NS; ⁵University of Ottawa, Ottawa, ON

In order to provide residents with an optimal training experience, program directors must effectively perform duties across a wide spectrum of domains including administration, curriculum development and delivery, assessment and evaluation, resource allocation and accreditation. Regular review and revision are also required in response to changes in medical education theory and practice. Despite possessing enthusiasm and drive, many program directors find themselves neither trained nor prepared for successful execution of these tasks. This workshop is the second in a proposed series of five developed in response to feedback and demand from program directors who attended the ICRE 2014 Workshop Program Director Confessions.

The series is designed to provide continuing, context-specific faculty development on an annual basis for program directors of all experiences and program sizes, while also providing opportunities for networking and collaboration.

Accurate diagnosis and management of the resident in difficulty is one of the biggest challenges for Program Directors. Receipt of timely, robust feedback is inconsistent, and program directors are often not armed with the information needed for early, accurate diagnosis and management. Given the ramifications to patient safety and social accountability, it is imperative that program directors be well trained and equipped to address this area effectively. This interactive workshop, delivered by a group of seasoned program directors, will use case scenarios, role plays and audience experience to provide participants with a meaningful framework with which to approach the resident in difficulty.

FD-07

Five quick tips for the new program director

M. Walton¹, S. Choi²

¹McMaster University, Hamilton, ON; ²University of Ottawa, Ottawa, ON

In this lightning round, we hope to focus on giving the audience practical day-to-day tips to make your residency program run like a well-oiled machine. The themes of 1) Tools for the residency program, 2) Assessments 3) Recruitment, 4) Accreditation and 5) Tackling professionalism issues will be covered. The session will be dynamic and interactive.
Faculty development
Le perfectionnement des corps professoraux

FD-09

Finding your passion: Exploring career paths in medical education

R. Englander¹, L. Snell²
¹University of Minnesota Medical School, Minneapolis, MN; ²McGill University, Montréal, QC

There are multiple paths to becoming a ‘medical educator’, with many roles and activities subsumed under the term. This brief session will give participants a chance to explore the varied tasks and responsibilities available in medical education and the routes for gaining skills. Challenges to combining a career in medicine and education and solutions and enablers to address these will also be discussed. Participants will reflect on what brings joy and fulfilment, and what roles are best suited to better align this with what they do.

FD-10

Two birds and one stone: Integrating education and clinical redesign to achieve the common mission

K. Caverzagie, L. Colburn
University of Nebraska Medical Center, Omaha, NE

Healthcare is undergoing transformative change. Health systems are focused on improving outcomes of care while overcoming significant challenges with regards to cost, efficiency and clinical productivity. Likewise, academic health centers in the United States are experiencing transformative change including the implementation of the Clinical Learning Environment Review (CLER) in which health systems are accountable for establishing an appropriate learning environment for residency training. Overcoming these challenges will require significant redesign in both clinical and educational processes for many institutions. To facilitate these parallel transformations, the University of Nebraska Medical Center (UNMC) has created the Office for Health Professions Education (OHPE) within Nebraska Medicine, its integrated health delivery system partner. The primary goal of the OHPE is to integrate and facilitate the educational and clinical redesign efforts at UNMC in keeping with our common mission. Attendees of this session will learn about the work of the OHPE and consider how such an office can be used to drive both educational and clinical redesign for residency training at any institution. Attendees will reflect upon opportunities for clinical and educational alignment within their local context. Practical examples and lessons learned from the UNMC experience will be shared and attendees will be provided with an example of a business plan to get started at their home institution. Ample time will be provided in this session for participant interaction, reflection and large group discussion.
FD-11  

Grounding effective feedback in authentic patient care  

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

Feedback is frequently emphasized as a cornerstone of effective medical education and numerous workshops have been dedicated to this topic. Yet, there remains a feedback problem: while learners and teachers recognize its value, both groups are dissatisfied with its implementation. Rather than a new formula for feedback, we will engage participants in a conversation about creating conditions for meaningful feedback, tailored to their unique educational contexts.

Our workshop is grounded in insights we have gained through an ongoing novel feedback program we developed within our internal medicine residency program. The program is based on direct observation of resident performance; it sets up longitudinal educational relationships between faculty members and residents; and it uncouples formative from summative assessment. Through our qualitative research examining this program, and using a socio-cultural lens, we have gained insight into some of the conditions that appear necessary for fostering effective feedback.

The focus of this workshop is to explore educators’ current frustrations with feedback and to discuss meaningful conditions rather than formulas that may improve feedback conversations. Our emphasis is on our feedback conversations with our typical learners (not particularly the learner in difficulty). Using both large and small group discussion format, we will elicit participants’ frustrations with feedback conversations in their current context, present the outline of our feedback program, share key results of our qualitative research and use audio-recordings of real feedback conversations between residents and faculty to stimulate participant discussion.

The workshop uses a less-structured format, wherein the participants’ agenda drives the direction of the conversations within the small groups. Participants at this workshop will be able to reflect on their own approach to feedback conversations and have an opportunity to re-conceptualize how they will approach feedback conversations in the future.

FD-12  

Rewards and challenges of establishing a faculty development program through international collaboration  

R. Berger¹, W. Wade², D. Parry², G. Cherr¹, S. M. Orrange¹  
¹University at Buffalo, Buffalo, NY; ²Royal College of Physicians, London, United Kingdom

Whether you work with registrars or residents, faculty must teach and assess learners in clinical environments. This workshop will draw on techniques and lessons learned over a 10 year faculty development collaboration between two institutions in Buffalo, NY and London, England. Over this timeframe, learning theory, learner expectations, technology, the clinical learning environment, and accreditation standards have all evolved. The impact of these changes, somewhat different in the educational cultures of the collaborators, influenced the modifications to the program. In contrast, an introduction to educational research through the use of projects requiring the application of program content has always been a fundamental component of the program. This reflects the shared commitment to the principle that faculty development provides opportunities for educational research, and in doing so, raises the profile of the institutions involved.

Participants will engage in discussion and small group activities that review principles for designing or revising effective faculty development, and identify strategies for overcoming challenges common to faculty on both sides of the pond. Techniques and resources for introducing basic educational research, conducting effective teaching in clinical settings, providing feedback, supporting the struggling learner, and utilizing critical reflection will be developed, collected, and distributed to the group after the session.
Faculty development
Le perfectionnement des corps professeurs

FD-13

“Toxic” learning environments: An approach to diagnosis and treatment

L. Walsh, J. Gasson
Wales Deanery, Cardiff, United Kingdom

Background
Progression through postgraduate training is often challenging. A range of complex factors can affect a person’s ability to complete a training programme. The Professional Support Unit, have developed an innovative and interactive faculty development game-workshop to enhance skills in supporting trainees/residents to maximise their attainment. This unique delivery allows participants to work through various challenges that may adversely affect a trainee/resident’s progression through the training continuum, focussing on early recognition, remediation and effective support.

Methods/Approach
The participants work in teams to recognise signs/triggers of note, whilst exploring pathways of referral and sharing best practice of supporting trainees/residents. The aim is to generate a debate around trainee/resident remediation allowing delegates to take ideas back to their programmes for local benefit in order to improve attainment and minimise trainee attrition.

Structure
Teams no greater than 12.

FD-14

The game of training

L. Walsh, J. Gasson
Wales Deanery, Cardiff, United Kingdom

Background
Progression through postgraduate training is often challenging. A range of complex factors can affect a person’s ability to complete a training programme.

The Professional Support Unit, have developed an innovative and interactive faculty development game-workshop to enhance skills in supporting trainees/residents to maximise their attainment. This unique delivery allows participants to work through various challenges that may adversely affect a trainee/resident’s progression through the training continuum, focussing on early recognition, remediation and effective support.

Trainees/residents who may be experiencing challenges during their training progression are often anxious about many aspects of their work and continuity within the programme or even within medicine. Early identification of issues, embedding appropriate plans for remediation and maximising attainment, addresses some of the anxieties a trainee/resident may be experiencing.

Methods/Approach
The participants work in teams to recognise signs/triggers of note, whilst exploring pathways of referral and sharing best practice of supporting trainees/residents. The aim is to generate a debate around trainee/resident remediation allowing delegates to take ideas back to their programmes for local benefit in order to improve attainment and minimise trainee attrition.

Structure
Teams no greater than 12.

Provided with initial profile and trainee/resident token.

Each participant chooses 3 cards from the ‘ACTION’ pile, which will develop the trainee/resident profile and 3 cards from the ‘TREASURY’, which are the resources available for support.

The board presents challenges encountered by trainees’/residents’. Participants will use the available resources to resolve the challenges.

Prioritizing information obtained and generating highly specific, structured feedback to all involved parties will be discussed.

A case study will be presented in order to highlight a successful approach to a number of challenges experienced by one residency program. This multi-pronged approach to designing a “treatment plan” will describe the different, but complementary methods, as well as necessary resources often required to assist programs in difficulty. A demonstration of how to use simulation or role-play in order to enhance the effectiveness and impact of structured feedback will also be given.

This session will encourage participants to discuss and reflect on how they might use these methods to effect change in their own environments in the future.
How to submit your assessment or quality improvement project to a peer-reviewed academic journal

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¹Accreditation Council for Graduate Medical Education, Chicago, IL, ²Sunnybrook Health Sciences Centre, Toronto, ON

Clinician educators are continuously developing new curriculum, assessments, and faculty development activities to meet the needs of their trainees, in response to ongoing program evaluation. Most of these activities generate opious assessment data in the forms of survey (Likert-type scale), OSCE, tests, feedback, and other outcomes. Given the competition for their time and attention, medical educators must consider which of their teaching and program development activities may also qualify as scholarly work, worthy of dissemination to others. This workshop aims to improve educators’ abilities to identify, design, evaluate, and disseminate projects that can benefit the larger medical education community.

There have been many efforts to increase familiarity with accepted approaches to move projects in assessment research and quality improvement (QI) to manuscripts suitable for submission to a scholarly journal. They include clarification of best practices for reporting assessment research, and enhanced and simplified SQUIRE guidelines for QI projects. At the same time, medical education researchers continue to report barriers in conducting their studies and have the produces accepted for publication in scholarly journals. The workshop will seek to overcome some of these barriers, by offering step-by-step practical guidance to walk attendees through a specific project, using established approaches, and best available evidence.

This interactive workshop will combine mini-talks with small group work. Journal editors will walk attendees through an example of an assessment or quality improvement project, followed by group discussion, to allow them to explore all phases of the project from conceptual stage to submission for publication. Participants will glean the most benefit from this workshop if they come prepared with questions about current or planned assessment or QI activities involving learners and/or educational programs.
Faculty development
Le perfectionnement des corps professoraux

**FD-17**

**Utilizing an evidence based model for feedback in graduate medical education: A powerful framework for performance improvement**

*M. M. Zetkulic¹, A. Warren²*

¹Rutgers University, New Brunswick, NJ; ²Dalhousie University, Halifax, NS

Residents and students crave feedback, yet they often don’t recognize it when given, and do not always readily accept or use performance feedback for improvement. Faculty, similarly, struggle with how to give honest but empathic feedback that can make a difference to their students’ learning. Our group has utilized and studied a relatively new model of giving feedback that addresses these challenges.

The R2C2 model has been effectively used to deliver feedback from multisource performance assessments in multiple training programs in Canada, the Netherlands and the US. This 4 stage model for facilitating acceptance and use of formal feedback draws on three bodies of theory and research: person-centered 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 for behavior change approaches to enable recipients to identify goals and plan for change. We have demonstrated the feasibility and value of this approach in Residency Education. We have done focused interviews of over 50 residents on their experience with feedback and acquired additional practice pearls from the field.

**FD-18**

**Mentoring: The journey between apprentice and mastery**

*M. Wilson¹, W. Richardson², S. Straus³*

¹University of Georgia, Athens, GA; ²University of Iowa Hospitals and Clinics, Iowa City, IA; ³University of Toronto, Toronto, ON

Many of us may fondly recall the impact on our careers of past mentors or influential guides. Unfortunately, research efforts exploring academic mentorship oftentimes reveal that many more of us experience difficulty tapping into effective mentors. This interactive session will provide opportunity for established and aspiring mentors to reflect and grow their mentoring capabilities. Emphasis is on improving our practice of mentorship, drawing some analogies from the craft guild model. This experience will also address perspectives beyond those regarding mentorship for research endeavors. Key notions we will explore include relationship investment, effective mentoring tactics, informal and formal mentoring relationships, and consideration of peer mentorship. Interaction triggers will include reflective practice, buzz groups, table challenge solving, and panel inquiry into their journeys and experiences when being mentored and striving to serve as a mentor.

**FD-19**

**Roundtable discussions on key topics in medical education scholarship/research: Early career medical educators**

*K. Dore*

McMaster University, Hamilton, ON

This interactive session is designed for participants from all levels of medical training (including practicing physicians) who have an interest in becoming involved in medical education research/scholarship. Participants may range from a very early interest in medical education research/scholarship to those wanting to better understand how to balance clinical life and a research program. Upon completion of this session, participants will have a chance to join a conversation, facilitated by a researcher, on key topics in medical education they are interested in. They will also get a chance to meet and chat with other clinicians interested in medical education (from those just starting to get involved to others with a more engaged research program); meet researchers who will join us to share their perspective on the evolving field of medical education research. Join a conversation and build your community.
Humanities and history in medical education / Sciences humaines et histoire de l’éducation médicale

**HIS-01**

**Medicine as art: The development of reflective practitioners through an arts-based curriculum**

**N. Knibb¹, J. Zazulak²**  
¹McMaster Museum of Art, Hamilton, ON; ²McMaster University, 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.

Health policy and residency education / Les politiques sur la santé visant la formation des résidents

**HP-01**

**The medical workforce knowledgebase: Facilitating discussion of how medical workforce change will impact healthcare and population health**

**S. A. Slade, S. DiMillo, C. Jacob, D. Fréchette**  
The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

There have been repeated calls to produce a physician workforce that meets the needs of Canadians. While emphasis is on achieving the right number, mix and distribution, little has been done to monitor change. Launched in 2016, the Royal College Medical Workforce Knowledgebase tracks physician supply and highlights areas of change. The Knowledgebase will expand to include analyses that explore drivers and potential outcomes of medical workforce change.

The Knowledgebase brings several data sources together in a single environment. Pan-Canadian trends are reported for residency spots, first year trainees, new certificants, and the size and age distribution of the licensed physician workforce. Recent trends are summarized for 32 disciplines, covering family medicine, medical, surgical and laboratory specialties. For each specialty, descriptive statistics indicate physician supply rates and relative workforce age. Signs of growth and decrease are clearly illustrated in an overall specialty-specific summary.

Overall physician supply is increasing according to all Knowledgebase supply trends. Mirroring the overall trend, Family Medicine, Anatomical Pathology, Emergency Medicine, Internal Medicine, Physical Medicine and Rehabilitation, and Psychiatry have grown by every measure. Psychiatry has seen a 7% increase in the number of residency positions, a 13% increase in the number of entry level trainees, a 75% increase in the number of new certificants and an 11% increase in the size of the active Psychiatrist workforce. In contrast, 26 of 31 medical, surgical and laboratory specialties show signs of possible workforce decrease. For example, the number of Orthopedic Surgery residency positions decreased 21% since 2013 and the number of first year General Surgery trainees decreased 21% since 2010.

While the Knowledgebase tracks medical workforce change, further analytical development is required. Workshop participants will identify the drivers of change as well as the potential downstream impacts on healthcare delivery and population health.
Health policy and residency education / Les politiques sur la santé visant la formation des résidents

**HP-02**

**Person-centred care: Implications for teaching and learning**

*T. Swanwick¹, C. Morris²*

¹Health Education England, London, United Kingdom; ²Medical Education Matters, Arlesey, United Kingdom

Across the world health services are facing significant challenges, with populations increasing in size and people living longer with multiple long-term conditions.

There are severe financial constraints on most health systems with a growing recognition that a shift in focus away from treatment and cure, to prevention and improvement is essential for sustainability. Over the last decade there has been an increasing focus in supporting people to be more involved in their care and in tailoring services around the needs of individuals.

It is recognised that a person-centred care approach can help to improve outcomes and reduce the burden on services, so policy and legislation increasingly emphasise strengthening the voice of patients and moving away from a paternalistic model where clinicians ‘do things to’ people in favour of greater interaction.

Engaging people in their health and care is also recognised as a key component of developing healthcare of the highest quality. The US Institute of Medicine’s report on healthcare quality for instance, included patient-centred care as one of its six aims for improvement. In this workshop we will explore how person-centred care can be conceptualised, using a model developed by the UK Health Foundation.

We will look at traditional approaches to teaching and learning in this area both in undergraduate and postgraduate education in the healthcare professions. Participants will be invited to share experiences, initiatives and innovations and consider the implications of a person-centred approach to care for healthcare professionals’ education and training.

**HP-03**

**Building socially accountable residency programs: Transforming postgraduate education to meet the needs of the populations we serve**

*J. Poitras¹, S. Razack²*

¹Université Laval, Québec, QC; ²McGill University, Montreal, QC

This workshop is an interactive workshop with a brief plenary followed by a guided case study where each participant works on their own context, first defining the communities they serve, identifying training opportunities to expose their residents to the communities they serve, identifying structural changes that need to occur for greater social accountability, means to measure the impact of those changes, and ending with a wrap-up.

The workshop will go beyond the traditional human resources discussion (i.e. developing physicians to serve populations) and will lead to a more encompassing discussion of developing curriculum, confronting the hidden curriculum, developing meaningful structures for community participation in residency training and measuring the effects of change toward greater social accountability in residency training.
Leadership education / Formation en leadership

LE-01
Clinical leadership: What is it, why is it important and how do we learn to lead?
T. Swanwick¹, R. Aggarwal², C. Morris³
¹Health Education England, London, United Kingdom; ²Whittington Health, London, United Kingdom; ³Queen Mary University of London, London, United Kingdom

This is an unprecedented era for health systems across the world in which they face some major demographic, organisational and financial challenges. However, there is significant international evidence that when clinicians use their voices and values to engage with system delivery, operational efficiency and care outcomes are improved.

In the UK National Health Service clinical leadership is foregrounded as an important organisational priority. There are 60,000 doctors in postgraduate training in the UK who provide the majority of front-line patient care and form an ‘operating core’ of most healthcare organizations. This group are seen as a vitally important resource in initiating, championing, and delivering improvement in the quality of patient care.

In this workshop we will examine how clinical leadership is conceptualised and enacted, and discuss why it is vital to the future of patient care. We explore some of the approaches used in the UK, and elsewhere, to develop leadership capability among trainees/residents including competency frameworks, talent management, shared learning, clinical fellowships, and quality improvement.

During the course of the workshop we will explore a new paradigm that moves learning and leadership away from the development of individual ‘leaders’, to a more inclusive and distributed model, where organizations are ‘leader-ful’ and not just ‘well led’, and where leadership is centered on a shared vision owned by whole teams working on the frontline.

LE-02
Effecting change in your residency program
G. Bandiera¹, R. St. Croix²
¹University of Toronto, Toronto, ON; ²The Royal College of Physicians and Surgeons of Canada, Ottawa, ON

Across the globe, the pace of change is quickening and such change is becoming more disruptive for healthcare systems, organizations, communities and leaders. Effecting positive change is a critical element of leadership. This session is designed for current and future healthcare leaders (i.e. program directors, site education coordinators, education leaders, faculty developers) who are increasingly required to accelerate and realize change and improvement, often with the added assumption that it should seem effortless. These challenges require fundamentally altering the way we go about making change happen as many of the methods we currently use haven’t evolved over decades. This session combines proven change theory with hands-on practice in an engaging session. As participants in this session you will identify and develop the change skills that leaders need, and understand how change methodologies, models and frameworks can enable effective change leadership in medical education. You will practice and develop your change capabilities by working on your own change challenge to apply some of the latest change thinking and strategies. This session will provide a picture of the capabilities you need to make your ideas and solutions a reality. You will learn how to quickly align key stakeholders around the change, involve them in the solution design and get your entire organization engaged in adopting it. You will see the value of dissent and diversity as well as the role of change leaders to help create the conditions for change and mobilize people to get on with it.
LE-03

How to say no, and when to say yes

L. Snell¹, R. Englander²
¹McGill University, Montréal, QC; ²University of Minnesota Medical School, Minneapolis, MN

As clinician educators, teachers and leaders we are often asked to be involved in or lead clinical, education or scholarly activities. Success in these areas often only begets more requests for our engagement in other efforts. Many requests for our involvement may not align with our priorities and may take us away from our aligned work. Despite this we have all at times agreed to do tasks that are not directly linked to our personal goals or to the institutional objectives that we support. This may lead to ineffective use of our time, poor ‘work-work’ and ‘work-life’ balance, negative outcomes for us and the organization, or issues with physician wellness. In this brief session we will examine the types of requests we receive, and will use a framework to connect these to our own objectives to help decide when and how we can say no, and when we should say yes.

LE-04

Preparing residents to deliver high value care: A co-developed workshop with Choosing Wisely Canada

C. M. Hillis¹, K. Born², B. M. Wong³
¹McMaster University, Hamilton, ON; ²Choosing Wisely Canada, Toronto, ON; ³Sunnybrook Health Sciences Centre, Toronto, ON

Trainees are expected to achieve competence in the appropriate allocation of finite health care resources for optimal patient care. Yet, formal training and assessment in resource stewardship in residency education is lacking. Additionally, few faculty have the ability to teach and assess resource stewardship competencies. This session will provide attendees with an introduction to the fundamentals of resource stewardship education. Examples of successful resource stewardship curricula will be showcased with barriers and enablers to implementation discussed. The Choosing Wisely Canada campaign will be highlighted as a platform to help faculty and residents introduce resource stewardship training initiatives at their own institutions.

Trainees, faculty and program directors attending this interactive workshop will be given an opportunity to practice the “one-minute preceptor” instructional method and see that it can be used to teach resource stewardship in the clinical setting. In addition, they will practice using real-world clinical data (e.g., at the individual patient level or at the unit/system level) as an instructional method and assessment tool for resource stewardship education.
Physician health and wellness /
La santé et mieux-être des médecins

PHW-01

Healthy healers, healthy workplace:
Awareness to action

L. Flynn¹, C. Doty², J. Lemaire³, S. Edwards⁴, C. Simon⁵, S. Smith⁶
¹Queen’s University, Kingston, ON; ²University of Kentucky, Lexington, KY, ³University of Calgary, Calgary, AB; ⁴University of Toronto, Toronto, ON; ⁵Canadian Medical Association, Ottawa, ON; ⁶Resident Doctors of Canada, Ottawa, ON

Despite its rewards, medical training and practice are highly demanding. In recent years physician health and wellness has emerged as a definitive issue within the medical profession and although progress has been made, many barriers remain. Recent research has reported burnout rates as high as 49% and 56% among residents and medical students respectively. Moreover, the negative impacts of poor physician health are significant not only for the affected individuals, but also patients as well as the healthcare system. Targeting a broad audience, including program directors, residents, educators, and administrators, this symposium will examine the key concepts of physician health and their influence on well-being, performance and quality patient care. Current and future strategies to mitigate poor physician health, learner burnout and promote prevention will be explored, both at the individual and system level.


PHW-02

A resident and physician wellness program: Why it is needed and how to do it right

M. Raazi¹, A. Chakravarti²
¹University of Saskatchewan, Department of Anesthesiology, Saskatoon, SK; ²Royal University Hospital, Saskatoon, SK

The Royal College of Physicians and Surgeons of Canada recognized Physician Health as a “one of the cornerstone ideas to improving the delivery of healthcare” (CanMEDS Physician Health Guide, 2009). Resident and physician health are also integral to the CanMEDS 2015 framework; the Professional role requires competency in demonstrating commitment to patients, society, our profession, and physician health to optimize patient care. The Future of Medical Education in Canada Postgraduate project (FMEC PG) commissioned an environmental scan in 2011 which emphasized the dire need to promote resident and physician health from the perspectives of patient safety, physician sustainability and resident academic performance.

This session will present the physician and resident health related evidence and information that has become available since 2005. This information will be used to underscore the critical need to develop formal resident and physician health programs and highlight the practical steps that can be taken to do so based on our experience developing a wellness curriculum at the University of Saskatchewan. This will be accomplished primarily through case discussions, problem based learning, and role play, with further use of lecture, audience polling and small group discussions.

This session will explore existing perceptions about resident and physician wellness in Canada and the extent of its incorporation in the current structure of postgraduate medical education. This session will also enumerate the existing and anticipated barriers to a more integrative and effective approach to resident and physician wellness, and suggest tools and approaches that might help address these barriers.

This session will discuss opportunities for incorporating resident and physician wellness into the physician life cycle, and the Competency Based Medical Education (CBME) paradigm. Practical approaches for integrating resident and physician wellness at program, institutional, provincial, national and international levels will be discussed.
### PHW-03

#### Meeting the needs of the academic mission: The how and why of faculty resilience

**D. Meschino, J. Teshima**  
1University of Toronto, Toronto, ON

Faculty resilience contributes to career satisfaction, the academic mission, and quality and safety in patient care. Resilience is based on individual factors, professional relationships, and academic and institutional communities, all of which can be developed and enhanced. However, our efforts to develop academic environments that enhance vitality, creativity, flexibility, and resilience are challenged by various pressures to enhance efficiency, safety, and effectiveness in the context of reduced resources. The status quo reveals increasing incidence of physician burnout, dissatisfaction, and even suicide. Numerous programmes exist to assist with individual MD resilience including mindfulness, online education, and MD mental illness interventions. Many commercialized workshops and programmes also focus on enhancing individual resilience. Few focus on developing professional relationships and enhancing academic communities.

The focus of this workshop is to demonstrate techniques to build individual resilience but also develop engaged and inspired academic communities. Participants will gain experience with several tools and strategies that can be used to help faculty understand both individual and system issues that can impact on their own resilience and the resilience of their academic community. Participants will be encouraged to identify opportunities for enhancing both individual and systemic resilience within their own settings. They will also have the opportunity to reflect on how to implement resilience initiatives in their own settings, taking into account potential challenges and barriers. Resources and references related to these implementation approaches will also be provided.

### PHW-04

#### Resident survival stories

**A. Atkinson¹, D. de SA², M. Bourque³, N. Stewart⁴**  
¹The Hospital for Sick Children, Toronto, ON; ²McMaster University, Hamilton, ON; ³Dalhousie University, Halifax, NS; ⁴Creighton University, Omaha, NB

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 experience. 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 does a future career look like? What helps in planning the trajectory? Remaining well in residency: fatigue mitigation, maintaining relationships.

This unique opportunity to learn from “real life” stories and strategies used by residents to get the most 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 programming.
PHW-06

Under the microscope: Understanding resident experiences of the remediation process and their struggle for confidence, competence and well-being

S. Edwards, C. Hurst, M. Ruetalo, D. Kahan
University of Toronto, Toronto, ON

The medical education literature typically discusses the remediation process from a program or faculty perspective. As a result, the lived experience of trainees on remediation is largely absent from considerations of best practices. In order to address this gap in the literature and better understand the experiential world of residents on remediation, the Office of Resident Wellness at the University of Toronto conducted a qualitative study focused on how residents make sense of their remediation process.

Residents’ narratives were elicited in response to questions that probed how their professional identity, relationships, learning and performance were affected by the remediation process. Throughout the workshop findings from the qualitative study will be presented in an interactive fashion that encourages reflection on the psychological, emotional and cognitive challenges residents’ experience. Participants characterized remediation as a stigmatizing event that isolated them from their training community and marked them as ‘problematic’. They described feeling punished, alone, overwhelmed, fearful and suffering from low levels of confidence that interfered with learning and performance. They spoke of living “under the microscope” and feeling subjected to a negative scrutiny that diminished their learning process. Problematic discrepancies between the formal structured remediation plan and the logistics of lived the plan were viewed as adding additional stressors and administrative burdens. Some described helpful adaptive behaviors such as reframing setbacks, reaching out to friends and faculty, and being pro-active about their learning needs and goals. Positive supervisory relationships and program supports were identified as key resources to improved learning, increased self-confidence and successful outcomes.

The session will review opportunities for assisting residents in better navigating the multiple challenges to confidence, competence and well-being identified in the study. Strategies associated with breaking the news, the multiple roles of supervision, increasing supports, alternate planning and procedural practices will be covered.
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 explore the challenges of successfully managing this difficult area of practice. It will introduce a diagnostic framework and a pragmatic management approach.

Prof Curran and colleagues will introduce the topic and facilitate a series of small group activities and discussions to explore, clarify and highlight critical issues when identifying, supporting and remediating a colleague in difficulty. The facilitated approach and sharing of case studies will aim to create deeper insights in this field for participants.
Teaching healthcare quality: The next evidence-based medicine

**K. G. Shojania**
University of Toronto, Toronto, ON

Beginning approximately 30 years ago, Evidence-Based Medicine (EBM) rose to prominence as a paradigm within the medical profession. Young, academically inclined clinicians gravitated towards EBM as it resonated with them more so than traditional biomedical research. Meanwhile, medical educators enthusiastically incorporated basic concepts such as sensitivity and specificity of diagnostic tests to more advanced skills such as critically appraising clinical research. Some of the attention to teaching EBM has waned; but it remains uncontested amongst physicians as a highly accepted and respected approach to medical practice.

In this lecture, Dr. Shojania will argue that the concepts and methods behind healthcare QI are currently at a tipping point; making this model poised to become the next EBM. Though an often contentious topic amongst more seasoned clinicians, early career physicians exposed to QI tend to embrace it, as it speaks to their day-to-day work (much like EBM once did, when compared with basic science). With growing concerns for greater professional accountability in the context of 21st century medical education and practice, it behooves us to take an interest in learning – and embracing – QI.

Linking residency training with quality care: Education in action

**E. Vaux**, **C. P. Landrigan**, **W. Levinson**, **B. M. Wong**

1Royal Berkshire NHS Foundation Trust, Reading, United Kingdom; 2Boston Children's Hospital, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; 3University of Toronto, Toronto, ON; 4Sunnybrook Health Sciences Centre, Toronto, ON

Quality of care encompasses a wide range of initiatives; teaching residents about quality and enabling them to act to improve quality is increasingly important. In this panel four individuals who have approached this issue from different perspectives will share their views, provide examples of training models that have worked, and discuss markers of and reasons for success. They will provide practical advice on how to start or improve a program and how to address challenges.
Graduate medical education and better value healthcare service

P. B. Batalden
Dartmouth Medical School, Saint Paul, MN

Residency education is about preparing people to be professionals over the next three decades. What knowledge, skills and habits will serve them well? What assumptions about their work should we make? What must be true if they are to be professionals who experience joy and pride in work that is well-done? No one knows the future with certainty. What have we learned as we have worked on healthcare services work in the past three decades? How have the driving questions changed now...as we contemplate the next work of improvement?

Longitudinal or traditional rotations: Which is better for patient care and training?

F. Moss¹, S. M. Spadafora²
¹Royal Society of Medicine, London, United Kingdom; ²University of Toronto, Toronto, ON

During this session, Drs. Fiona Moss and Salvatore Spadafora will go head-to-head debating the pros and cons of a rotations-based model for training residents within the context of a quality improvement / patient safety movement in medical education. In one corner, Dr. Moss, Dean of the UK’s Royal Society of Medicine, will argue that residents benefit from a longitudinal, in situ practice – where they can fully integrate into the culture of an institution, providing uninterrupted patient care. In the other corner, Dr. Spadafora, Vice Dean of Post MD Education, University of Toronto will argue that a rotations-based model improves educational efficiency, exposing residents to multiple experiences, most representative of future practice, in the most time efficient manner. Balancing learner and patient needs is the crux of this debate.

KeyLIME Top 10 papers in simulation

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Simulation-based education is increasingly utilized in Post-Graduate 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.
SIM-03

Assessing procedural performance using sensors: Low cost, low resource simulation feedback

F. Munshi¹, S. Munshi², Z. Nakshabandi³
¹Saudi Commission for Health Specialties, Riyadh, Saudi Arabia; ²Umm Al-Qura University, Makkah, Saudi Arabia; ³Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Workshop Overview
To promote effective learning, appropriate feedback is the most important variable in Simulation Based Medical Education (SBME). This workshop will introduce participants to an innovative method of providing feedback and assessing performance using various types of sensors.

Course Content
Feedback sensors are used to interact with external factors such as pressure, temperature, distance, speed and position. These factors are then converted to actuators, displays and/or data for performance assessment. A sensor/actuator board will be used to introduce participants to 12 different sensors (linear position sensor, angular position sensor, motion sensor, sound sensor, heart beat sensor, flexi-force sensor, ultrasonic distance sensor, light sensor, fire sensor, proximity sensor, bend sensor and a hall magnet sensor) and 5 different actuators and displays (DC motor, servo motor, buzzer, LED bar, and an LCD display). This board will display the interaction between any sensor and actuator.

Participants will be divided into groups and given a partial task trainer. Each team will design a method to assess performance by incorporating feedback sensors in the task trainer. For example, a pressure sensor may be used to assess performance with a sound actuator. After the team agrees on the sensors and justifies the approach, they will be able to attach the chosen sensor and actuator on to the task trainer and experience hands-on innovative methods to measure performance. Participants will experience with using multiple combinations of sensors and actuators.

Adult Learning Concepts
Experiential Learning: Participants will be able to experiment with using different types of sensors and actuators.

Brain Based Learning: Adequate complexity to all levels of experience and background in simulation.

Adult Learning: Relevant to learner’s world, problem driven, and practical.
Using innovative technologies for medical education /
L’utilisation des technologies innovantes en formation médicale

**TEC-01**

**Social media master class: How to build your digital footprint as a clinician educator**

_A. Jalali¹, T. M. Chan², B. Thoma³_

¹University of Ottawa, Ottawa, ON; ²McMaster University, Hamilton, ON; ³University of Saskatchewan, Saskatoon, SK

**By the end of this session attendees will be able to:**
- Summarize the advantages and perils of Social Media tools for physicians as educators, leaders and researchers.
- Begin developing a strong professional digital footprint
- Network with other educators and promote their research and scholarship online

**TEC-02**

**Innovative tech toolkit to flip your classroom**

_S. Yiu¹, R. G. Patwari², R. Cooney³, A. Petrosoniak⁴, J. Leppard⁵, D. Schiller⁶_

¹University of Ottawa, Ottawa, ON; ²Rush University, Oak Park, IL; ³Geisinger Medical Centre, Danville, PA; ⁴St. Michael’s Hospital, Toronto, ON; ⁵East Carolina University, Greenville, NC

Blended learning is increasingly employed in education to encourage active learning. The “Flipped Classroom” is a form of blended learning that tasks learners with “prework” that provides foundational knowledge and then utilizes class time to take advantage of collaboration, problem solving, and group discussion.

Educational theory posits that educators can take advantage of online learning to minimize cognitive load by limiting lesson length and applying multimedia design principles. Likewise, in class time allows for the creation of a “community of inquiry” and now supports social constructivism, learner-learner and learner-content connections that are difficult to create in a traditional, lecture-based didactic program.

During this session participants will learn and practice different methods to flip their own classroom. We will demonstrate the creation of core pre-class materials supported by cognitive psychology principles. Participants will apply a variety of innovative techniques to integrate technology into the classroom across multiple platforms. Lastly we will discuss how to incorporate deliberate practice into the creation of interactive in-class or out of class activities.

We forsee this education methodology to be applicable to academic half days, grand rounds and other teaching activities in residency programs. Specifically, educators can use flipped classroom method to deliver their core content beforehand to learners and build authentic clinical-case based exercises for collaborative knowledge construction during class time. Once these content is built, other teachers can use the same materials without having to ‘know the slide deck’, and instead can advise on clinical reasoning as the experts that they are.

On a larger scale, we envision that one day it will be possible to build a national flipped classroom core content relevant to each specialty. Therefore, educators in the same specialties can simply use existing core content designed congruently with cognitive load and multimedia principles. Again, the classroom teachers will simply be the clinical experts to engage residents in high-order learning: critical thinking, clinical problem-solving and decipher the nuances of clinical practice.

**TEC-03**

**Intro to Twitter mastery #MedEd**

_A. Jalali_

University of Ottawa, Ottawa, ON

The use of social media has become omnipresent in our everyday lives as educators and Twitter particularly has become a major engagement component at medical education conferences.

This lightening round will start with an introduction to use of Twitter at #ICRE2016 with use of Twitter Analytics and Symplur. Different apps (Buffer, Hootsuite, etc) will be used to show how to tweet with the most impact. We will conclude with discussing recent Twitter hack and how to keep your account safe.
Teaching and learning in residency education / L’enseignement et l’apprentissage dans la formation des résidents

**TL-01**

**Health advocacy: What is it really? And how can I ever teach and assess it?**

**J. Sherbino**, **M. Hubinette**

1McMaster University, Hamilton, ON; 2University of British Columbia, Vancouver, BC

This session is designed for frontline clinicians, clinician educators and program directors that want to incorporate the Health Advocate Role into either their everyday teaching practice and/or residency program. Upon completion of this session, participants will be able to explain health advocacy using a practical framework that links common activities, scope and approach; describe the design of experiential learning of key knowledge, skills and attitudes required for health advocacy; and critique existing health advocacy assessment instruments that may be incorporated into an assessment program.

**TL-02**

**How embedding residents in functional health care teams can positively impact patient experience and compassionate care**

**C. Maclean**, **J. Maniate**

1Memorial University, St. John’s, NL; 2St. Joseph’s Health Centre, Toronto, ON

There is a growing appreciation that our health care system is fragmented, which often leaves patients and their families unsettled and unsupported. This is particularly noticeable as they attempt to traverse the gap from the community to the hospital and then return home with transitions that feel more haphazard than facilitated. Patients and their families are increasingly expecting to receive coordinated, compassionate care focusing on their needs. For example, the Patient’s Medical Home (PMH) model of care is emphasizing team-based patient-focused care that seeks to address these concerns while striving to ensure safety and the highest quality of care and experience for patients.

The primary focus of the PMH is using the family practice as a hub, connecting the patients to all segments of health care system, including specialists, other health care professionals and support organizations, conveniently and efficiently, ensuring appropriate follow-up and continuity in services received. The system emphasizes the connections between the primary, secondary and tertiary levels of care ensuring efficient collaboration and enhanced experience for the patients.

In this workshop, we will explore the challenges, as well as the strategies that have been utilized to implement the PMH or other models in a variety of settings, and how embedding residency education in a variety of specialties within such a model of care can transform the experience of residents, physicians and our patients.
Teaching and learning in residency education / L’enseignement et l’apprentissage dans la formation des résidents

**TL-03**

**KeyLIME Live @ ICRE**

**J.R. Frank¹, J. Sherbino², E. Warm³**

¹The Royal College of Physicians and Surgeons of Canada, Ottawa, ON; ²McMaster University, Hamilton, ON; ³University of Cincinnati Academic Health Centre, Cincinnati, OH

Over lunch at ICRE this year, meet the Med-Ed gurus from the KeyLIME podcast and special guests as they and the audience debate the latest publications from the top journals. Hosts Jonathan Sherbino, and Jason Frank this year welcome co-host Dr. Eric Warm, a professor of medicine and director of the Internal Medicine training program at the University of Cincinnati. Several carefully chosen papers will be debated, dissected, defended, and deconstructed. Enjoy your meal, enlighten your mind, share your opinions and have a few laughs while learning lessons from the literature.

**TL-04**

**Levelling the playing field: Creating a culture in PGME that promotes leadership opportunities for residents**

**T. McLaughlin, L. Gold**

Resident Doctors of Canada, Ottawa, ON

The importance of leadership competencies for physicians, and as an element of post graduate medical education curricula, has been universally accepted and is evidenced by its inclusion in the Royal College’s CanMEDS Framework, CFPC’s CanMEDS-FM, and as a recommendation in the FMEC-PG report. While leadership can be taught didactically, many believe that leadership skills are best learned experientially. Resident Doctors of Canada has undertaken a study examining the experiences of a cohort of residents that occupied leadership positions over the course of their residencies. The study, based on semi-structured interviews, aims to identify both those factors that enhanced their ability to occupy leadership positions alongside their educational and clinical responsibilities, as well as the challenges they faced.

This workshop will present the findings of the RDoC study as a backdrop to the practical conversation that is needed in PGME regarding ways of moving from rhetoric to action. Specifically, a panel comprised of a medical student, resident, program director, and post graduate dean will explore tangible ways that we can move beyond simply paying lip service to the importance of leadership. Panelists will be asked to speak to innovative and creative ways of enabling residents to avail themselves of leadership opportunities in ways that legitimize them, and take them into account within the context of establishing their other academic and service commitments.

If leadership skills are to be truly encouraged among residents, greater efforts need to be made to encourage their active participation in leadership opportunities. Moreover, this approach must be national in scope, and exist within the many diverse programs within our post graduate environment.
TL-05

Program director survival stories

S. Lee¹, F. Ankel², K. E. Raymer³, S. L. Turner⁴, C. Doty⁵

¹University of Toronto, Toronto, ON; ²Regions Hospital, St. Paul, MN; ³McMaster University, Hamilton, ON; ⁴University of Sydney, Sydney, NSW; ⁵University of Kentucky, Lexington, KY

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-06

Integrating the tools guide to implement CanMEDS 2015 into your residency program

S. Glover Takahashi¹, L. Murgaski¹, C. Abbott², A. Oswald³

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

The new CanMEDS 2015 Framework will be implemented with an enhanced emphasis in workplace-based learning, teaching, feedback and assessment. Additionally, CanMEDS 2015 will be implemented in a way that reflects the concurrent integration of multiple CanMEDS Roles in the day-to-day workplace.

The Royal College CanMEDS Tools Guide can program directors and other educational leaders in the implementation and integration of multiple CanMEDS Roles in workplace-based learning, teaching, feedback and assessment.

Based on the CanMEDS 2015 Tool Guide, this workshop will translate theory to practice and explore how educators can take advantage of common experiences in their day-to-day work to teach and assess multiple CanMEDS Roles at once.

The workshop will begin with a brief presentation of the recommended principles and best practices to integrate CanMEDS 2015 into residency education. Then, participants will work in small groups on exercises focused on designing residency programs including curriculum mapping and assessment mapping. The workshop will end with a general discussion of educational best practices and implementation strategies to support the concurrent integration of multiple CanMEDS roles in the day-to-day workplace.
TL-07

Communicating with a colleague: From practice to teaching

O. Jamoulle, S. Galanneau, M. Lussier, C. Richard

1 Université de Montréal, Montréal, QC; 2 Centre de santé et de services sociaux de Laval, Laval, QC

The professional practice of physicians involves communication between colleagues on numerous occasions, in a variety of patient care settings (inpatient, outpatient) and by various means (in person, by telephone, by computer, etc.). One of the essential goals of this physician-to-physician communication is to ensure the continuity of care and patient safety. The literature recognizes two forms of this communication: informal and formal. Informal communication between physicians is described as essential to the functioning of the medical system, but entails significant risks in terms of patient safety. There is very little teaching on this type of communication in the residents’ curriculum. Formal communication, which is better taught, takes various forms: patient handovers, consultation reports, record-keeping, examination reports, communications between the hospital and the community...

The general objective of the workshop will be to cover “communication between physicians,” which is part of the role of Collaborator in CanMEDS 2015.

During this session, the benefits and risks of informal communication between physicians will be presented, along with some practical advice.

The workshop will also examine the different forms of formal communication, with particular attention to patient handover tools. The handover tools described in the literature will be discussed, identifying the strengths and weaknesses of each. Participants will have the opportunity to practise using one of these tools. The issue of communications between the hospital and community physicians will also be discussed.

Throughout the session, emphasis will be placed on resident teaching.

Examples of pathways for learning communication between physicians in a residency program will be discussed as a group. Tools that can be used for teaching this communication will be presented.
The CanMEDS framework (a competency framework for specialist physicians) was developed based on previous important work of the Educating Future Physicians of Ontario Project. Since the approval of CanMEDS Framework in 1996 by the The Royal College of Physicians and Surgeons of Canada, the framework has been widely adopted by countries in five continents. It is arguably the world's most widely applied Physicians' Competency Framework.

Within this competency framework the role of physicians as a professional focuses on Professionalism and Physician Health. In the 2015 revision, new themes such as interprofessionalism and intraprofessionalism have been incorporated within the framework. The enabling competencies under the role of physicians as a professional are in fact inter-related in essence with all of the competencies across the framework and are affected by professional identity transformation as a professional advances through the competence continuum presented in the framework from an MD to through a successful transition out of professional practice.

The session will present documentary evidence, perceptions and data gathered from two continents over the last three years. Following are the concerns related to physician professional identity formulation and transformation:

- Patient role
- Socio-economic role
- Cultural role
- Healthcare environment role

In this session evidence shall be presented through commentaries and debated in focus group discussions and further developed in small group activities using case studies, scenarios and models.

Full day session will be required for participants to explore their own concepts based on evidence provided and experiences of the group. A shared understanding of the factors that influence the professional role of physicians and how these influence competencies across the framework shall be developed.

Finally, the group shall develop recommendations for influencing the professional development of physicians molded around socio-economic, cultural and patient influences in healthcare environments, in the best way possible.
TL-09

Lessons learned from teaching systems-based practice and teamwork to residents

T. Loong¹, M. Tan¹, M. Lim², W. Seek²
¹Tan Tock Seng Hospital, Singapore; ²National Healthcare Group, Singapore

The practice of medicine and surgery is no longer dependent on individual competence and skill but requires teamwork and a wider appreciation of the systems within healthcare. Whilst Systems-Based Practice is a key competency within the United States ACGME residency program and is considered within the roles of Leader and Collaborator under the CanMEDS Framework, trying to teach this concept to residents is not as straightforward as it appears.

In this session, we will discuss our experience with designing, developing and delivering a structured course targetted at surgical residents at our institution in an attempt to impart the knowledge and necessity to approach modern healthcare from a systems perspective.

This session will include a discussion of the variety of pedagogical approaches that we have employed and some of the barriers that we have encountered in our educational endeavour.

TL-10

“How can I help you find the “perfect” job?” The role of program directors in career development for residents

M. A. Trinkaus¹, J. Maniate², G. Bandiera¹, M. Clark³
¹St. Michael's Hospital, Toronto, ON; ²St. Joseph’s Health Centre, Toronto, ON; ³University of Calgary, Calgary, AB

As physician subspecialty positions become increasingly competitive, it is clear that residents require greater career planning and mentorship. A national needs assessment sent to PGY4 to PGY6 Hematology Trainees across Canada specific to career planning (47 of 65 respondents; 72% response rate) indicated that up to 50% of trainees had no formal career counseling or structured career planning curriculum in their programs, with only 33% of trainees having any ongoing contact with mentors specific to career planning. Recent resident surveys indicate that many competing factors influence job selection outside of clinical work including location of practice, and family obligation. Not surprisingly recent literature highlights the accelerated level of personal stress and anxiety experienced by residents.

This workshop will present evidence on the progress and challenges encountered with career planning for medical and surgical residents. Various tools and resident specific modules for mentorship and career planning will be presented and interactively discussed during the workshop.

Career planning is also directly connected in the CanMEDS roles of Professional and Leader. This session will close with an emphasis on the integration and necessity of career development on the future of medical education and health human resources planning in Canada and its integration in Competency Based Education.
**TL-11**

**From orchestras to operating rooms: Professional culture and its impact on learning**

*C. Watling*
Western University, London, ON

Learning occurs not simply in the mind of the individual learner. It is a social process, unfolding as learners participate in the activities of a health care community. To understand learning, therefore, we need to attend to learning culture - the shared attitudes, beliefs, goals, and practices that underpin how a profession directs and supports the education of its learners. Culture can be difficult for insiders to appreciate. In this talk, elements of medicine’s learning culture will be made visible in order to critically examine what the culture affords and allows and what it constrains. The tension between calling for culture change and acknowledging and working within core cultural values will be explored.

**TL-12**

**KeyLIME: Best teaching and learning literature**

*J. Busari¹, M. Chan²*
¹Maastricht University, Maastricht, Netherlands; ²University of Manitoba, Winnipeg, MB

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.
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