**2014**

# The International Conference on Residency Education

## La Conférence internationale sur la formation des résidents

# Residency Education and Care in the Digital Age
# La formation des résidents et les soins à l'ère numérique

**Conference Abstracts | Résumés de la conférence**

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## SESSION ABSTRACTS / RÉSUMÉS DE LA SÉANCE

# Competency-based education / La formation médicale fondée sur les compétences

## 091

### Competencies in residency programs in Thailand by comparison with CanMEDS

P. Wattanaruangkowit

Faculty of Medicine, Pathum Thani

Introduction: Residency training in Thailand both specialty and subspecialty boards have wide variety of educational design. Competency-based education is accepted and implemented worldwide particularly the well-known CanMEDS. The purpose of the study is to investigate the difference of objectives of major Thai residency program and CanMEDS.

Methods: Descriptive analysis of the program objectives of major residency programs that implemented between 2008 to 2013 was done. A 14 out of 28 Diplomat Thai board of specialty residency programs from 13 Royal Colleges were analyzed. Their program objectives were compared with CanMEDS competencies.

Results: There were six competency-based program and eight programs were disciplined and psychometric based fashion. Number of Thai residency program objective that corresponding with CanMEDS competencies: Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar and Professional were 14 (100%), 12 (85%), 6 (43%), 8 (57%), 3 (21%), 13 (93%) and 14(100%) respectively. However, all programs states research as another competency. Only family medicine program had life skills and quality of life. General surgery and Obstetrics and gynecology programs had no communicator. Continuous professional development is not mentioned in Anesthesiology program.

Conclusion: CanMEDS competencies are not identical with most of Thai residency program objectives. Medical expert and professional ethics are matched with all programs. Collaborator and manager are frequently stated but health advocate is rarely identified.

## 092

### Competency-based medical education: State of the art and priorities for development from an international expert Delphi process

J. R. Frank[1], L. Snell[2], J. Sherbino[3], C. Abbott[1], O. Ten Cate[4]

[1]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [2]McGill University, Montreal, QC, [3]McMaster University, Hamilton, ON, [4]University Medical Center Utrecht, Utrecht

Background: Competency-based Medical Education (CBME) is an emerging approach to training in the health professions worldwide. In 2009, the International CBME Collaborators (ICBMEC) was founded to advance the field (See Med Teacher August 2010). In 2013, the consortium reviewed the current state of CBME and priorities for further discussion.

Method: ICBMEC members undertook a modified Delphi using online surveys and teleconferences. In round 1 participants were asked to identify: a) possible CBME topic that were controversial or requiring further development and b) other educators or practitioners of CBME. Additional members were recruited from the nominees to participate in the process. In further rounds, participants were asked to prioritize the topics until consensus was achieved. Topics with >70% endorsement were included in the next round. Results of each round were distributed electronically and reviewed by teleconference before launching the next round.

Results: Consensus was achieved in 4 rounds. Survey response rates were 47%, 55%, 66%, and 100% across the 4 rounds respectively. Ninety topics were generated in round 1. By the final round, consensus was achieved on 6 major topic themes: milestones and EPAs, entrustment, assessment, implementing CBME, faculty development for CBME, CBME program evaluation, and a CBME research agenda. The final list of topics was used to design a CBME consensus conference held in 2013 in Calgary, Canada.

Conclusions: Health professions education leaders identified 6 key issues to advance CBME worldwide.Take-home message: Advancing CBME will require further work on EPAs and milestones, as well as assessment, curriculum implementation, faculty development, program evaluation and key research issues.

# Resident duty hours / Les heures de travail des résidents

## 093

### The influence or lack of influence of competency based medical education on residents' intentions to practice.

I. Oandasan[1], L. Authier[2], S. Ross[3], D. Archibald[4], W. Survey Development[1]

[1]The College of Family Physicians of Canada, Mississauga, ON, [2]University of Montreal, Montreal, QC, [3]Family Medicine, Edmonton, AB, [4]University of Ottawa, Ottawa, ON

Background: Health system planners are looking to the Royal College of Physician and Surgeon's Competency by Design and the College of Family Physician of Canada's Triple C Competency based Curriculum to consider the role of curriculum in influencing graduates' intentions to practice. Triple C aims to produce family physicians ready to begin the practice of comprehensive family medicine. Well-designed competency based medical education (CBME) should enable learners to acquire competence, but does CBME influence learners' choice of practices?

Objective: Pilot data from a mixed method study will be shared exploring learners' intentions to practice with level of implementation of CBME. Methods: An exit survey given to 2nd year family medicine residents in 6 residency programs across Canada (n=273) will be shared. Each program, reviewed for level of implementation of Triple C through an implementation inventory, will be used to cluster learner responses according to the program's' low, medium or high implementation of Triple C.

Results: Preliminary results indicate regional variation in responses despite high implementation of Triple C. In one region, there was less likelihood for learners to begin practicing comprehensive care (p=.001) and an increase likelihood of focusing practice (p=.06)

Discussion: Practice models and F/P/T physician workforce policies are posited to influence graduates' intentions to practice despite level of implementation of Triple C. This study points out the need for health system planners and curriculum planners to align their work supporting the development of competent family physicians with practice incentives to provide comprehensive care.

## 094

### Night rotation in multiple residency programs at Université de Montréal

C. Lambert, N. Caire Fon, S. Raymond-Carrier, S. Ahern, L. Authier, G. Grégoire, J. Gobeil, J. Dubois

Université de Montréal, Montréal, QC

Background and objectives: Upon introduction of the new collective agreement for residents in Québec, Université de Montreal residency programs had to adjust to the abolition of more than 16-hour shifts. Night rotation was designed to ensure stable learning groups for residents in hospital wards, favouring development of communication and collaboration competencies. Improvement of resident quality of life and learning environment, as well as ensure patient safety, were practical goals.

Summary of innovation: At the end of the current academic year, 345 residents will have completed night-time rotations lasting four consecutive nights for 4 weeks in one of the 5 affiliated hospitals, in internal medicine, surgery, coronary or intensive care units. Rotation design aimed to support integration of communication and collaboration competencies as well as reflexive practice and self-criticism. Twenty-three rotation supervisors, trained to be reflexive coaches, offered their support to residents during the rotation.

Conclusions and implications: Survey and interviews collected residents' and supervisors' opinions. Feedback data allows us to observe that the rotation improved the learning experience, mostly due to enhanced group cohesion. Residents perceived that patient safety was improved. Three difficulties emerged: sleep management, lack of feedback on medical expertise and lack of practical knowledge to handle common clinical situations by under experienced residents. The rotation will be carried out again next year, with closer attention paid to the three difficulties. Assessment and feasibility results will be shared with other Faculties that are confronted with similar problems.

## 095

# Surgical residents' adherence to post-call duty hour limits: What are the challenges for education and patient care?

L. Gotlib Conn[1], B. Haas[2], A. Smith[1], N. Ahmed[3]

[1]Sunnybrook Research Institute, Toronto, ON, [2]University of Toronto, Toronto, ON, [3]St Michael's Hospital, Toronto, ON

Introduction: Surgical residents' adherence to duty hour regulations is strongly encouraged by academic and hospital administrations. Yet, known challenges arise in implementing duty hour limits in surgical training programs, and varied perspectives exist among surgical trainees and faculty on the benefits of duty hour limits relating to education, resident wellness, and patient care. Previous research has indicated a number of complex, interconnected cultural factors (e.g. surgical hierarchy, surgical tradition) and structural factors (e.g. workload, team structures) influence residents' decisions to adhere to duty hour policy. The aim of this study is to gain an in-depth understanding of the influences on University of Toronto surgical residents' decisions to leave or stay in the hospital following their call.

Methods: This is a qualitative study using semi-structured interviews with general surgery residents and faculty at the University of Toronto. Interviews will explore faculty and trainee perspectives on, and experiences with post-call patient care, training and service expectations, and educational opportunities. Data collection and analysis will be conducted iteratively; data analysis will be conducted inductively using a thematic analysis approach. Twenty participants are expected to be recruited by a theoretical sampling technique. Findings are expected in August 2014.

Conclusion: The problem of adherence to post-call policy is multi-dimensional. It requires deep examination of local contexts, and the variable meanings attributed to surgical practice and training by residents and faculty. This study will inform initiatives to enhance the educational experiences of surgical residents, while simultaneously optimizing processes to deliver high quality patient care.

## 096

# The McMaster internal medicine experience with implementation of a night float model for reduced resident duty hours

L. Melvin, N. Sitzer, H. Al-Azem, D. Ulic, S. Haider

McMaster University, Hamilton, ON

Introduction: The impact of traditional 26-hour call on resident and patient safety has recently been questioned. While discordance exists in the literature, there has been a desire to examine reduced duty hour models. In July 2013, the McMaster University Internal Medicine (IM) Residency Program implemented a pilot Night Float (NF) model for Senior Medical Residents (SMRs) for reduced duty hours. We present the model; challenges faced upon implementation, and proposed changes to overcome these issues.

Methods: The McMaster IM program covers 3 Clinical Teaching Unit (CTU) sites, each receiving 15-25 IM consults daily. In the NF model, overnight IM coverage is broken into 3- and 4-day consecutive 9pm-10am NF periods over the block, with 4 residents on subspecialty rotations covering each block per CTU site. Additionally, we added a "Bridge Shift", with one on-service SMR staying until 10pm to cover consultations with a newly implemented PGY3 "Medical Liaison" resident based in the emergency department covering IM consults from 2pm-10pm. A planned interim assessment of the pilot identified both anticipated and unanticipated challenges, including difficulties with shift timing, handover, resident fatigue, vacation scheduling, and subspecialty and NF educational experiences.

Conclusions: Implementation of a pilot NF model in the McMaster IM program has provided practical experience on the system-wide implications of a Reduced Working Hour Model. We have since revised the NF model for July 2014. Our experience with 3 busy tertiary care sites may be instructive to other centers looking at implementation of reduced working hour models.

# Education research methods / Les méthodes de recherche en éducation

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

## 097

### Scoping review of postgraduate anesthesiology residency education using online survey tool for data collection and reporting

L. Murgaski, S. Bance, S. Glover Takahashi, J. Herold, M. Kennedy-Hynes, C. Ringsted

University of Toronto, Toronto, ON

Introduction: The link between education and clinical practice is vital, yet the current state of research suggests there is a substantial gap between medical education research and practice. This too is the case in the domain of anesthesiology education research, as much of the research focuses on simulation studies, and a narrow range of research methods is employed. This paper describes the comprehensive review of the existing literature in postgraduate anesthesiology education research in order to identify key educational research priorities.

Methods: Arksey and O'Malley's (2005) scoping review methodology was used to comprehensively search relevant electronic databases (e.g. MEDLINE, Embase) and grey literature, yielding 9779 abstracts. Calibration across the team of researchers was undertaken to achieve consistency. Title and abstract inclusion/exclusion criteria were recorded directly in EndNote. Criteria for inclusion included: mention of anesthesiology in some capacity, a focus on the postgraduate level/residents, and discussing education. Extracted data including the context of the research and type of education examined is being collected using online survey software. This software allows for sorting, cross referencing and reporting on the data.

Results: Preliminary results indicate a focus in the current research on procedural skills acquisition and performance assessment comparisons between residents and senior specialists. Findings will be used to inventory key gaps in anesthesiology education research and a planned broad consultation to build an anesthesiology education research strategic plan.

Conclusion: A scoping review of the past inventory of research can identify gaps and guide future educational research need.

## 098

### Disability and accommodation in residency: Lessons from the Board of Medical Assessors (Postgraduate), University of Toronto

S. Edwards, D. Tannenbaum

University of Toronto, Toronto, ON

Introduction: Some residents have health conditions that potentially impact their ability to succeed in their program. Residents with disabilities are entitled to the same opportunities as those without, which may require programs to provide accommodations tin training. It can be challenging for program committees to determine a) the degree to which a trainee's performance is impacted by a health condition and b) how to provide 'reasonable' accommodations in postgraduate education. The Board of Medical Assessors was expanded at the University of Toronto in 2010 to include a Postgraduate Education sub-board to help residency programs manage these challenges. Its mandate is to determine whether there is a medical condition that affects, or may affect, the ability of a trainee to participate, perform or continue in a program and to make recommendations to the Dean regarding participation and training modifications/accommodations. Cases are referred from the Vice Dean (PGME) or Residency Training Committees, or from the Board of Examiners.

Methods: This paper will discuss general themes from cases reviewed including 1) determining the contribution of health conditions to cases of substandard performance 2) accommodations and their resulting implications for meeting program standards and acquisition of competencies. It will identify key referral and resources utilized by the BMA and discuss general outcomes.

Conclusion/Implications: The work presented in this paper may contribute to the development of best practices in the accommodation of residents with disabilities in postgraduate medical education and provide guidance to training programs in managing health issues in the context of performance deficits.

## 099

# Reliability and validity of the Canadian physiotherapy assessment of clinical performance

B. Mori[1], K. E. Norman[2], D. Brooks[1], J. Herold[1], D. E. Beaton[3]

[1]University of Toronto, Toronto, ON, [2]Queen's University, Kingston, ON, [3]St. Michael's Hospital, Toronto, ON

Background/Introduction: The current tool used to assess physiotherapy (PT) students in clinical education is inadequate. We have developed a new tool that will be used across Canada to assess PT students' performance in clinical education. The goal of this study was to investigate the reliability and construct validity of the Canadian Physiotherapy Assessment of Clinical Performance (ACP).

Methods: The ACP was pilot tested in 10 University PT programs in 2013. Both the ACP and the current tool, the PT-CPI (Version 1997), were completed by clinical instructors supervising a PT student completing a clinical internship.

Results: The ACP was completed at midpoint (n=132) and final point (n=126) by clinical instructors assessing PT students' performance during internships representing a variety of areas of practice. At the final point, the sample was comprised of 55 junior, 30 intermediate and 41 senior students. The ACP demonstrated very strong reliability with an alpha coefficient of 0.99. Aligned items on the ACP and PT-CPI were significantly correlated. Senior PT students performed significantly better than intermediate students who performed better than junior students (p<0.0001). Effect sizes for midpoint to final point scores on the ACP ranged from 0.40-0.74.

Conclusions: Preliminary psychometric analyses of the ACP reveal that it has strong reliability and construct validity. The distribution of final point scores was different from midpoint scores and it was able to capture a progression of improvement across PT students' development towards entry-level competence. The ACP can be used with confidence to assess PT students in clinical education.

## 100

# Assessment of communicator and collaborator CanMEDS competencies for developmental pediatric trainees

L. K. Sonnenberg, C. Hodgson, L. Wiart

University of Alberta, Edmonton, AB

Since the training of a Developmental Pediatrician occurs in an inter-professional team setting, receiving feedback from team members and relaying it to the trainee in an appropriate and timely manner is important. This survey study determined which CanMEDS Communicator and Collaborator objectives were thought to be observable and assessable by inter-professional clinicians (IPC), during a trainee's core Developmental Pediatric rotations. Developmental Pediatric trainees who had recently completed rotations in Preschool, School-Aged and Pediatric Rehabilitation were asked to identify physical and occupational therapists, speech-language pathologists, nurses, social workers and psychologists, with whom they frequently worked during these core rotations. All identified IPC (N=35) and attending physicians (N=10) completed the survey about the current 19 Collaborator and 21 Communicator objectives (N=40) developed by the Royal College of Physicians and Surgeons. Analysis of variance was used to test for differences between groups and clinical service team means were compared using independent t-tests.

Although physicians were able to observe and assess more objectives compared to the IPC group (M=33 (5.2) and 32 (5.3) vs. M=25 (8.6) and 20 (10.6), p<0.01), there were no differences between the IPC groups, or between the Developmental-Behavioral service teams compared to the Pediatric Rehab service team, in terms of the number of objectives they thought they could observe and assess. The next research phase will be to conduct focus groups to determine the contextual factors that influence the ability to observe and assess these Communicator and Collaborator objectives in order to develop a Multi-Source Feedback assessment tool.

## Simulation in residency education / La simulation dans la formation des résidents

### 101

## Face and content validity of the Canadian physiotherapy assessment of clinical performance

B. Mori[1], K. Norman[2], D. Brooks[1], J. Herold[1], D. Beaton[3]

[1]University of Toronto, Toronto, ON, [2]Queen's University, Kingston, ON, [3]St. Michael's Hospital, Toronto, ON

Background and Introduction: The current tool used to assess physiotherapy (PT) students in clinical education is time consuming, not always applicable in the practice setting and may have an American bias. We have developed a new tool that will be used across Canada to assess PT students' performance in clinical education. The goal of this study was to investigate face and content validity of the draft tool through broad consultation with physiotherapists across Canada.

Methods: An online survey was used to collect input on the draft tool. In addition to demographics, the questionnaire included questions regarding the preferred rating scale, the items within the tool that would have a rating scale and general impressions.

Results: The survey was completed by 259 physiotherapists. Participants preferred a discrete rating scale with 6 anchors and 10 boxes (40%) or a lined scale with 6 anchors (42%). One rating scale for each key competency within the Expert role was favoured. Physiotherapists agreed that the proposed tool would allow them to assess a student who was performing poorly (88%) or very well (95%). When asked for input on the name of the tool, while 14% had no preference, the name "Canadian Physiotherapy Assessment of Clinical Performance (ACP)" received the most number of votes (25%).

Conclusions: Physiotherapists indicated their preference in the design, organization and naming of the tool which are reflected in the second draft of the ACP. The next phase of the development of the ACP will be pilot testing the ACP across Canada.

### 102

## Development, organization and implementation of a surgical skills 'boot camp'–SIMweek

P. Singh, R. Aggarwal, P. Pucher, A. Darzi

Imperial College London, London

Introduction: There is evidence of increased mortality and reduced efficiency in hospitals during changeover of doctors at the end of the year. This paper describes a framework to develop an intensive simulated week that will recreate experiences that a surgical intern is likely to face in their first weeks as a clinician.

Methods: To provide evidence-based recommendations, a literature review was performed searching for reports of the development, implementation or evaluation of a simulated skills course or 'boot camp' to prepare incoming surgical interns. PubMed and Medline databases were searched using combinations of the following key words 'surg', 'boot', and 'camp'. All surgical specialties were included. Reference lists of all articles identified were hand searched to identify further articles.

Results: Twenty relevant articles were identified. Subjects on internship preparation courses have found the 'hands-on' training sessions to be of most benefit. Mock pages are particularly valuable and didactic lectures were identified as the weakest components. We first consider the end-users of the course and their associated learning needs. We subsequently discuss resources required and propose a strategy for the organization of a course and selection of teaching faculty. Finally we consider the costs involved.

Conclusions: A framework is proposed for the development, organization and implementation of an intensive simulation course to prepare graduating students for their role as surgical interns. Easing the transition from student to junior surgeon could potentially have clinical benefits for patients through improved patient safety in addition to making the experience less fear inducing for the clinician.

## 103

# A comparison of cognitive load measures in simulation-based procedural skills training

L. Naismith[1], H. Wong[2], A. Lau[2], R. Cavalcanti[2]

[1]University Health Network, Toronto, ON,
[2]University of Toronto, Toronto, ON

Background: Maximizing learning from simulation requires effective instructional design. Cognitive load theory has been used to design cognitively efficient instruction in other settings. However, studies in simulation have demonstrated little relationship between overall cognitive load (CL) and learning outcomes, possibly due to measurement limitations. We examined relationships between commonly used CL measures in a simulation exercise.

Methods: Ten respirology residents at the University of Toronto completed a simulation session on pleural procedures. Residents completed 3 questionnaires at 2 time points: the Paas Cognitive Load Scale, the NASA Task Load Index (TLX), and a 6-item pilot questionnaire constructed to measure CL components (intrinsic, extraneous, and germane load).

Results: Paas scale ratings correlated positively with mental and physical demand dimensions of the TLX, but not to global TLX or pilot questionnaire scores. Residents reporting similar CL on the Paas scale showed different patterns of intrinsic, extraneous, and germane load on the pilot questionnaire. The intrinsic dimension of the pilot questionnaire correlated with mental demand, $r(17)=0.56$, $p=0.01$, and frustration dimensions, $r(17)=0.49$, $p=0.03$, of the TLX. The extraneous dimension of the pilot questionnaire correlated with self-perceived task failure, $r(17)=0.47$, $p=0.04$, on the TLX.

Conclusions: There was little agreement between global CL measures. We also found variability in how CL components mapped onto global measures. This suggests that global CL measures may be inadequate for guiding simulation design. Further work is necessary to explore relationships between different patterns of CL components and learning outcomes.

## 104

# Development of a simulation based extra corporeal support (ECMO) programme

A. Kotsakis, J. Macartney, L. Davidson, A. Stanisic, B. Mema

The Hospital for Sick Children, Toronto, ON

Introduction: Extracorporeal life support (ECLS) is a technology that is used to treat children with respiratory or cardiac failure to recovery or transplantation. The ECLS technology is complex and requires specialized care. In 2011 a team of clinician and education experts were tasked with re-developing the ECMO Specialist Training Activities Program (E-STAR). Kern's framework was used for curriculum development. Data from the needs assessment, a variety of instructional methods including simulation and feedback from performance audits were used to develop E-STAR. The 2 module course uses on-line self-directed learning, in class assignments, interactive problem-based lectures and simulation-based training as instructional methods to teach the knowledge, skills and attitudes necessary for an ECMO Specialist.

Methods: An evaluation tool using a 5 point Likert scale anchored at 1= strongly disagree and 5= strongly agree as well as an open ended question was used for program evaluation. A pre and post course multiple-choice exam was also administered to all participants. Participants for the first course included 2 physicians, 3 respiratory therapists and 6 nurses. Scores on the post-test were higher than in pre-test: 89.1 (SD 8.9) vs 76.4 (SD 11.2). The difference was significant $t(19)=2$, $p=0.008$. Survey questions scored a mean of 4.7, with the program as a whole being rated very good to excellent. The theme from open ended comments: "simulations/hands on learning were extremely useful".

Conclusion: A redesigned ECMO curricula using Kern's framework was highly evaluated. A variety of instructional methods including simulation based learning improves performance of ECMO providers.

# Teaching and learning in residency education / L'enseignement et l'apprentissage dans la formation des résidents

## 105

### Does an advanced pelvic simulation session improve resident performance on a pediatric and adolescent gynecology focused OSCE station? A cohort study

T. Dumont, J. Hakim, A. Black, N. Fleming

The Ottawa Hospital, Ottawa, ON

Introduction: Canadian Obstetrics and Gynecology (Ob/Gyn) residents may receive limited exposure to Pediatric and Adolescent Gynecology (PAG), despite APOG and CREOG recommendations to teach this subspecialty. Currently, there are few formal curricula in PAG in post-graduate Ob/Gyn training programs in North America. The objective was to determine the effect of a PAG simulation session on resident performance on an Objective Structured Clinical Exam (OSCE).

Methods: Ob/Gyn residents at the University of Ottawa attended a PAG simulation session and completed four stations teaching PAG-related skills. Subjects had completed an OSCE station on prepubertal vaginal bleeding prior to the simulation session and then completed the same station at their subsequent OSCE. Mean OSCE scores were calculated and paired t-tests were used to test for significant differences in total mean scores and individual station scores.

Results: Fourteen residents took part in the simulation session and completed the two OSCEs (pre/post simulation session). The mean OSCE score (maximum possible = 37) for all residents prior to the simulation session was 20.22 /- 4.10 (range 13.0 – 26.5). There were significant improvements in total scores after the simulation session (20.5 vs. 28.9, p<0.001), as well as in history-taking, examination, differential diagnosis, identification of organism, appropriate antibiotic, surgical procedures, and identification of foreign body (p<0.01 for all).

Conclusions: An advanced PAG simulation session increases postgraduate trainee knowledge as reflected in OSCE performance. Ob/Gyn residency training programs should consider implementing/adapting advanced PAG simulation sessions to increase resident knowledge in delivering care to the pediatric/adolescent patient.

## 106

### Understanding residents' attitudes toward research and research education

J. Hatchette, K. Ritchie, J. Chorney

IWK Health Centre, Halifax, NS

Introduction: Many Canadian residency programs require a research component to satisfy the CanMEDS scholarly activity competency and encourage a clinician-scientist role. Limited literature indicates that residents possess negative attitudes toward research. The Fundamentals Of Research Design Course (FRDC) is a 10-week "research immersion" program grounding research design/methodology in an applied, step-wise process. Residents' research questions are developed during once-weekly sessions in a step-wise format (refinement of research questions, literature searches, critical appraisal, grantsmanship, study design, data analysis, ethics, and knowledge transfer). This sequence reinforces research process and ensures momentum behind projects is maintained. Although 95% of residents completing the FRDC in 2009 strongly agreed they were more confident about research, current attendance and completion of research projects remains suboptimal.

Purpose: To explore residents' attitudes toward research, satisfaction with current research training and preferences for alternative research training.

Methods: 40 Dalhousie University anesthesia and surgery residents (PGY2/3) attending the FDRC participated. This descriptive study used post-course questionnaires and focus groups to measure attitudes and knowledge of research, and preferences for research training. Data were analyzed with descriptive statistics and content analysis.

Results: Residents identified lack of interest, mentorship, training and time as barriers. Didactic teaching and misalignment of topics with project progress were also identified as flaws.

Conclusion: To ensure a clinician-scientist role, resident research must be supported in a way that works for the resident.

Future Directions: The present research is currently informing the development of an online research training curriculum (creo™) addressing the identified barriers to residents research training.

## 107

# The role of residents in the promotion of smoking cessation on the Clinical Teaching Unit

N. Sitzer, S. M. Riley, S. Corriveau

McMaster University, Hamilton, ON

Introduction: Smoking cessation is associated with mortality and economic benefits, however many medical schools do not have a formal curriculum on smoking cessation counselling. While house staff plays a pivotal role in the care of Medicine inpatients, there is a paucity of data evaluating their role in counselling patients on smoking cessation. Our objective is to determine current practices and deterrents to smoking cessation counselling from the perspective of house staff on the Internal Medicine Clinical Teaching Units (CTUs) at McMaster University.

Methods: Literature review and expert opinion revealed several perceived barriers to resident counselling on smoking cessation. Using this data, a survey was developed and distributed to Internal Medicine house staff during dedicated teaching sessions.

Results: 36 house staff responded to our survey. 47% of house staff had never received formal training on smoking cessation counselling. While 67% of house staff reported always asking patients if they are active smokers, just 17% reported always counselling patients on smoking cessation. Only 8% of survey respondents reported being very comfortable with smoking cessation counselling. Barriers to smoking cessation counselling included lack of time (72%), lack of knowledge of nicotine replacement therapies (53%) and lack of knowledge of how to effectively counsel patients (47%).

Conclusions: Our survey demonstrates that Internal Medicine house staff perceive many barriers to smoking cessation counselling. This knowledge can be used to implement changes to the residency curriculum with structured teaching sessions tailored towards the identified challenges. Overall, this may promote an increase in the quality and frequency of smoking cessation counselling on the CTUs.

## 108

# Postgraduate adolescent interviewing skills: A reflection of the sustainability of structured formal undergraduate training

S. Manos[1], N. Joukhadar[1], G. Bourget[2], K. Mann[1], K. Blake[1]

[1]Dalhousie University, Halifax, NS, [2]University College Dublin, School of Medicine, Dublin

Introduction: Adolescence is a time when individuals begin to assume responsibility for their own health care. Therefore, effective adolescent interviewing and communication by physicians are critical. Our study aimed to determine whether formal training in adolescent interviewing in undergraduate medical education (UME) has a sustained effect upon postgraduate adolescent interview performance.

Methods: PGY1s (Post-Graduate Year 1 residents) were recruited and each conducted an adolescent interview with a standardized adolescent patient and mother pair (SPs). The patient case focused on subjects sensitive to adolescents, specifically sexual orientation and bullying.

The SPs independently scored each PGY1's interview using the 29-item Structured Communication Adolescent Guide (SCAG), comprised of four sections, each with a Total Item and Global score. Unpaired t-tests were conducted to compare Total Item and Global SCAG scores of the 'no formal training' group to the 'formal training' group, using the SP Daughter score and Mother score separately.

Results: PGY1's with previous formal training (n= 23) received significantly higher scores from SP daughters than those without formal training (n= 29) on both Total Item scores (P = 0.001) and Global scores (P = 0.001).The SP mothers' scores were also significantly higher for those with previous formal training (Total Item: P = 0.01 and Global: P = 0.035). A large effect size was demonstrated for all comparisons (Cohen's d ranged from 0.60-0.95).

Conclusion: Results suggest that structured training in adolescent interviewing in UME, involving practice and feedback, has a sustained effect on postgraduate performance.

## 109

### Residents' perceptions of the positive and negative impacts of social interactions among residents and between residents and faculty on their learning

D. Blouin

Queen's University, Kingston, ON

Introduction: Social interactions (SI) among residents and between residents and faculty outside of work can positively contribute to resident learning through the sharing of learning strategies, mutual effort regulating, and the establishment of trust. Alternatively SI can lead to biased knowledge of residents and faculty, interfering with working relationships and fair performance assessments. Residents who prefer not to partake in outside-of-work SI or cannot due to personal or familial situations might feel pressured to participate to avoid alienation from peers and faculty. This study explores residents' perceptions of the positive and negative impacts of outside-of-work SI on their learning.

Methods: All 21 current residents of the Queen's University RCPSC Emergency Medicine program were invited to comment in a web-based survey on the positive and negative impacts, on their learning, of outside-of-work SI among residents and between residents and faculty. Themes of positive and negative impacts were extracted using a grounded theory approach with constant comparative analysis. Two independent reviewers coded all data.

Results: Thirteen residents (61.9%) completed the survey. 27 comments reflected positive impacts, regrouped under five themes: Facilitates role modeling/mentoring, creates support, increases concrete learning, increases motivation, increases comfort at work. Seventeen comments reflected negative impacts, grouped under six themes: Deficit in professional role training, lapses in teaching skills, biases incorporation, homogeneity of practice patterns, loss of personal time, alienation from group.

Conclusion: Residents perceive the impacts of outside-of-work SI on their learning as mostly positive although also identify serious negative influences. Faculty needs greater awareness of the latter.

## 110

### Teaching the communicator role in neonatal – perinatal medicine: How are we doing?

E. Finan, A. Keir, K. Godin, B. Simmons, A. Jefferies

University of Toronto, Toronto, ON

Introduction: Effective communication between neonatologists and families is integral to optimal family centered NICU care. Although trainees must be skilled in this competency on completion of residency, training often occurs informally with limited opportunities for structured feedback and reflection. There is currently no standardized approach to communication skills training in Neonatal-Perinatal Medicine (NPM) in Canada. Our aim was to examine current methods of communication skills training in Canadian NPM programs along with optimal methods for delivering such training.

Methods: Anonymous questionnaires exploring communication training experience and format as well as perceived confidence in leading challenging discussions were sent to 12 NPM program directors and 70 NPM trainees across Canada. Opinions about optimal methods of delivery of communication training were also sought.

Results: Response rates were 91% and 21% for program directors and trainees respectively. Two thirds of training programs do not currently offer formal communication skills training. Where such training exists, it comprises a mix of didactic sessions, role play and use of simulated patients. The majority of program directors and trainees feel trainees are only "somewhat" to "reasonably" well trained to lead challenging discussions; nearly 80 percent of trainees believe current training should be improved. Preferred training methods include didactic teaching, demonstration, role play and simulation with feedback and debriefing.

Conclusions: Formalized communication skills training in NPM in Canada is lacking and, as a result, trainees feel inadequately prepared for this role. Educational initiatives should focus on more structured training to ensure competency on completion of residency.

## 111

# Online nephrology curriculum survey

M. Shamseddin, L. Alexander, S. Aloudat

Queen's University, Kingston, ON

Introduction: Providing adequate teaching tools to enhance and evaluate competence-based knowledge and practice is critical to advance the delivery of Nephrology Education to trainees as learners. Online learning or "e-learning" is widely adopted educational tool to facilitate teaching rather than burden the learner. An online survey, to evaluate the needs of learners, was completed prior to designing an Online Nephrology Curriculum at Queen's University.

Methods: After obtaining the approval of Queen's Research Ethics Board, an online survey (ONCS) and consent were emailed to all anesthesia, internal, family and critical care medicine residents usually rotate at the Nephrology Division at Queen's University, Kingston, Ontario, prior to designing an Online Nephrology Curriculum to evaluate the needs of learners.

Results: 63 (33.2%) residents, out of 190, responded to the ONCS (55.6% female, 72.2% has rotated at our Division). >95% of residents were satisfied with the Nephrology teaching meeting their CanMEDS roles. Quality of teaching was good in general (3.77±0.8 on a scale of 5; 1: very poor, 5: very good). However, 20-30% of residents identified teaching deficit in variable topics. 80% of residents used online resources to learn Nephrology, however, only 12.1% self-assessed their knowledge and no one has ever used an online curriculum. 81.7% of residents anticipated benefits of structured Online Nephrology Curriculum with minimal challenges.

Conclusion: Our survey showed teaching deficit in some Nephrology topics due to time shortage. Majority of residents are interested in online resources to learn Nephrology. Online Nephrology Curriculum is highly required as an effective tool to enhance learners' knowledge.

## 112

# Relationship between cognitive and metacognitive learning

S. Salehi

Islamic Azad University, Isfahan branch, Isfahan

Students' academic achievement has always been a concern of education authorities. One of the factors in academic achievement is attention to effective components on the learning, including learning strategies. Thus, the present research was done to determine the relation between cognitive and metacognitive learning strategies and academic achievement in medical surgical nursing courses of Islamic Azad University-Khorasgan branch.

Methods: In this correlational study, all 5th and 6th semester nursing students (n=88) in 2012- 2013 were selected. Data were collected by means of Pintrich MSLQ questionnaire of learning strategies and also students' average score in surgical internal courses was considered as students' academic achievement. To analyze the data, single group t test and Pearson Correlation were applied.

Results: The means of cognitive strategies and metacognitive strategies were 122.78±18.8 and 37.84±6.7, respectively. The difference of cognitive strategies' scores with the scale mean was significant at P=0.0 01.

It was also significant for metacognitive strategies at P=0.01. The mean score of rehearsal strategy 13.04±3.65 was more than the score average (p=0.05), as was the mean of semantic expansion strategy 19.19±4.63 (P<0.01). The mean scores for organizing strategy (12.06±3.91), and critical thinking 15.82±4.40) were not significantly different from the scale mean. Also, the mean score of the students' GPA was significantly correlated with the amount of students' use of cognitive strategies (r=0.28, p=0.05) and metacognitive strategies (r=0.24, p=0.02).

Conclusion: Since cognitive and meta-cognitive strategies were recognized as crucial factors in students' academic achievement, exploring and promoting them can lead to improvements in students' academic achievement.

## 113

## Potential value of community hospitals in anatomic pathology resident training

F. Y. Moid, J. Maniate

St. Joseph Health Centre, Toronto, ON

Background: The Royal College of Physicians and Surgeons of Canada does not require anatomic pathology (AP) residents to spend a specific amount of time in community hospitals during their residency training.

Summary of Work: Based on data collected through semi structured telephone interviews of a focus group of AP program directors, pathology chiefs of community hospitals, community pathologists and senior residents in Ontario, an electronic survey was sent to a larger group of participants across Canada.

Results: The majority of senior residents and community pathologists preferred that community hospital experience which is essential for teaching surgical pathology diagnostic skills with limited resources should be offered either as a mandatory community hospital experience during residency or as a one year fellowship. The program directors thought that there is no need of a change in current curriculum to prepare anatomic pathologists for community practice.

Discussion: Community hospital educational experience is essential to achieve the level of performance required in a more generalized setting.

Conclusion: AP program directors have divergent views from community pathologists and senior residents regarding the value of community hospital experience.

Take-home message: A mandatory community hospital rotation or one year community pathology fellowship would involve a major shift in curriculum of training programs, but perhaps this is the time to begin considering such options so that training programs are prepared for continuing explosion in knowledge sets and prepare physicians to working in community settings.

## 114

## Effect of patient knowledge on successful physician-patient communication

E. Wooster[1], D. L. Wooster[1], M. Clemente[2]

[1]University of Toronto, Toronto, ON, [2]Western University, London, ON

Introduction: Effective communication requires that physicians recognize individual patients' knowledge of their disease. Anticipation of even a moderate level of 'common knowledge' or understanding may lead to communication difficulties and inappropriate expectations in patient management and treatment plans. These communication difficulties are often not approached or discussed during health professional communication training.

Methods: This study surveyed high-risk patients and their families to identify 1) basic knowledge of risk factors, 2) presenting symptoms of stroke and 3) response if a stroke was suspected. These findings were correlated with standardized training scenarios to identify effective communication skills.

Results: 87% of respondents could identify one stroke risk factor as well as one stroke sign. Only 40% could identify 3 risk factors or 3 signs. Increased knowledge was correlated to higher education and younger age. The majority of respondents identified television as their main source of information. Standardized trainings scenarios reviewed did not appear to take into account differing levels of patient knowledge.

Conclusion: The degree of understanding of disease processes by patients and families can present a challenge to effective communication. This information may be useful in planning communication training for health care professionals and public awareness campaign for patients and their families. Appreciation of this should be included in health professionals' communication training.

## 115

# Using resident reflections to evaluate an innovative competency-based learning experience

J. Griffiths, E. Van Melle, H. Han, E. Grier, I. Casson

Queen's University, Kingston, ON

Introduction: Adults with developmental disabilities (DD) are medically complex and vulnerable to inequity in access to health care. Consequently, a competency-based learning experience was created so that residents could develop the skills required to meet the unique needs of this patient population. Completion of a comprehensive health assessment for an adult patient with DD was central to the curricular innovation. The purpose of this study was to explore the impact of the resident's learning experience on competency development.

Methods: The experiences of 25 Queen's University family medicine residents participating in the competency based curriculum were examined. Case reflections describing experiences with DD patients were collected. This qualitative study was completed using the principles of grounded theory. The thematic analysis was undertaken to determine the impact of the learning experience.

Results: Difficulty in communicating with patients with DD, insufficient information about the needs of patients and difficulties in conducting the physical examination were key challenges identified by the residents in completing the comprehensive health assessment. Key lessons learned included an appreciation of the essential role of the caregiver and an understanding that adults with a DD have complex health needs.

Conclusions: Through planned clinical encounters, residents had the opportunity to gain an appreciation of the unique needs of adults with a DD. However, more effective communication tools and better preparation e.g., observation of preceptors as they care for DD patients, reviewing resources, were identified as strategies to enhance residents' ability to become competent practitioners.

## 116

# Health advocacy training in postgraduate obstetrics and gynecology: Evaluation of a new curriculum through OSCE's

J. Hakim[1], N. Todd[2], A. Black[1], G. Posner[1], N. Fleming[1]

[1]The Ottawa Hospital, Ottawa, ON, [2]Children's Hospital of Eastern Ontario, Ottawa, ON

Introduction: Health Advocacy (HA) is an area of weakness in Ob/Gyn postgraduate training. We hypothesize that the implementation of a HA Curriculum will adequately expose residents to this CanMEDS role. Our objectives are to determine: the trainees' understanding of the Health Advocate role before and after exposure to the HA training curriculum; the trainees' ability to apply HA concepts within a clinical scenario using an OSCE format; and whether an OSCE can be used to evaluate this curriculum.

Method: This is a prospective observational study involving all consenting Ob/Gyn residents (PGY2-5) at our center. Residents were required to complete 2 identical OSCE stations on HA during the fall and spring OSCE sessions of the academic year. The HA curriculum (intervention) was given between the OSCEs. Paired t-test was used to compare the results.

Results: All residents (23) offered participation consented. Complete pre/post intervention scores were available on 19 residents. Overall, the average score pre- and post-intervention improved (p<0.001). Specifically, senior (PGY4, 5) residents demonstrated improvement (adjusted p=0), while the junior residents' (PGY2, 3) improvement was not statistically significant (p=0.12). Physical environment and biologic/behavioral determinants of health demonstrated the largest effect (Cohen's d 1.88, 1.38).

Conclusion: Health Advocacy Curriculum in Ob/Gyn training at our center adequately exposes residents to the role of the Health Advocate, and this can be evaluated objectively through OSCEs. Implementation of this formal curriculum regularly into post-graduate training will improve residents competence in HA and application to clinical practice.

## 117

### Examining cultural safety: Indigenous health values and principles as interpreted through the CanMEDS framework

P. Tomascik[1], K. Scott[2], C. Bourassa[3], T. Dignan[1], B. Lavallée[4], D. Fréchette[1]

[1]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [2]Kishk Anaquot Health Research (KAHR), Maniwaki, QC, [3]First Nations University of Canada, Regina, SK, [4]University of Manitoba, Winnipeg, MB

Introduction: Indigenous people continue to experience a persistent, disproportionate burden of disease and poor health. How can culturally safe care be taught and learned in today's information rich educational curricula? Physicians should demonstrate ethical behaviors and professionalism to their fullest in all forms of educational interventions to confront personal and institutional biases, racism and power differentials. Residents and educators need a blueprint for culturally safe practices. The Royal College's CanMEDS Physician Competency Framework provides a proven structure where Indigenous values are mapped against Roles leading to guiding principles that facilitate culturally safe care.

Methods: CanMEDS describes the knowledge, skills and abilities that specialist physicians need for better patient outcomes. By mapping Indigenous health values against each Role, providers can begin to reflect on cultural sensitivities and the effects of their clinical competencies on patient relationships as an integral step in beginning a treatment process.

Results: Culturally safe providers practice critical thinking and self-reflection to foster an understanding of Indigenous health values and model these behaviors; understand how historical legacies and intergenerational traumas affect patients; dialogue rather than interrogate Indigenous ways; and find broader implications to other at-risk populations.

Conclusion: The set of Indigenous health values is based on empirical evidence, inputs from Indigenous physicians/scholars and knowledge borrowed from progressive organizations. The most important corollary is completeness of the set of values. The connection of the values and principles to physician Roles brings stronger attention to Indigenous health, facilitates transference into professional practice and provides direction for strategic actions.

## 118

### Teaching residents about physician-pharmaceutical representative interactions: Just say no?

J. Goguen, E. Hollenberg, N. Shear, N. McNaughton

University of Toronto, Toronto, ON

Introduction: The Royal College of Physicians and Surgeons of Canada and the Association of American Medical Colleges mandate teaching residents and other medical learners about guidelines regarding interactions with pharmaceutical representatives (MD-pharma interactions). As review of the literature reveals no established curriculum for this teaching, we aimed to identify principles and challenges to implementing such a curriculum, by interviewing key stakeholders.

Methods: Using phenomenological methodology, we conducted semi-structured interviews with recently graduated physicians (2- 3 years in practice) to explore their perceived needs for teaching on this topic. Content experts were also interviewed to assess their views on how to best teach this topic, and the challenges they have encountered. The authors used an inductive thematic analysis to identify emerging themes from the transcripts and produced a set of guiding principles for curriculum design for this topic.

Results: The identified principles and challenges can be divided into three groups: (1) standard best teaching practices (relevance; repetition; interaction); (2) evidence-based (literature on the harms associated with the interaction) versus ethics-based; and (3) reality-based (deal with the hidden curriculum; harm reduction, assuming the interaction will occur).

Conclusions: The principles outlined above need to be taken into account when planning a curriculum on the topic of MD-pharma interactions. Resident and faculty buy-in is critical to ensure learning objectives are met.

## 119

# Learning collaboration during residency training

M. Mondou[1], K. Könings[2]

[1]McGill University, Montreal, QC, [2]Maastricht University, Maastricht

Collaborator Role is one of the seven essential competencies of a physician as described by the CanMEDS roles of the Royal College of Physicians and Surgeons of Canada. Not much is known about how residents learn collaboration during their training. Their training is mainly work-based and there are only few formal learning activities about collaboration. Mastering the Collaborator Role is consequential to their training as most will work in collaborative environment. This study investigated how the current work-based learning environment of residency training promotes the mastery of the Collaborator Role: How is collaboration learnt and what aspects of collaboration are learnt during residency training? Semi-structured interviews were held with 11 senior residents from specialty training programs at one university. To gain insight into the enabling competencies learnt, the residents additionally completed a self-assessment questionnaire on their performance, derived from the Collaborator Role. Data from interviews are analyzed with a constructivist grounded theory approach; data from the self-assessments are quantitatively analyzed. Preliminary results revealed that residents learn from their day-to-day work, by practicing collaborative skills expected in their role as residents as well as by role modeling doctors and also healthcare professionals. The existence of collaborative practices in the clinical setting facilitated their learning. Barriers included attitudes and beliefs of educators, who could be doctors and healthcare professionals. This study improves understanding on how the Collaborator Role is learnt in the work-based learning environment and what needs to be improved in the teaching and learning during residency training.

## 120

# Research experience in psychiatry residency programs across Canada: Current status

A. Shanmugalingam, S. G. Ferreria, R. Norman, K. Vasudev

Western University, London, ON

Research experience during residency training is of paramount importance, and although the inclusion of research competency is required in all fields of medicine, how this is done is variable. Most current literature on research training in psychiatry is based on residency programs in the USA. The purpose of this study is to determine the current status of research experience in psychiatry residency programs across Canada.

Methods: An on-line survey participation invitation with a letter of information was distributed to the seventeen Coordinators of Psychiatric Education (COPE) resident representatives from all psychiatry residency programs in Canada.

Results: Fifteen of the seventeen COPE representatives completed the survey. Eleven programs (73%) require residents to conduct a research project in order to complete residency, ten of which require residents to complete one research project, while one required completion of two. Ten programs (67%) reported availability of official policy/guidelines on resident research requirements. 43% of the residency programs have a separate research track. All programs have a research coordinator and fourteen provide protected time to residents. The three most common types of projects that qualify for the mandatory research requirement are a full independent project (82%), quality improvement project (73%), and assisting in a faculty project (73%). Six of the programs expect their residents to present their final work in a departmental forum. None of the residency programs require publication of final work.

Conclusions: The current status of the research experience during psychiatry residency in Canada is encouraging but heterogeneous across the programs.

## 121

### Do residents perceive social interactions outside of work, among residents and between residents and faculty, as contributing to their learning?

D. Blouin

Queen's University, Kingston, ON

Introduction: Informal learning (IL) includes all occurrences during one's course of life when learning is not deliberate. Prior research on IL in healthcare contexts examined the learning happening among trainees outside of the formal curriculum, yet still occurring in the workplace. Social interactions (SI) among residents and between residents and faculty outside the professional environment may potentially contribute to resident IL. This study explores whether residents recognize SI outside of work as IL, and how SI contributes to their learning.

Methods: All 21 current residents of the Queen's University RCPSC Emergency Medicine program were invited to participate in a web-based survey, asking 1) to list factors outside of the formal curriculum that contribute to their learning, and 2)to explain how each factor contributes. Themes of contributing factors were extracted from the comments using a grounded theory approach with constant comparative analysis. Two independent reviewers coded all data.

Results: Thirteen residents (61.9%) completed the survey and identified 46 factors as contributing to their learning. Factors were grouped under six main themes. The theme 'SI' included 14 (30.4%) factors, 10 (27.1%) specifically related to "outside-of-work' SI. Eight (61.5%) residents listed factors included in the SI theme. SI contributes to learning through increased bonding, informal case discussions, and role-modeling.

Conclusion: Most residents recognize SI outside of work among residents and between residents and faculty as a source of IL. Broad resident and faculty awareness of the link between SI and IL will allow for critically reflection on the implicit educational messages conveyed in SI.

## 122

### Effective feedback: A resident's perspective

T. R. Zhu, K. Myers

Western University, London, ON

Background: Learners' perceptions of the credibility and utility of assessments regarding their clinical performance have implications on their internalization and application of this feedback.

Purpose: This study explores the perceptions of Internal medicine residents regarding the quality and quantity of received feedback, and identifies the type of comments they view as most effective as feedback.

Method: An anonymous 31 question online survey was distributed via email to the cohort of Internal Medicine residents at one university. Scaled items were designed to solicit residents' perceptions of the various types of feedback they receive. They also rated 16 sample feedback comments with regard to their overall valence (positive or negative) and their perceived utility as feedback. Results were analyzed using descriptive statistics.

Results: Overall response rate was 52% (61/118). Residents were most interested in receiving feedback from attending physicians and other residents, however only 19% reported receiving frequent feedback from these sources. Most residents (90%) perceived face-to-face feedback as effective, while only 10% rated mini-clinical evaluation exercises as useful. Of the 7 CanMeds roles, residents are most interested in receiving feedback regarding their performance as medical experts. Of the sample comments, residents identified those with behaviorally specific content as the most useful, regardless of the perceived valence of the feedback.

Conclusions: Although residents value face-to-face feedback from their clinical supervisors, they feel it does not occur frequently enough. Residents view comments that are 'negative' in valence as useful if they target specific areas for improvement.

## 123

### From words to wards: Identifying common situations in daily practice can trigger teaching of the CanMEDS intrinsic roles

D. Dath, N. Afagh, S. Kelly, M. Marcaccio, B. Petrisor

McMaster University, Hamilton, ON

Background: Clinical teachers (CT) are familiar with the CanMEDS Intrinsic Roles (CIR). However, they struggle to train students and resident in the workplace using CIR competencies. They must map the CIR competencies (words) to their own clinical and non-clinical activities (wards) in order to teach these competencies in daily practice.

Objective: We sought to find common triggers that CTs could use to stimulate CIR teaching in surgical and non-surgical disciplines.

Methods: CTs, residents and students were oriented to the study and completed a workshop-based small group exercise during grand rounds in multiple disciplines. Each small group provided three words or phrases that could describe specific CIR competencies and that could trigger teaching in daily practice. Each group also identified three teaching points per trigger. Qualitative analysis was carried out by three principal investigators.

Results: Although CTs in all disciplines had frequent exposure to CanMEDS, they still found it difficult to identify words that could describe their CIR-based daily activities and trigger teaching. Most trigger words described situations or broad events. Some situations like discharge planning were identified as teaching triggers for multiple CIRs. Surgical disciplines were more likely to identify trigger words that reflected acute care instead of non-acute situations.

Conclusions: Some trigger situations for the teaching of CIRs spanned disciplines and therefore could be used by all CTs while others were discipline-specific and would need to be developed within a specialty. Faculty development for CTs can use trigger words or phrases to help stimulate CIR teaching in daily practice.

## 124

### Inventory of Canadian leadership education programs

M. Gertler[1], S. Verma[1], M. Tassone[1], J. Seltzer[1], E. Careau[2]

[1]University of Toronto, Toronto, ON, [2]Université Laval, Quebec City, QC

Introduction: Leadership has gained importance as a means to improve health outcomes and manage complex system change. Physicians are ideally positioned to take on leadership roles and need the leadership skills to do so. The literature highlights the need for physician leadership education at all career stages. This creates an importance in understanding how and when leadership and collaborative leadership is taught to physicians in Canada. The Canadian Inter-professional Health Leadership Collaborative, a five university partnership supported by the Institute of Medicine, conducted research on collaborative health leadership.

Methods: The grey literature review consisted of an inventory of programs and courses with leadership content for health professionals. To find these courses we searched the websites of universities and associations with programs for health professionals. The information was recorded if leadership was included in the description, course outline or syllabus. This data was analyzed through comparing the course offerings across health professions. There was also an attempt to identify courses with competencies associated with collaborative leadership.

Results: The inventory of leadership courses accounted for 348. Of this 7% (n=25) were directed at physicians. This can be compared with nursing that composed 35% (n=123). The majority of courses for physicians were directed at practicing professionals, with 5 in undergraduate medical education. Collaborative elements were included in some leadership courses, but were not emphasized.

Conclusions: With health leadership education most available for practicing physicians, there is opportunity to introduce collaborative leadership education to medical students and residents.

## 125

# Trends in education and carrier choices after ophthalmology residency training

N. Kanchanaranya, Y. Titawattanakul

Thammasat University Hospital, Pathumthani

Introduction: Currently, after completion of residency training program, some of them prefer continuing education in subspecialty fellowship program and some of them plan to work as general ophthalmologist. The object of this study was to investigate the current trends in education and carrier choices after ophthalmology residency training and factors which can have impact on their decision in selecting each subspecialty.

Methods: All ophthalmology residents in Thai ophthalmology residency training programs were invited to complete the questionnaires while attending ophthalmology meeting conference. A total number of 120 were recruited. The favorite specialties and the factors that had impact on reasons of the subspecialty selection were recorded.

Results: From 120 questionnaires, the first five subspecialties that resident would possibly choose were retina (30.25%), oculoplastics (22.69%), and cornea and refractive surgery (17.65%) consecutively. Having ability to do surgery was the most common factor influencing the decision making in subspecialty selection (20.65%). The other factors were having good knowledge in that specialty (24.37%), preferred style of working (23.53%).

Conclusion: Ophthalmology residents planned to select different subspecialties according to various influencing factors. The appeal of the surgical nature of subspecialties was the most common motivating factor for selecting an ophthalmology fellowship. The preference in choosing fellowship tend toward area with surgical ability such as retina or oculoplastics. The other important factors were the content and ability to do procedures including individual impression of that subject.

## 126

# The bare bones: Improving bone marrow biopsy sample quality in hematology trainees through detailed understanding of anatomy

M. P. Zeller[1], S. Cristancho[2], M. Goldszmidt[2], C. Howleett[3], M. Johnson[4], J. Mangel[3]

[1]McMaster University, Hamilton, ON, [2]Centre for Education Research Innovation, Schulich School of Medicine and Dentistry, London, ON, [3]London Health Sciences Centre, London, ON, [4]Western University, London, ON

Introduction: Bone marrow biopsies are integral to the practice of hematology providing invaluable information on diagnosis, prognosis and management. Trainees have a poor understanding of relevant anatomy and boney depth associated with this procedure which can result in less confidence land marking and compromised sample quality (which is proportional to sample length). The purpose of this study was to develop and test the outcome of a novel intervention designed to improve trainee's knowledge of relevant surface and deep anatomy involved in bone marrow procedures to improve sample quality.

Methods: This retrospective pilot cohort study used a pretest/post-test design. During a 2 hour session, 3 adult hematology trainees carried out bone marrow procedures on embalmed cadavers and observed dissection of pertinent regions involved in this procedure. Twenty-seven biopsy samples collected by trainees pre-intervention and 24 collected post-intervention were compared for total size, cortical bone (non-diagnostic portion of biopsy) and marrow (diagnostic portion) as measures of sample quality.

Results: Pre-intervention specimens demonstrated mean cortical length 0.22cm(SD=0.21), mean marrow length 0.79cm(SD=0.41) and mean total length 1.00cm(SD0.38). Post-intervention cortical length 0.18cm(SD0.17), mean marrow length 1.04cm(SD=0.42) and mean total length 1.23cm(SD0.45). This study demonstrated a significant increase in length of marrow collected post-intervention (p=0.039).

Conclusion: Return to anatomy is underutilized in medicine training programs. Programs with access to well-resourced gross anatomy labs might benefit from incorporating a structured educational intervention into their curricula. This pilot study suggests that a return to anatomy as a training strategy for teaching bone marrow procedures may result in better quality sample.

## 127

This abstract has been withdrawn / Ce résumé a été retiré

## 128

# The impact of learners on physician productivity in the emergency department

A. Bishnoi, M. Gatien, J.R. Frank, L. Calder

The Ottawa Hospital, Ottawa, ON

Background: In academic Emergency Departments (EDs), Emergency Physicians (EPs) must balance patient care with medical trainee supervision. The impact of learners on EP productivity (number of patients seen per hour—pph) is uncertain. We examined the impact of the presence and level of training of learners on EP productivity in two busy academic EDs.

Methods: We conducted a retrospective cohort study of low acuity ambulatory ED patients from September 2010 to January 2012. We collected data from two sources: 1) shift schedules: most responsible EP, learner program of study, level of training, and number of learners; and 2) an administrative database: number of patients seen per shift.  We performed single-variable linear regression analyses to assess for an association between type of learner and EP productivity.

Results: We evaluated 992 eligible ED shifts (47 EPs). On 534 (53%) shifts, EPs working alone saw a mean of 2.7pph; on 32 (3%) shifts, EPs medical students saw 2.9pph (p=0.07); on 206 (21%) shifts, EPs residents saw 3.3pph (p<0.0001); and on 220 (22%) shifts, EPs both medical students and residents saw 3.3pph (p<0.0001). The presence of any level resident increased overall EP productivity by 0.6pph (p<0.0001). EP productivity ranged from 3.1pph when accompanied by first-year residents (p<0.0001) up to 3.8pph (p<0.0001) for fifth-year residents.

Conclusion: Despite the additional requirement for on-shift teaching, EP productivity increased with the presence of a resident, and linearly with year of resident seniority, while the presence of a medical student had a neutral impact on EP productivity.

## 129

# Multidisciplinary pediatric pain management education: A needs assessment of residents, staff physicians and nurses

L. Wheaton, C. Vadeboncoeur, K. Krmpotic, K. Moreaul

Children's Hospital of Eastern Ontario, Ottawa, ON

Introduction: Traditionally, assessment and treatment of children's pain has not been emphasized in pediatric academic environments. This study will assess the educational needs of pediatric residents, nurses and staff physicians with respect to pain management.

Methods: A review of the literature and existing resources on pediatric pain management education was completed. To understand the training needs of pediatric residents, nurses, and staff physicians, a needs assessment survey was conducted at one tertiary care pediatric hospital in Ontario.

Results: While the majority (80%) of nurses, pediatric residents and staff physicians reported previous training in pediatric pain management, 86% reported they needed further education. Previous training was most often provided through one-hour workshops (52%); the most common topics were pain measurement and pharmaceuticals. Half day sessions and online modules were the most effective delivery systems desired for further education. Highly recommended topics included pharmaceutical management of acute and chronic pain and non-pharmaceutical pain management. Facilitative and obstructive factors to further education were also described.

Conclusions: This survey demonstrated a need for multidisciplinary pediatric pain management education. The results of this needs assessment will inform the development of a series of pediatric pain management modules for pediatric residents, nurses and staff physicians. We anticipate that these modules will improve the quality of care provided and facilitate a collaborative approach to pain management.

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## 130

# Mentorship among Canadian anesthesiology residents

P. Zakus[1], A. Gelb[2], A. Flexman[1]

[1]University of British Columbia, Vancouver, BC, [2]University of California, San Franciso, CA

Introduction: Mentorship is associated with benefits including increased career satisfaction, productivity and personal development. Despite these benefits, little is known about mentorship in anesthesiology training programs. Our objectives were to 1) determine the prevalence of mentorship; 2) identify the characteristics of these mentorship relationships and 3) determine predictors of having an identified mentor among Canadian anesthesiology residents.

Methods: We conducted a cross-sectional web-based survey of residents and program directors from Canadian anesthesiology residency programs (n=17 and 519, respectively). Program directors were questioned about formal mentorship programs. Residents were asked to provide demographic data and information about their mentorship relationships. We analyzed relationships between resident characteristics and mentorship.

Results: Our survey response rates were 76 and 39% for the program director and resident surveys, respectively. 54% of residency programs had a formal mentorship program. 74% of residents were able to identify at least one mentor and 94% of residents agreed that mentorship was important. Mentors and mentees were more likely to be of the same gender than not (p <0.001). Gender, minority status, age, training year and education were not predictive of identifying a mentor. In contrast, the presence of a formal mentorship program was strongly associated the presence of a mentor (82 vs 17%, p<0.001).

Conclusions: The majority of Canadian anesthesia residents identified a mentor and the presence of formal mentorship programs were strongly associated with mentorship. Mentorship was valued by residents and program directors. Further research is needed into the effect of mentorship on residency training outcomes.

## 131

# A national cross-sectional study of Canadian ophthalmology resident participation in external courses

K. Le[1], M. Dagher[2]

[1]McGill University, Montreal, QC, [2]University of Montreal, Montreal, QC

Introduction: Medical education literature reveals few national studies comparing ophthalmology residency programs. The purpose of this study is to compare resident participation in external courses across Canadian ophthalmology residency programs.

Methods: A cross-sectional study and literature review were performed. External courses were defined as reputable North American ophthalmology basic science or review courses of at least one-week duration. Inclusion criteria for courses required participation from at least one Canadian ophthalmology residency program since 2008. Data was gathered by interviewing key informants from each program. Descriptive statistics were used to determine the distribution of attendance across programs and courses as of 2013. Enabling factors were qualitatively explored.

Results: The response rate was 100% with representation from all fifteen residency programs. Every Canadian Ophthalmology resident participated in at least two of the following external courses during residency (n=number of programs enrolled): Toronto Ophthalmology Resident Introductory Course (15), Lancaster Course in Ophthalmology (10), San Antonio Ophthalmology Course (6), Wills Eye Review Course (5), University of Texas Basic Science Course in Ophthalmology (3), Bay Area Ophthalmology Course (2). Enabling factors included program funding, allocated study leave, geographic proximity and history of attendance by previous residents.

Conclusions: This is the first study to describe participation of Canadian ophthalmology residents in external courses, which are valued ancillary learning forums. Future Canadian Ophthalmology Residents Society (CORS) studies will compare other aspects of ophthalmology training. Publishing such benchmarks will allow individual programs to evaluate their training models in relation to broader national standards.

## 132

# In-service educational design of emergency medical technician working in the emergency medical services

S. Kavari[1], M. kabiryanrad[2], F. Mortazavi[2]

[1]University of Social Welfare & Rehabilitation, (USWR), Tehran, [2]Shahid Beheshti University of Medical Science and Health Services, Tehran

Background: In this regard, in-service education is a proven way for maintaining the knowledge, skills and attitudes of Pre-hospital emergency technician to provide better health services to the community.

Purpose: The aim of this study was designing In-service education for pre-hospital emergency technician in Semnan city.

Methods: This study was an instructional design study after need assessment with descriptive meted with use from Ganieh strategy educational package was prepared. The sample was equal with the research community and included all supervisors and pre-hospital emergency technician working in the pre-hospital system.

Results: educational needs priority of Pre-hospital emergency technician in eight different areas (fields) were as follows: Psychiatric emergency by getting 87/62 points stands in the first priority, head and chest and spinal cord trauma by getting 86/19 points in the second priority, heart monitoring and interpretation of normal or abnormal by getting 85/23 points in the third priority cardio -pulmonary-cerebral(brain)- resuscitation for infant by getting 77/14 and 71/90 points in the fourth and five priority cardio -pulmonary-cerebral(brain)- resuscitation for adult and by getting 70/95 and 68/90 points in the six and seven priority rules and professional ethic in physicians profession by getting 59/52 points in the eight priority that as follows priority one educational package was prepared for each subject.

Conclusion: Based on need assessment priority of all areas in accordance with specified standards also based on scheduled in-service education. Appropriate that in new study with assessment from pre-hospital emergency technician in Semnan city the effect of educational package on promotes their skill should study.

## 133

## Residents' perception of the extracurricular factors impacting learning and professional identity development

D. Blouin

Queen's University, Kingston, ON

Introduction: The current emphasis in education focuses on formal learning: identification of objectives, curriculum design, evaluation plans, etc. Several authors argue however that most human learning occurs informally i.e. in an unplanned manner, without specified curricula, teachers, or methods. The objectives of this study are to explore residents' perceptions about the extracurricular factors that influence their learning,

Methods: All 21 current residents of the Queen's University RCPSC Emergency Medicine program were invited to participate in a web-based survey, asking them to identify the factors particular to their program and outside of the formal curriculum and learning activities (rounds, JC, clinical work, etc.) they perceive as contributing to their learning and/or to the development of their professional identity? Themes of contributing factors were extracted from the comments using a grounded theory approach with constant comparative analysis. Two independent reviewers coded all data.

Results: Thirteen residents (61.9%) completed the survey and identified 46 factors as contributing to their learning. Factors were grouped under six main themes: learning activity (included 39.1% of listed factors), clinical activity (8.5%), role modeling (8.5%), support (6.3%), resident non-clinical academic role (8.6), and social interactions (30.4%). The first two themes actually reflect curricular factors, which were outside of the study focus.

Conclusion: Residents can identify several extracurricular factors contributing to their learning. Social interactions at work and outside of work are important contributors. Further exploration of the nature of the learning occurring in social interactions is required to take full advantage of this major source of resident learning.

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## 134

## Putting it all together: Exploring the learning of integrated CanMEDS competencies

M. Mylopoulos[1], T. Borschel[2], T. O-Brien[2], N. Woods[1]

[1]University of Toronto, Toronto, ON, [2]Women's College Hospital, Toronto, ON

Introduction: Recent research exploring expert performance suggests that the CanMEDs roles are best conceptualized as integrated rather than individual competencies. However, there is a lack of understanding of how competencies are integrated during patient care and how trainees learn this process of integration. We conducted a study with two objectives: first to describe integrated learning opportunities for residents with a specific focus on identifying which competencies are most commonly integrated during patient care and the types of activities that encourage that integration; and second, to explore residents' perceptions of their own ability and opportunities to integrate competencies.

Methods: This research was a cognitive ethnography, using observations, interviews and exploration of cognitive artifacts (e.g. patient charts, technologies, instruments, and equipment) to explore 126 patient encounters for 6 PGY3s during their one-year longitudinal rotation at a complex care clinic. We are conducting a framework analysis of the transcribed field notes and interviews focusing on which competencies are integrated during patient care and the learning opportunities that are created as a result.

Results: Data analysis has so far revealed the critical interaction of medical expert, communicator and scholar roles, underscoring the ways in which knowledge is used and transformed in context.

Conclusions: The results of this research will contribute to understanding of how competencies are integrated during patient care and how residents perceive and learn from these moments of integration. Ultimately, our aim is to inform the development of educational interventions and assessment tools that maximize the learning of integrated competencies.

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### Code status competency: A survey of resident experiences from McMaster University internal medicine program around end of life care

S. l. Gundy, L. Melvin

McMaster University, Hamilton, ON

Background: For acute medical patients, the determination of code status (CS) and end of life (EOL) preferences is often necessary during the early hours of hospitalization and a core competency of the CanMEDS Communicator role. Residents often serve as the point of first contact- conducting these sensitive discussions in the middle of the night, under time constraint, and with varying levels of training and expertise. Indeed, a review of the literature demonstrates that these discussions are often facilitated by junior residents with little background knowledge or EOL training- resulting in missed opportunities, miscommunication and the potential for harm.

Methods: Following a literature review, Internal Medicine residents at McMaster University were surveyed regarding their experiences and attitudes towards CS discussions and EOL decision making. Areas addressed included; resident comfort, prior training, knowledge and attitudes regarding the legalities of a CS determination, and identification of patient and physician barriers. Following this needs assessment, an educational intervention was implemented in the form of interactive "EOL Summit" with multidisciplinary panel of EOL specialists addressing the clinical, ethical and legal aspects of CS determination. It is hoped that the results of this survey and round table will provide the framework for a series of targeted educational interventions to occur throughout the following year.

Conclusions: We hope to present the results of our needs assessment as well as the structure of the educational intervention delivered for those wishing to develop a more concrete curriculum to better equip residents for EOL decision making and CS discussions.

## 136

### Social media and critical care education: A survey and pilot project

S. Sivananthan

University of Toronto, Toronto, ON

Introduction: Traditional learning platforms such as lectures and textbooks have recently been supplemented or even replaced with podcasts and mobile applications. The millennial learner who embraces these modern teaching platforms is also one who is more likely to be engaged in social media such as Facebook and Twitter. An initial needs assessment was conducted by surveying residents during their critical care rotations. This revealed almost all residents engage in social media, but only a minority utilizes this platform to enhance education.

Method: A Twitter and Facebook based platform named ICURounds was created with the goals of knowledge dissemination, knowledge translation, and encouraging critical discussion on recent literature highlighting the CanMEDS-based roles of Scholar, Communicator, and Collaborator.

Summary of Innovation: Social media based platforms were created on Twitter and Facebook and are managed by the author. Posts are made reflecting clinical pearls, highlights of teaching rounds, and recent literature. Discussion is encouraged by posing provocative questions around each post. To date, ICURounds has gained a global audience including 500 followers on Twitter and 125 likes on Facebook.

Conclusion: The ICURounds pilot project has shown a demand and interest in using social media for the delivery and discussion of medical knowledge. Future research interests include developing a platform to complement resident rotation teaching by utilizing social media to highlight Royal College Objectives not prominently covered through conventional teaching methods.

## 137

# Creation of a national paediatric haematology/oncology laboratory education resource

M. Rayar[1], M. Fox[2], M. Kirby[1],
C. Portwine[3], A. Punett[1]

[1]Hospital for Sick Children, Toronto, ON,
[2]University of Toronto, [3]McMaster Children's
Hospital, Hamilton, ON

Background: The appropriate management, interpretation and reporting of laboratory investigations is an integral component to the practice of pediatric hematology/oncology (PHO). Currently, the PHO trainees' experience in this domain varies by training site and available resources. In an effort to provide more consistent learning opportunities, a national electronic, case-based laboratory curriculum is being created.

Methods/Summary of Innovation: A series of modules were created using the principles of case based learning, CanMEDs competencies, and national training objectives. The initial modules focus on foundational concepts and incorporate interactivity, practice exercise, repetition and feedback to improve learning outcomes. Articulate Storyline was used to develop electronic versions. PHO specialists from across the country were asked to review the completed modules for content and usability. Final versions were published on a web-based platform for open access to Canadian PHO trainees. In order to create an evolving resource, Canadian trainees and PHO educators will be invited to develop additional modules using an electronic template. This process allows trainees to learn from their peers' clinical experiences, creating a national collaborative environment. Fellows who create modules will be provided with mentorship to add to the educational experience. Knowledge acquisition will be determined by pre/post testing and usability by survey.

Conclusion: The creation of the national PHO laboratory curriculum will serve to meet an educational need of Canadian PHO fellows. The process of developing this resource can be used in other settings to foster national collaboration and lead to the development of a self-sustainable educational resource.

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## 138

# Social media use in respirology: Development of a Twitter based journal club

A. Anand

St Michael's Hospital, Toronto, ON

The use of internet based applications in medical education is becoming commonplace. Yet, many physicians continue to be reluctant to use social networking. Previous work has shown that Respirologists are slow to use social media (1). With the potential for collaboration, international dissemination of information and knowledge translation, twitter holds potential to advance medical education.

The goal of this study was to evaluate current usage of social media amongst University of Toronto Respirology staff and determine perceived benefits and harms. Following this survey, an accredited twitter journal club (@respandsleepjc) was established and usage examined.

An 8 question online survey was conducted of Respirology faculty and residents. Demographics, questions surrounding current usage, perceived benefits and risks were elucidated and thematically organized. Following survey analysis, @respandsleepjc was developed and usage examined.

50 surveys were completed. Respondents ranged from 25-74 years. 72% currently used social media, primarily, Facebook for personal use. Amongst users, twitter was utilized by 36% primarily, professional use. The majority felt social media was useful owing to ease of use, bridging of geographical gaps, education and collaboration, however, concerns over privacy and time constraints were major barriers. Following education and promotion of @respandsleepjc 101 followers have joined with increasing participation over time.

Online social applications have great potential in medical education. Concerns regarding privacy and time still exist and education regarding safe use is needed. However, the perceived utility of online tools is increasing. Growth of @respandsleepjc demonstrates acceptance of this technology with increasing participation from staff and residents alike.

## 139

# Personality disorders meet and greet party: The use of role-play in medical education

W. E. Kattan, J. Joly

McGill University, Montreal, QC

Introduction: Experiential learning is a well-known concept in education. It is of particular importance in psychiatry, a discipline that involves "experiencing" and paying attention to subtle reactions and cues during patient interactions. Role-playing is one under-utilized strategy of incorporating experiential learning into psychiatric training.

Methods: Three cohorts of medical students in their psychiatry clerkship participated in a role-play session related to personality disorders (PDs) and provided feedback through an online survey. The session addressed the CanMEDs roles of Communicator, Professional and Medical Expert.

Summary of Innovation: Prior to the session, students (n=22) were provided with a hand-out containing mnemonics of 10 PDs. Each student received an individual email assigning him/her a personality vignette to follow. The session involved a "party" where participants circulated, enjoyed refreshments and had to find and diagnose the other PDs in the room. This was followed by a discussion about participants' experiences and reactions. An online survey was sent 8 weeks after the last cohort's session and 77% responded. The majority reported the session was useful clinically (94%), and that it helped memorize (82.35 %) and retain (94.12%) information. 94.12% recommended it for future cohorts and 82.35% thought it generalizable to other topics. None of the learners thought it was harmful and they all found it useful for their exam, enjoyable and fun.

Conclusion: Role-playing was successfully used to teach a difficult topic in psychiatry. It was well received by students and can be generalized to teach other topics in psychiatry and medicine.

## 140

# The impact of social media on resident education: Learning and networking opportunities at a multidisciplinary academic day

D. M. Ravi, S. Klassen, L. Morrison, W. Chan, A. Chorley, O. Steen, C. Orr, T. Chan

McMaster University, Hamilton, ON

Introduction: With the increasing popularity of social media, it has the potential to become a powerful tool in residency education. In 2013-2014, we launched a coordinated social media plan for the Multidisciplinary Academic Day (MAD), which is a pan-disciplinary experience for all McMaster residents. Our goal was to use social media to increase networking and shared learning amongst residents at McMaster University.

Summary of Innovation: A Facebook group for MAD was formed by the resident organizing committee in 2012. This platform facilitated bidirectional communication between the organizing committee and residents who joined the group. Prior to the MAD session, we were able to communicate: 1) announcements concerning events, 2) details about speakers (e.g. biography), 3) videos, 4) photographs, and 5) other print material. During the session, we launched a contest where residents posted and communicated through the Facebook page.

Results: In 2 years, MAD's Facebook page has accrued 222 followers, 50 of whom actively participate in various forms of online discussion. The contest helped attract 36 new residents to our Facebook page. Via our session evaluations, residents noted the MAD Facebook page as a clear information access point.

Conclusion: The introduction of social media into our branding campaign has helped the MAD committee increase visibility with residents. This has led to increased resident participation and engagement with our program. Overall, the introduction of social media has had a positive impact on resident's experience with the McMaster MAD program.

## 141

# Development of a computer-assisted learning module on chest radiograph interpretation for internal medicine residents

S. F.M. Awad, G. Riolo, D. Taylor, C. Parker

Kingston General Hospital, Kingston, ON

Background: The interpretation of a chest radiograph is an important skill for clinicians. Delayed access to a radiologist's formal reporting may require that the internist make clinical decisions based on imaging. To learn chest radiology, there are available electronic modules (e-modules), but none have been studied in a scholarly manner. A needs assessment at our center determined that an innovative method of teaching chest radiographs to be developed for residents. Traditionally, our Internal Medicine residents have learned it in a one-hour lecture. In previous studies, a one-hour lecture-based teaching did not improve radiographic interpretation skills and had limited effectiveness in knowledge retention.

Computer-assisted learning provides a unique opportunity for interactivity, practice exercises, repetition, and feedback. Using these principles, our goal was to develop an e-module for chest radiograph interpretation and assess the residents' satisfaction.

Summary of Innovation: Our audiovisual interactive e-module was designed into five sections to reflect the objectives for Internal Medicine residency training. These sections included 1) Technique and Anatomy of a Chest Radiograph, 2) Radiography of Disease, 3) Pleural Disease, 4) Mediastinal Disease and Heart Anatomy and 5) Applied Cases. It incorporated both formative and summative assessment and simulated vignettes for knowledge application, which may have improved contextual learning.

Conclusion: Our e-modules are a novel method of teaching chest radiograph interpretation at our center. Residents were very satisfied as the modules allowed them to learn and assess their progress in a dynamic self-directed format. The next step will be to study this module in a scholarly manner.

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## 142

# Transition to practice daily evaluation app for diagnostic radiology residents

L. Probyn[1], K. Finlay[2], N. Kashani[1], C. Lang[1], E. Finley[1], E. Bartlett[1]

[1]University of Toronto, Toronto, ON, [2]McMaster University, Hamilton, ON

Introduction: In order to facilitate an efficient transition to independent practice, a rotation was created for Diagnostic Radiology Residents in their final year of training (PGY-5), allowing them flexibility to move between different subspecialty areas on a daily basis. This rotation format made it challenging for a single supervisor to accurately evaluate and provide feedback to the Residents.

Method: The transition to practice daily evaluation app is a CanMEDS-based evaluation and feedback mechanism developed by the Diagnostic Radiology residency program at the University of Toronto.

Summary of Innovation: PGY-5 Residents were each assigned to a four-week transition to practice rotation. A daily evaluation app was created to allow supervisors to evaluate and provide formative feedback to the Residents during this rotation. At the end of each shift, the supervisor completed the evaluation app based on the CanMEDS roles. The evaluation app used a 5-point Likert scale to evaluate the applicable CanMEDS roles, and provided space to comment on the Resident's strengths and areas for improvement. As the evaluation was completed on the Resident's mobile device, a face-to-face feedback session was ensured. The evaluations were electronically transmitted to the central Program Office. At the end of the rotation, the forms were compiled to produce a final summative evaluation report.

Conclusion: The daily evaluation app allows for ongoing formative feedback throughout the transition to practice rotation regarding the CanMEDS roles, while also efficiently compiling the evaluations from different supervisors to produce an end of rotation evaluation summary.

## 143

## Putting the RAD in radiology: An interactive iPad app for self-directed learning in radiology for postgraduate trainees

S. Kohlert, R. Glikstein, L. McLean

The Ottawa Hospital, Ottawa, ON

Background: In 2011, the Royal College of Physicians and Surgeons of Canada (RCPSC) identified that there was a deficiency in radiology teaching in the University of Ottawa Otolaryngology—Head and Neck Surgery (OTOHNS) residency training program. Interestingly, similar deficiencies have been shown in the literature at both the undergraduate and postgraduate levels (1-3).

Summary of Innovation: It is widely understood that learners often fail to perform at the higher levels of Bloom's Taxonomy (4,5). As such, a novel rubric was developed to promote to creation of radiology content that teaches and assesses learners on all levels of Bloom's Pyramid. This content was used to develop LearnRadiology, interactive iPad app with a strong basis in peer-reviewed pegagogical theory. LearnRadiology makes use of evidence-based game mechanics (6,7) to promote user engagement and retention. It is publically available and has been distributed internationally.

Conclusions: To our knowledge, LearnRadiology is the first app ever developed aimed at guiding learners through Bloom's six levels of cognitive skills in the field of radiology. Additionally, the app was developed with future expansion in mind and can be applicable to any specialty. Finally, we believe our rubric can easily adapted for the development of instructional and assessment materials in a broad range of domains.

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References truncated due to word count restrictions. Full references available upon request.

## 144

## The international surgery elective rotation from inspiration to implementation

M. J. Tarpley, J. Tarpley

Vanderbilt University, Nashville, TN

Introduction: In 2011 the ACGME Surgery-RRC approved the elective general surgery international rotation. Based on three years' experience with an approved 4th year rotation, this presentation provides start-to-finish suggestions. International rotations address all competencies, particularly collaboration, health advocacy, communications, and professionalism.

Methods: RRC guidelines and practical concerns frame a discussion including practical (logistics, safety), financial (who pays), legal (waivers of responsibility, evacuation issues) and educational aspects. While the literature validates clinical and cultural value of global surgical experiences for residents, the organizer must ascertain that: 1) the host institution is an equal partner in the relationship; 2) visiting residents do not compete with any local trainees; 3) residents do not impose an undue burden on resource-challenged environments. A site visit by the program director is recommended. Preparation includes credentialing, medical requirements, safety issues, educational expectations, and cultural sensitivity (i.e., respect for all personnel and patients). Educating residents about accommodations, food, and travel in order to help them have reasonable expectations is vital. Cultural, social, and educational aspects supersede operative volume. Continuous quality assessment involves post-rotation debriefing and competency-based evaluations from host-institution supervisors.

Conclusion: Follow-up debriefing in our program suggests international experiences are valuable educationally and culturally, even life changing for some. Preparation for the unexpected involves: awareness of variation in demand from year to year (elective); last-minute resident drop-outs for family or personal reasons; and natural or man-made disasters. Any surgery or other specialty program willing to commit time and funding can develop a rotation.

## 145

### Program evaluation using focus groups: Experience with a nurse shadowing program

M. Salib, W. Chan, S. Li, T. Chan, J. You, M. Panju

McMaster University, Hamilton, ON

Introduction: Traditionally, program evaluation methods use Likert-scale based surveys, with little emphasis on collecting qualitative commentary. While labour-intensive, our experience suggests that qualitative evaluation methods may be effective for program evaluation.

Method: To evaluate a pilot nurse shadowing program at McMaster University, we used both quantitative surveys and qualitative focus groups. Each participant was surveyed pre- and post-shadowing experience, and interviewed within a focus group. We compared the ability of these two evaluative modalities to identify resident physician satisfaction, learning, reflective practice, change in behaviour, and opportunities for program improvement. Conventional content analysis procedures were used to analyze transcripts of two focus groups (PGY1/2, n=6). To maintain rigour, two authors of the study (TC&SAL) independently coded the transcripts and resolved discrepancies via consensus.

Summary of Innovation: Individual responses on the pre- and post-surveys were compared using Likert scales. Residents rated value of the shadowing experience as 5 (median score) on a 7-point scale.  Using Mann-Whitney U test, pre/post appreciation scores were non-significant (p=0.82), likely because of our small sample size. Focus groups provided greater insights into resident' experiences. In focus group, residents provided vivid examples describing their shadowing experiences: whether it resulted in subsequent attitudinal or behavioural changes, gained new skills, or aided reflective practice. Residents also provided useful feedback for improvement.

Conclusion: Qualitative data from focus groups provided intricate details about resident experiences during our pilot program. Our analysis suggests that when evaluating residency education, we may meaningfully augment quantitative evaluation data in cases of small numbers.

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## 146

### Virtual residents for preceptor skill development

D. Topps, D. Myhre, A. Popovic, M. Cowan, M. Topps

University of Calgary, Calgary, AB

Introduction: Residents in difficulty can create huge challenges for preceptors. Problems arise in various CanMEDS competencies, especially professionalism, manager and collaborator. Significant resource attrition results if challenges are not addressed. Community-based preceptors are particularly at risk of professional isolation in such circumstances.

Summary of Innovation: We developed a series of virtual residents, using an open-source virtual patient platform, OpenLabyrinth. The variety of scenarios, provided opportunities for preceptors to explore potential maladaptive behaviors, without risk of personal confrontation. Topics included system problems, cultural competencies, recalcitrant colleagues, and disruptive acts from learners. Learning designs for the cases used Situational Judgement Testing and Scenario Based Learning. Case creation was enhanced by powerful branching conditional pathways and flexible feedback mechanisms, allowing exploration of complex interactions.

Conclusions: Virtual Residents were strongly favored by preceptors as a useful approach in tackling some of these challenging issues. Detailed metrics in the OpenLabyrinth platform provide extensive data for learning analytics in ongoing studies.

## 147

## Using electronic field notes in a family medicine residency program

G. Viner, E. Wooltorton, E. Stodel, A. Eyre, D. Archibald

University of Ottawa, Ottawa, ON

Introduction: To support the assessment of competence, regular use of field notes is an accreditation requirement of the College of Family Physicians of Canada. Field Notes are narrative forms used to document formative feedback on resident's clinical activities. In the University of Ottawa's Family Medicine Residency Program, we introduced a paper-based field note in 2011 to address the challenges of documenting progress and competency acquisition throughout training and an electronic version (eFN) in 2014 to facilitate team-based teaching, communication, storage and reporting.

Innovation: Our field notes include text boxes to document narrative feedback, as well as radio buttons to indicate performance level. Program objectives are also listed. Users can check boxes related to patient population, CanMEDS-FM roles, Skills Dimensions, 99-Topics, and curriculum domains to record curriculum requirements that have been covered. Reports can then be generated on each of these elements to determine gaps in clinical exposure and competency and allow individual residents' programs to be tailored to meet their needs.

Conclusion: We are in the early stages of implementing the electronic version. Full rollout occurred in spring 2014, but a successful 6-month pilot with 23 preceptors was conducted before launch. During the pilot, 155 eField Notes were created. Further, on a scale of 1-10, interest for the eField Note (mean =9.8) and perception of usefulness (mean = 9.25) was rated high by residents and preceptors at the Curriculum Review Advisory Group retreat. The eFN also provides the start of a platform to build a competency portfolio for each trainee.

## 148

## Case of the week: Helping residents plan and prioritize clinical decisions in a distributed environment

R. Anderson, R. Ellaway, S. McIsaac, C. Tremblay

Northern Ontario School of Medicine, Sudbury, ON

Introduction: The use of online learning is relatively under-developed in residency education. Residency programs in Northern Ontario are distributed over a large geographical area. Access to structured faculty led lessons was a key challenge to overcome with this distributed learning environment. This was addressed through the implementation and adaptation of an online Case of the Week Wiki (COWW) that is a large part of the curriculum. The COWW involves a faculty directed case based learning problem for residents to post anesthetic considerations and management goals. We needed to understand how the tool was used to ensure that it met program objectives and to improve its usability.

Method: We reviewed system logs, resident and faculty evaluation data. We also observed residents using the system and discussed the usability of the system with them. Initial findings led to changes to the system including adding a word limit to responses, increasing the number of faculty moderators, creating senior resident moderators, and refining the guiding questions.

Conclusion/Implication: COWW has been successful in engaging learners at multiple sites, correlating with higher levels of faculty and learner engagement. It has been particularly useful in supporting learning around the CanMEDS Collaborator role. Residents initially struggled to find ways to post succinct answers, constructively criticize peer answers and commit to a decision making process online. Our provisional conclusion is that online learning can be tailored to meet the needs of specialty residency programs however, requires careful adaptation and tuning to learners' needs.

## 149

# Development and implementation of an emergency medicine residency training curriculum: The Toronto Addis Ababa Academic Collaboration in Emergency Medicine (TAAAC-EM)

C. Hunchak[1], M. Landes[1], J. Maskalyk[1], D. MacKinnon[1], L. Puchalski Ritchie[1], R. Venugopal[1], A. Azaj[2], S. Teklu[2], N. Meshkat[1]

[1]University of Toronto, Toronto, ON, [2]Addis Ababa University, Addis Ababa

Background: Ethiopians experience a high burden of illness in a health system that lacks trained emergency medicine (EM) physicians. To meet this pressing education and health system need, an EM residency training program was developed and implemented at the Addis Ababa University School of Medicine (AAU SM).

Methods: A faculty taskforce from AAU SM and the University of Wisconsin designed a three-year residency curriculum intended to provide cost-effective, evidence-based training in Ethiopia's low resource context. Faculty from the University of Toronto (UT) partnered to develop and deliver content for the EM rotations within the residency program using an adapted EthioMEDS framework.

Summary of Innovation: The curriculum comprises three streams of structured teaching sessions: clinical (didactic and practical), administration and clinical epidemiology. Curriculum content is delivered by visiting UT EM faculty during regular in-country teaching trips. To date, 16 one-month teaching trips have taken place since 2010. Eighteen residents (PGY1-3) are in active training. Ethiopia's first-ever board-certified EM physicians graduated in 2013 (n=4). A faculty-trainee mentorship program and regular videoconferencing sessions bridge gaps between teaching trips.

Conclusion: This multi-faceted curriculum and collaborative institutional partnership has successfully graduated Ethiopia's first-ever EM faculty. We believe that the TAAAC-EM model will prove successful in both addressing the emergency healthcare needs of Ethiopians and in bolstering the expertise of trained Ethiopian physicians, and will be instrumental in helping develop future EM residency training programs throughout Africa.

## 150

# Improving residents' skills for providing high value care through a curricular innovation: A Cost Conscious – Clinical Reasoning Conference (CC-CRC)

K. Kesari, S. Ali, S. Smith

Mclaren Flint, Flint, MI

Introduction: The US spends more than $700 billion annually on unnecessary, and sometimes dangerous, tests and treatments. The ACGME and multiple medical organizations have emphasized the importance of training future doctors in responsible stewardship of limited resources. Last year, we implemented ACP's High Value, Cost Conscious Care (HVCCC) as formal curriculum. Internal medicine residents participated in interactive case-based workshops and didactic sessions. Recently we introduced a CC-CRC giving them an opportunity to practice what they learned in the HVCC curriculum.

Methods: Clinical Reasoning Conference at our program involves progressive disclosure of a case in response to residents' hypothesis-driven questions. At the beginning of the CC-CRC, all historical and physical findings are disclosed. Two resident teams, each with various PGY-levels, compete using the Health Care Blue Book; they choose diagnostic tests based upon evidence, cost and diagnostic yield (HVCCC) to confirm or disprove their differential diagnoses. The team diagnosing the condition at the least cost wins. The facilitator then reviews the case, DDx, the disease or condition, costs, diagnostic yield and risks of various tests and procedures.

Conclusion/implication: Our traditional CRC is a case-based conference of actively engaged learners. We modified our CRC by introducing competition while incorporating evidence-based teaching with awareness of cost-consciousness and HVC for day-to-day practice. Our CC-CRC is solidifying at least five of the seven roles in the CanMEDS framework and four of the ACGME competencies.

## 151

### Learning professionalism by concordance-of-professional judgment: A promising prospect for residency education

N. Fernandez[1], A. Foucault[2], S. Dubé[2], R. Gagnon[2], B. Charlin[2]

[1]Université du Québec à Montréal, Montréal, QC, [2]Université de Montréal, Montreal, QC

Context: Professionalism development entails learning to make judgments in ambiguous situations. Clinical educators and residents experience severe time constraints; a learning and assessment tool that can easily be inserted into heavy work/learning schedules and support competency proficiency is required. An on-line Concordance of Professional Judgment Learning Tool (CPJLT), comprised of twenty vignettes involving professionalism issues, was developed and tested in a pilot study. Students obtained a measure of how concordant their professional judgments were with a panel of experts and learned reflexively from expert explanations.

Method: Twenty clinical vignettes involving professionalism issues were written including, for each, a maximum of four possible courses of action. All students were asked to nominate attending physicians that best represented professionalism role models as members of expert panel. Experts completed CPJLT and gave explanations for their answers. All students were invited to answer each vignette and study expert explanations.

Results: Seventy-nine students took the CPJLT. The optimized test included 20 cases and 54 questions (Cronbach's alpha coefficient of 0.64). Student – expert concordance scores ranged from 54 to 77 with a mean at 64.6 (standard deviation 5.1). Satisfaction survey results indicated high satisfaction and relevance of tool despite some pitfalls. Post-test focus group results revealed relevant experiential learning on professionalism issues involving discrepancies between professed and actual behavior.

Discussion: CPJLT has been adapted to general surgery residency for introduction in Fall 2014. Pilot study results suggest feasibility of implementation and pedagogic relevance in fostering professionalism competency development as a situated experiential learning tool.

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### Education analytics for residency programs: Making Resident Logbook data work for you

R. Anderson, R. Ellaway, S. McIsaac, C. Tremblay

Northern Ontario School of Medicine, Sudbury, ON

Introduction: Competency based education is a growing imperative in postgraduate medical education. Competency based education requires frequent assessment of observable competencies using multiple different tools. Data from these assessments need to be aggregated and presented to learners in a timely and clear manner. Resident Logbook (RLB) is a national anesthesia procedure logging system mandated by the Royal College Specialty Committee in Anesthesia. One of the barriers to its effective use is a lack of resident-specific contextual information. Education analytics is a growing field where data is aggregated and presented in real time to support learners and programs.

Method: We developed an analytics solution for the new Anesthesia program at the Northern Ontario School of Medicine based on integrating RLB data with our local Moodle-based Learning Management System. This allows us to provide real time feedback to learners specific to their level, module, and competency. We have developed a web service that dynamically pulls resident-specific data from RLB to be presented in one of several ways on the learners' Moodle-based platform. These allow learners to see their level-specific targets, their trajectories toward EPA proficiency, and their targets for the whole program.

Conclusion/Implication: We have demonstrated the feasibility of pulling contextualized data from a national logging system to be presented in a program- and learner-specific manner. This aggregated data approach provides learners with early and specific feedback on their learning trajectories and affords significant logistical efficiencies. We have demonstrated the viability and utility of using data-driven education analytics techniques in support of postgraduate medical education.

## 153

## CanMEDS in context: Engaging residents in a transition to residency program

J. Binnendyk

Schulich School of Medicine & Dentistry, London, ON

Introduction: Early postgraduate medical education must address its learners' transitions from medical students to residents while promoting meaningful and relevant teaching of all CanMEDS roles. Distributed models of medical education bring the added challenge of engaging residents at dispersed sites. We involved residents in the development and delivery of a Transition to Residency program in an effort to meet these challenges more effectively.

Method: Resident focus groups identified eight common clinical cases that residents would face in the early phase of their training. Unique resident/faculty planning groups formulated educational objectives for each scenario, creating a series of interactive workshops. An overarching curricular plan ensured that all CanMEDS roles were embedded within the clinical cases. Technology-enabled initiatives, including streaming, Twitter, and a novel audience response system, encouraged interactive participation at distributed and on-site locations. A mixed-method design measuring attendance, relevancy, and engagement incorporated theme analysis to identify implicit and explicit patterns within the data.

Conclusion: Resident evaluations for this program were highly favourable. Narrative feedback acknowledged relevant, practical content that improved confidence levels. Residents, including those at distant sites, appreciated the interactivity achieved not only through technology, but also energetic resident/faculty co-facilitation. Good learner attendance across the series suggested that sustained resident engagement was achieved.

Initial results are encouraging; follow-up will provide more comprehensive data that can be used to inform future iterations. We are interested in determining the extent to which resident involvement in curriculum development and facilitation contributed to participant engagement.

## 154

## Implementing a competency based curriculum in a pediatric training program

M. Ladhani, P. Training Committee

McMaster University, Hamilton, ON

Introduction: The Competency-based education movement has taken off over the past decade. Not only has the number of publications on competency-based education exploded, the widespread use of the CanMEDS competencies globally indicates its acceptance by the medical community. Organizations such as the Accreditation Council for Graduate Medical Education (ACGME) and the Royal College of Physicians and Surgeons of Canada, with its upcoming CanMEDS 2015 project, are getting ready to make competency-based education an accreditation standard.

Method: The McMaster Pediatric Residency Program started a competency-based curriculum for its PGY 1 residents. The Residency Program committee after a retreat with all stakeholders developed: statement of learning outcomes, educational strategies, identified learning opportunities and identified course content. Assessment strategies were key in the implementation of the curriculum. A new competency based assessment form was implemented as well as focused and frequent observation using a new tool; the mini-MAS (Mini-Milestones Assessment). Faculty development and communication was essential. Residents in their PGY 1 year are currently in a hybrid model 22 weeks of their first year in the competency-based route and the rest in the traditional rotation based model. General pediatrics was selected as the initial area for implementation of the competency based training.

Conclusion: The key to successfully moving the entire program will be acceptance of this shift in paradigm by learners and assessors. Proper assessment tools for trainees and appropriate training of assessors will be crucial elements of successful implementation.

## 155

## The MEdIC series: Faculty and resident development in the brave new world wide web

T. M. Chan[1], B. Thoma[2], M. Lin[3]

[1]McMaster University, Hamilton, ON, [2]University of Saskatchewan, Saskatoon, SK, [3]University of California, San Francisco, CA

Intro/Background: Disruptive innovations have changed medical education. So far, new teaching innovations have been mainly aimed at learners, with few resources aimed at junior medical educators.

Innovation description: In Aug. 2013, the Academic Life in Emergency Medicine (ALiEM) website launched the Medical Education in Cases Series (MEdICS). Each month a fictionalized vignette was used to launch an online discussion around a difficult scenario. The cases were written to resemble real life situations. The cases are released online as a blog post, and then promoted using social media (e.g. Twitter, Facebook). Participants make comments on blog post's comment section or Tweet back to moderators. One week later, moderators generate a curated digest of the community comments, which is posted alongside expert commentaries written by experienced clinicians. This 'wrap-up' post acts as debriefing for the online community.

Results: We launched 6 cases between July and January that emphasized different CanMEDs and ACGME roles. In the week after the case was posted, cases received an median (IQR) of 861 page views 634-1114) from 767 unique visitor (518-953). We reached a median of 326 cities (218-405) and 45 countries (32-50). Median (IQR) values for online social engagement were: 30 comments (25-39). 52 Tweet (49-52), 17 Facebook likes (13-30). and 5 Google " 1's"(4.5-6.8).

Implication: Our innovation is proof of concept that medical educators and their learners can not only be engaged in online, asynchronous professional development but that resultant discussions can be curated into a polished educational resource for others to build upon in future small- and large-group discussions.

## 156

## More is not always better: High satisfaction and performance in thoracotomy with a low fidelity model

B. Mema

The Hospital for Sick Children, Toronto, ON

Introduction: Simulation allows practice and assessment without compromising patient care. Simulation equipment is expensive. Reviews show that outcomes from training with low fidelity are comparable to high fidelity simulation. Chest tube placement, a life-saving procedure, is an objective of training in many programs. For training and assessment we use a low fidelity chest tube model that was developed at our institution. The low fidelity model combines inexpensive materials representing part of the chest and lung. Fluid or an air-filled balloon between the rib cage and lung mimic pneumothorax or effusion. Trainees can practice skills in the model then with a standardized patient or high fidelity simulation by attaching the model and using "hybrid simulation" until competence in many dimensions of CanMEDS apart from procedural is documented.

Methods: Two hundred trainees and practicing physician used the model (150 in our institution, 50 in International Conferences). Survey regarding its usefulness with likert-scale (1- unsatisfactory to 5-outstanding) had 75% response rate. Mean scores for: skill development (4.1), skill improvement (4.2), independent practice if readily available (4.1), accurate anatomic representation (4), sufficient realism (4), overall experience (4.2) and confidence doing the procedure in a real patient (4). Forty respondents confirmed they had the opportunity to do "real life" procedures with 37 succeeding.

Conclusions: Simulation equipment is expensive and few schools have resources to invest. Low fidelity, inexpensive models allow easy access, deliberate practice and achievement of competence. An inexpensive part task trainer was useful for training and perceived skills transfer to the bedside.

## 157

## Promoting reflection through the CanMEDS Roles: Online modules for residents

M. Joneja, C. Smith

Queen's University, Kingston, ON

Introduction: Residents in accredited training programs are required to have an understanding of the CanMEDS Roles and training programs must provide education around the CanMEDS Roles. Residents are also encouraged to develop reflective practice during their training. Educational resources such as e-learning modules can be useful in providing education for residents who are often dispersed over training sites.

Method: With support from the Queen's University Postgraduate Medical Education Office, seven online modules outlining the CanMEDS roles were developed. Each module contains interactive activities, audio/video clips, a local physician champion, academic references and reflective questions. The answers to the reflective questions can be saved by residents in their online portfolios and can be used to assess their understanding of the CanMEDS roles. All residents in the Queen's University Core Internal Medicine training program are required to complete these modules during residency. The reflective portfolio is reviewed for completion and residents are encouraged to give feedback around the modules. Faculties are available to residents for discussion regarding the content and completion of the modules. Residents have successfully completed these modules and demonstrated an understanding of the CanMEDS roles. Residents also demonstrated significant reflection on their practice, as seen in the answers to reflective questions.

Conclusion: The Queen's University Core Internal Medicine training program has successfully implemented the use of online modules to outline the CanMEDS roles and promote reflection during residency training. These modules are freely available for use at www.collaborativecurriculum.ca and will be updated to reflect the changes introduced by CanMEDS 2015.

## 158

## Development of a Canadian National Anesthesiology Simulation Curriculum (CanNASC)

M. Chiu[1], J. Tarshis[2], T. Bosma[3], J. Burjorjee[4], R. Cherry[5], G. Chiniara[6], N. Cowie[7], S. Crooks[1], K. Doyle[8], D. Dubois[9], N. Dupuis[10], T. Everett[11], R. Fisher[12], M. Hayter[13], V. Naik[1], N. O'Regan[14], G. Peachey[15], A. Robitaille[16,] M. Sullivan[17], M. Tenenbein[18], N. Vakharia[19]

[1]University of Ottawa, Ottawa, [2]Sunnybrook Health Sciences Centre, Toronto, ON, [3]University of British Columbia, Vancouver, BC, [4]Queen's University, Kingston, ON, [5]Western University, London, ON, [6]Université Laval, Quebec City, QC, [7]University of Saskatchewan, Saskatoon, SK, [8]University of Alberta, Edmonton, AB, [9]Université de Sherbrooke, Sherbrooke, QC, [10]Northern Ontario School of Medicine, Sudbury, ON, [11]University of Toronto, Toronto, ON, [12]McGill University, Montreal, QC, [13]University of Calgary, Calgary, AB, [14]Memorial University, St Johns, NL, [15]McMaster University, Hamilton, ON, [16]Université de Montréal, Montreal, QC, [17]Southlake Regional Health Centre, Newmarket, ON, [18]University of Manitoba, Winnipeg, MB, [19]Dalhousie University, Halifax, NS

Introduction: The introduction of competency-based medical education will task educators with ensuring that trainees gain exposure to and proficiency in managing a wide range of rare but critical clinical events. Despite widespread adoption of simulation, there is large variability in curriculum content and trainee assessment across training programs. The purpose of this project is to develop and implement a set of standardized high-fidelity simulation scenarios that will be completed by every anesthesiology trainee during residency.

Methods and Results: The Royal College Office of Practice and Systems Innovation and Anesthesiology Specialty Committee assembled a group of educators representing each of the 17 anesthesiology training programs in Canada. Monthly teleconference meetings accomplished the following: 1) a needs assessment survey regarding curriculum content; 2) consensus, using a modified Delphi technique, on important and technically feasible scenarios;

3) a resource survey to assess for implementation feasibility; 4) creation of standardized scenario templates; 5) creation of standardized scenarios; 6) agreement on assessment strategy incorporating scenario specific checklists created via a modified Delphi technique and validated global rating scales. Nationwide implementation of the first scenario is in progress with plans to create additional scenarios.

Conclusion: To date we have found it highly feasible to achieve consensus on the elements of a national simulation-based curriculum for anesthesiology trainees. A modified Delphi technique has been essential in achieving our goals efficiently.  Our process could be adapted by any specialty interested in implementing a simulation-based curriculum incorporating competency-based assessment on a national scale.

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**159**

# Employing the awareness-to-adherence model in the facilitation of teaching of non-Medical Expert Roles in radiology residency

C. Mar, S. Chang, L. Sadownik

University of British Columbia, Vancouver, BC

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Introduction: Radiology training has long succeeded at imparting the core medical knowledge and technical skills. The non-Medical Expert (Intrinsic) roles, however, often remain challenging to integrate into clinical teaching.

Method: The UBC Radiology Residency CanMEDS E-Primer is an educational intervention comprised of a series of educational vignettes delivered directly to faculty via email. The email list included all 65 faculty within the core teaching hospitals.

Summary of Innovation: The awareness-to-adherence model of clinical education was applied to teaching the teacher regarding the provision of Intrinsic role training to residents. By increasing their awareness, faculty were predisposed to the inclusion of radiology-specific elements of these roles in their daily resident interaction. A series of 14 brief text emails was created. The first 8 included an overview of the CanMEDS framework, and one describing each role. The final 6 outlined a typical clinical radiology scenario. These vignettes invoked various combinations of the Intrinsic roles. A framework for discussion was included with each scenario in the form of a series of questions. There was also a guideline for feedback to the resident provided. The intervention has been well received by faculty, and is currently evaluated with a validated tool for assessment of teaching by learners.

Conclusion: The CanMEDS E-Primer represents a predisposing element in the awareness phase of altering teaching practice. It will facilitate specialty-specific training in the Intrinsic roles, and is easily deployed.  The creation of a video series of scenario enactment is now under consideration.

## 160

This abstract has been withdrawn / Ce résumé a été retiré

## 161

# Inter-professional interactions between internal medicine residents and emergency department staff: Two years experience with an online, post-call evaluation survey

C. Johnson[1], C. Code[1], N. Gauthier[1], Y. Wilson[2], A. Cwinn[1]

[1]University of Ottawa, Ottawa, ON, [2]The Ottawa Hospital, Ottawa, ON

Background: The 2010 Royal College accreditation of the University of Ottawa's Core Internal Medicine Training Program identified opportunities to improve inter-professional relations between internal medicine (IM) residents and emergency department (ER) staff. An ER/IM relations committee consisting of IM training program and ER leaders was established. In 2011, an online on-call evaluation survey was implemented.

Methods: The ER/IM relations committee consisted of one IM associate program director, the ER director, ER nurse managers, and 4 IM chief residents. Each IM resident used the newly developed post call survey to rate inter-professional relations as satisfactory, excellent, or unsatisfactory by responding to questions such as "how was the call experience with regards to interaction with medical staff providing referrals". Residents provided narrative details of unsatisfactory inter-professional encounters.

Results: 2545 post call surveys were completed. For interactions with MD's, 3.5% were unsatisfactory, 70% satisfactory, 26.5% excellent. For interactions with nurses, 1.8% were unsatisfactory, 69.5% satisfactory, 28.5% excellent. Multiple narrative comments could be associated with a single unsatisfactory on-call. Qualitative analysis will be performed to (i) group interactions by CANMEDS domain (ii) identify system & environment elements common to unsatisfactory encounters (iii) measure temporal trends in unsatisfactory encounters.

Conclusion: Unsatisfactory inter-professional interactions are reported during a minority of IM resident on call shifts. Analysis of our qualitative data may permit IM and ER leaders to target interventions to improve inter-professional interactions. Identifying health system & environment elements common to unsatisfactory encounters may identify opportunities for change which may improve inter-professional relations.

## 162

## Mini-MAS: A work based assessment tool to assess milestones

M. Ladhani

McMaster University, Hamilton, ON

Background: The success of competency-based education relies on frequent assessment and feedback. Much work remains to be done on how one will measure the defined competencies. Intrinsic skills such as communication, collaboration etc. remains difficult to measure yet will be integral in the desired competencies. The learner's advancement will rely on effective assessment methods. The American Board of Pediatrics Milestones project pieced together the developmental progression of knowledge, skills and attitudes for each sub-competency and then translated this background information into milestones.

Objective: Using these milestones, we have developed a tool to assess these milestones called the mini-MAS (Mini Milestones Assessment). A separate tool was created for 6 competencies; data gathering, physical exam, clinical reasoning, communication with families, communication with physicians and other health professional and collaboration. The tool has descriptors and is meant to differentiate the novice from the expert. The tool has been implemented for our competency-based curriculum in our PGY 1 year in pediatrics. Reliability, validity, feasibility and educational impact will be measured to assess the tool.

Conclusion: The mini-MAS will help faculty assess key competencies and milestones to assess resident progress through a competency-based curriculum.

## 163

## The use of script concordance in a residency seminar setting

E. Wooster, D. L. Wooster

University of Toronto, Toronto, ON

Introduction: Structured seminars directed by faculty often explore trainees' knowledge in search of 'right' answers. However, there are levels of uncertainty in knowledge, synthesizing data and establishing a diagnosis and management plan. The 'script concordance model' (SCM) has been proposed to address uncertainty in assessment of trainees. This study assayed using SCM in a seminar setting. We hypothesize that the SCM will provide a tool to structure discussion, explore 'uncertainty', engage learners and enrich the seminar experience.

Methods: Trainees attended seminars presented in traditional and 'uncertainty' formats. The traditional format consisted of a set presentation with discussion; the uncertainty format included SCM questions. The trainees' attitudes to each format were noted.

Results: 5 residents attended 2 seminars of each format. Objective measures of discussion time (22 vs 15 min), depth (3 vs 1 ) and additional questions (12 vs 4) were greater with the 'uncertainty' format. Subjective measures of interest, attention, new learning and intent to learn more favored the 'uncertainty' model.

Conclusions: In this small study, these results suggest that an 'uncertainty' format has a positive impact on the efficacy of seminars as a learning environment.

## 164

# Development of a mobile compatible procedure logging system to enhance the learner experience

A. Pattern, K. Imrie, C. Abrahams, K. Adatia, L. Muharuma, S. Spadafora

University of Toronto, Toronto, ON

In 2004, the Post Graduate Medical Education Office (PGME) at the University of Toronto developed a procedure logging system housed in POWER, the PGME central registration and evaluation system. It allowed learners to log their procedures completed during clinical training. It subsequently provided Program Directors (PD) with procedure completion rates and demographic information (i.e. where procedures are completed).

The application was developed by one PGME program (Internal Medicine). As a result, the application's functionality did not meet the needs of every program. Moreover, no enhancements, or updates had been made to the system since its implementation. The data entry component was very cumbersome and needed to be completed at a desktop often long after the procedure took place.

In September 2012, the POWER Steering Committee approved development of an updated, mobile friendly, procedure-logging system. In order to best meet the needs to Leaners and Program Directors, stakeholders were invited to four Procedure Log focus group meetings. Through these focus group meetings, universal key elements were identified and a framework was developed to give each program the flexibility to customize their procedure logging system. This project demonstrated a successful framework to gathering application requirements and a way to build flexibility to accommodate multiple programs. Since the release of this enhancement, more programs have also begun using the procedure logging application. Informal feedback indicates that learners have been logging more procedures using the application on mobile devices.

## 165

# Stratifying objectives: An interdisciplinary milestone setting for a toxicology curriculum

T. M. Chan, M. McConnell, B. Baw

McMaster University, Hamilton, ON

Introduction: Unlike test scoring where multiple methods exist for setting pass scores (e.g. Angoff method), there are few protocols for stratifying milestones. Using input from various educators, we sought to develop a new method for determining milestones for a competency-based curriculum.

Methods: Thirty-four milestones objectives were developed for a toxicology curriculum. These milestones were given to 5 non-physicians (non-MDs, all research or fellow health-care providers) and 18 physicians (MDs) of various specialties who were asked to stratify according to the training level at which they would first expect competency. A generalizability theory study was used to determine the variance attributed to each factor (Item, Rater, Profession [physician vs. non-physician]). The average intraclass correlation coefficient (ICC) was calculated for the original planned curriculum. Then a factor analysis was completed to determine a 'best fit' model. Based on the factor analyses, items were re-organized to optimize their fit, and an ICC was re-calculated.

Results: The major source of variance in objective stratification came from the items themselves (68%, G0 coefficient = 0.667). The original curriculum design resulted in ICCs for each of the levels: Junior 0.85 (95% CI = 0.73-0.93); Intermediate 0.56 (0.18-0.81); Senior 0.69 (0.44-0.85). The factor analysis revealed the best fit with 3 groups of milestones. After reorganizing the milestones into new groupings, the ICCs for each level improved [Junior 0.86 (0.75-0.93), Intermediate 0.80(0.62-0.91), Senior 0.77(0.59-0.89)].

Conclusion: We present a novel technique of sorting milestones that may help with standard setting in this new era of Competency-Based Medical Education.

## 166

## The impact of an academic careers symposium on resident career choices: A five year experience

J. T. Stutts

University of Louisville, Louisville, KY

Background/Introduction: Little is known regarding the impact of formal career development when incorporated into residency curriculum. A career development symposium can provide self-assessment of future scholarly roles and thus better facilitate the education of others. Our objective was to assess the effect of an academic careers symposium on resident interest in careers in academic pediatrics.

Methods: Over a five year period, 117 first year pediatrics and combined internal medicine/pediatrics residents participated in a curriculum tool designed to educate in the area of academic career options. Departmental faculty spoke during four sessions focusing on the many career options within academic pediatrics during this annual, one day symposium. Residents were asked to complete pre- and post-symposium questionnaires. Responses were used to better assess the impact of the symposium on resident knowledge and career choices.

Results: The number of residents expressing interest in an academic career increased from 49% to 63%. The level of knowledge regarding timelines for career paths increased by 67%. There was an 82% increase in knowledge regarding fellowship research options and 55% felt more likely to consider an academic/subspecialty career path. Ninety-seven percent of residents felt the symposium should continue as an annual, curriculum educational tool.

Conclusion/implications: An increased interest in academic careers can be achieved through education on career options. This type of curriculum can lead the resident learner to having the greatest impact as a facilitator in the education of others by choosing their best scholarly role. This curriculum can be easily adapted into other residency programs.

## 167

## Another perspective in medical training: Introducing non-verbal communication

R. Beier-Holgersen, T. Larsen

Hilleroed Hospital, Hilleroed

Introduction: A large part of communication between people is non-verbal. It has not been described in the literature that medical students or residents are trained in this kind of communication. The non-verbal communication has an important role as being a doctor especially in the role as leader, team member (cooperator) and professional.

The conductor in an orchestra practices leadership using non-verbal communication. It is possible to train medical students/residents in taking responsibility, leadership and acting in a team using the principles from the training of conductors.

Method: After a short introduction to acute clinical situations where the importance of being able to take leadership as a doctor, the conductor explained how he with use of body language and eye contact controls the members in the orchestra.

Afterward two exercises from the musical world trained the students in using their body language and eye contact. The conductor gave personal feedback to all members.

Summary of innovation: All participants found that the training was very useful leading in acute medical situations Instruction of a conductor using exercises from the music was very interesting and gave a perspective to the use of body language and eye contact which was new. The training resulted in further self-awareness by more of the participants.

Conclusion: It is possible to advantageously use the principles conducting an orchestra in training leadership, cooperation and professional behavior.

## 168

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## 169

# The development and first evaluation of an app to facilitate clinical teachers

T. v. Kempen, P. Dorr

LUMC, Leiden

Introduction: Besides skills training or other more formal courses it is very import to educate residents in the workplace to enhance their communication skills. This is especially needed after basic skills training when residents are confronted with more complex communication issues related to their specialism. Clinical teachers frequently address communication issues but only as rescuers or clinicians and not as formal instructors (Perron, 2009). They feel that their own training did not prepare them to teach communication skills explicitly. We developed an app in order to empower them in sharing their experiences and educate residents in the workplace.

Method: We developed an app to facilitate clinical teachers in creating an educational moment for residents after they observed them in a doctor-patient interaction. The app takes the newest insights concerning doctor-patient communication into account and is especially designed to facilitate residents' competence development. First we assessed the app in an expert group on content. After that we started a pilot with five clinical teachers: we interviewed them and their residents on the usage of the app.

Summary of innovation: Apps are more and more used in clinical practice for medical expertise, but we should design more apps to facilitate competence development of residents and clinical teachers. Our app is designed, based on insights from educational and communication research.

Conclusion: We show in several steps how we designed an app to enhance competence development on the workplace and what the experiences of the first users are.

## 170

## Using online tools to teach and assess the intrinsic CanMEDS Roles

L. Cheung

University of Alberta, Edmonton, AB

Residents graduating from Royal College specialty programs in Canada must attain competence in all CanMEDS roles. Teaching and assessing the intrinsic CanMEDS roles can be challenging, especially when minimal resources (eg. faculty, support staff, finances, etc) are available. Also, documenting the teaching and assessment to satisfy accreditation requirements can be time consuming. In the Adult Respirology residency program at the University of Alberta, we use two widely available online tools – Google Sites and one45 web evaluation to accomplish this task. At regular intervals throughout the two year residency program, residents are given a reading assignment that covers one of the intrinsic CanMEDS roles. The residents then complete a written assignment that asks them to reflect on this role in their daily clinical practice and demonstrate their knowledge of the reading material. The residents upload their completed assignment to Google sites – an online app which can be used to store documents.  An email notice is automatically sent to the program director, and only he and that individual resident can view the written assignments in that resident's site. The program director then assesses the assignment and completes an assessment form on one45 – an online web evaluation tool. An email notice is automatically sent to the resident who can then view the assessment and feedback comments.  Thus, with two readily available online tools, we can teach each intrinisic CanMEDS role, assess that role, and document this teaching and assessment using minimal resources.

## 171

## Developing resident six core competencies based on integrating the healthcare matrix into morbidity and mortality conferences and grand rounds

P. Lin, Y. Chen

Far Eastern Memorial Hospital, New Taipei City

Introduction: Morbidity and Mortality (M&M) conference and Grand Rounds (GR) are the Accreditation Council for Graduate Medical Education (ACGME) mandated regular educational for residency training. In order to linking these conferences with ACGME six core competencies be more effectively delineate the teaching points related to each case, we integrated the healthcare matrix (HM) into M&M and GR for residency competency development.

Methods: Since 2012 residents have to use the HM to review all M&M and GR cases held by institution for exploring the core competencies and quality improvements with all faculty members. The annual six core competencies evaluation with six-scale ranking were applied by their program directors to exam their achievements. The results are classified into three levels by rankings: under expectation (1-2), appropriate (3-4), and over expectation (5-6). Reviewing 98 HM cases, the initial findings highlight residents have main reflections on "patient care" and "practiced-based learning and improvement" related to the quality indicators on "safety" and "timely". Comparing 2012 and 2013 annual evaluations, we found the greatest improvement is the "professionalism" which percentage of over expectation is from 35.5% to 52.5%. Including "patient care", "interpersonal and communication skills," "professionalism" and "system-based practices" have got statistic significant ($p<0.05$) improvement.

Conclusions: The HM creates a systematic training format in M&M and GR case discussions. Residents were trained to improve their six core competencies sincerely. Through this training model have truly been the role models of professionalism and helped to foster a culture of teamwork and safety to improve medical quality.

## 172

### Examining the utility of non-medical reference letters as indicators for implicit CanMEDS domains in residency admissions processes to Pediatrics at Queen's

A. Acker, L. McEwen, L. Hookey

Queen's University, Kingston, ON

Letters of reference are a component of all residency admissions processes. The utility of physician-authored letters for determining candidates' suitability beyond medical expert criteria is questioned in the research literature. Educational leaders in Pediatrics at Queen's University are attempting to ameliorate this issue with the inclusion of non-medical reference letters. This project extends research in the Department of Medicine that has produced an audit tool to evaluate physician-authored letters. This project examines the extent to which non-medical letters provide insights about candidates' potential in implicit CanMEDS domains (e.g., Communicator, Collaborator, and Manager).

An audit of 300 reference letters (200 Physician-authored/100 non-medical reference letters) submitted to Pediatrics during the 2014 CaRMs process will be conducted. The research team will review 10 letters using the Medicine audit tool to determine the transferability of the tool and inform adjustments where necessary. 10 non-medical letters will also be reviewed to amend the audit tool for use with this sample of letters. Attention will be directed to references made to personal characteristics related to implicit CanMEDS domains. The remaining letter will be reviewed once the audit tools are finalized. Using a constant comparative approach, audit results of physician-authored and non-medical reference letters will be analyzed to determine what, if any additional insights are garnered about the suitability of candidates.

Should non-medical reference letters prove to be valuable indicators of CanMEDS implicit domains, the findings of this research could inform adjustments to residency admissions processes in the form of guidelines to strengthen non-medical reference letters.

## 173

### Longitudinal follow-up of resident training in residency programs

I. Savard, J. Poitras

Université Laval, Québec, QC

Since the shift to the CanMEDS, Faculty must teach and assess the different roles of that framework. Working in silos is no longer possible. It has become essential to work together to develop a global vision of the program, aiming at the same target and orchestrate efforts to achieve them. We must develop and make available various tools to support the team's efforts.

We have developed pedagogical web sites for whole programs. These sites allow longitudinal monitoring of residents accomplishments throughout their course program. They bring together the various tools developed, the specifications about the learning goals and about the various opportunities provided to develop competencies. Discussions forums can be used by Faculty to discuss about the program or about a resident competency level for example; by Clinician Educators and residents for pedagogical discussions. Pedagogical web sites also offer opportunity for residents to set up a portfolio in which they gather evidence of their competency level. Fifteen programs have adopted this approach and are satisfied with the results. A formal survey will be sent to program directors, clinician educators and residents over the next weeks and results will be available.  We want to question about: Improving communication between different stakeholders, benefits of centralized information and shared efforts.

We always wonder how to maximize the pedagogical effectiveness. Since, the whole is more than the sum of its parts; we think that a global vision of the program and the orchestration of pedagogical efforts can increase its efficiency.

## 174

## The University of Manitoba psychiatry toolkit project: Evaluative findings

K. K. Skakum, A. Adeponle, C. Cooke, W. Fleisher

University of Manitoba, Winnipeg, MB

Introduction: We report findings of this evaluation study of the University of Manitoba 'psychiatry toolkit'. Introduced in September 2012, the toolkit is a web-based library resource that provides a filtered selection of relevant psychiatry and medical resources that can be used conveniently and accessed efficiently at the point of care. The evaluation entailed assessments of toolkit uptake and of its impact on physicians' information seeking.

Study Aims:

- Assess toolkit utilization patterns

- Assess physician attitudes towards toolkit use

- Assess perceived impact of toolkit use on physician information seeking and search skills

- Assess perceived impact of toolkit use on clinical practice

- Assess factors associated with toolkit uptake and utilization by physicians

Methods: The evaluation utilized a 3-phase mixed methods design: a baseline cross-sectional survey involving medical staff and residents in the department of psychiatry (phase 1); in-depth qualitative interviews with a purposive sample of six departmental staff members (both psychiatrists and residents) eight months after survey (phase 2); and a 2nd survey one year after baseline survey (phase 3).

Results: Results of baseline survey indicate the psychiatry toolkit encouraged MDs to seek answers to clinical problems as they presented in 'real-time'; MDs reported that a search on the toolkit led to answer and influenced clinical-decision 4 out of 5 times; time spent on a search was identified as main barrier to toolkit uptake. Interview data (currently being analyzed) will be presented.

Conclusions: Study findings provide support for utility of the toolkit as a vehicle for learner education and CPD purposes.

## 175

## Development of a consolidated web-based residency learning program

R. J. Moulton

University of Ottawa, Ottawa, ON

Introduction: Morbidity and Mortality (M&M) conference and Grand Rounds (GR) are the Accreditation Council for Graduate Medical Education (ACGME) mandated regular educational for residency training. In order to linking these conferences with ACGME six core competencies be more effectively delineate the teaching points related to each case, we integrated the healthcare matrix (HM) into M&M and GR for residency competency development.

Methods: Since 2012 residents have to use the HM to review all M&M and GR cases held by institution for exploring the core competencies and quality improvements with all faculty members. The annual six core competencies evaluation with six-scale ranking were applied by their program directors to exam their achievements. The results are classified into three levels by rankings: under expectation (1-2), appropriate (3-4), and over expectation (5-6). Reviewing 98 HM cases, the initial findings highlight residents have main reflections on "patient care" and "practiced-based learning and improvement" related to the quality indicators on "safety" and "timely". Comparing 2012 and 2013 annual evaluations, we found the greatest improvement is the "professionalism" which percentage of over expectation is from 35.5% to 52.5%. Including "patient care", "interpersonal and communication skills," "professionalism" and "system-based practices" have got statistic significant ($p<0.05$) improvement.

Conclusions: The HM creates a systematic training format in M&M and GR case discussions. Residents were trained to improve their six core competencies sincerely. Through this training model have truly been the role models of professionalism and helped to foster a culture of teamwork and safety to improve medical quality.

## 176

## Development of a workshop to introduce internal medicine residents to handover

C. Boyington, L. Rourke

University of Alberta, Edmonton, AB

The transfer of information during handover has quickly become an important aspect of the CanMEDS Communicator role. However, a recent systematic review of interventions to train residents for handover concluded that the literature is sparse, the quality of the studies is poor, and the results inconclusive. The purpose of this presentation is to describe the systematic development, delivery, and evaluation of a workshop to introduce Internal Medicine residents to handover practices. We used Kern's model of curriculum development to guide design of our workshop. Through a literature review, we identified a gap between our handovers and the ideal, i.e., ones that are structured, free of distraction, and supported with informatics. We conducted a 30-item needs assessment and found that our residents required an introduction to effective practices, and their preference was for a face-to-face, interactive event, that involved them in problem-solving activities. We articulated lower-level educational objectives that included the ability to recall a handover mnemonic, provide relevant information, and list keys to effective handovers. To impart this knowledge, we included a brief expository talk, a role-play activity, and a debriefing session. As a formative evaluation, we administered a written test comprised of 13 constructed-response items before and after the workshop. An effect size of d=2.87 for the mean pre – post difference suggested the participants achieved the objectives, and the participants reported that the workshop was a valuable use of their time. However, some conceptions of handover practice that were vague before the workshop remained vague afterward.

## 177

## Enhancing postgraduate training in pediatric and adolescent gynecology: Evaluation of an advanced pelvic simulation session

T. Dumont, J. Hakim, A. Black, N. Fleming

The Ottawa Hospital, Ottawa, ON

Introduction: Canadian Obstetrics and Gynecology (Ob/Gyn) residents may receive limited exposure to Pediatric and Adolescent Gynecology (PAG), despite APOG and CREOG recommendations to teach this subspecialty. Currently, there are no published PAG simulation curriculum in Canada. The objective is to describe and evaluate a Canadian simulation session designed to teach PAG history taking, examination and operative skills, and an approach to the child and adolescent.

Methods: Twenty-four Ob/Gyn residents at the University of Ottawa participated in a PAG simulation session at the University of Ottawa Skills and Simulation Centre. Participants completed four stations teaching PAG-appropriate history taking, genital examination, Tanner staging, vaginal sampling and flushing, hymenectomy, vaginoscopy, laparoscopic adnexal detorsion, and approach to the child/adolescent assessing Medical Expert, Communicator and Collaborator roles. Advanced pelvic models were used for procedure-specific stations. Participants completed anonymous evaluation forms at the end of the session to measure self-perceived increase in knowledge of six aspects of PAG care.

Results: Twenty-four residents completed the simulation session and post-session evaluation. All residents (100%) agreed that they gained knowledge in each of the four stations. For all stations, there was no significant difference in self-perceived knowledge increase between junior and senior residents. Qualitative feedback stressed excellence of instruction, interaction, immediate feedback, and hands-on experience. All residents (100%) stated the PAG simulation session should continue.

Conclusions: This advanced PAG simulation session increased resident self-perceived knowledge. Other Ob/Gyn training programs should consider implementing/adapting advanced PAG simulation sessions to increase resident knowledge and confidence in delivering care to pediatric/adolescent patients.

## 178

### Creation, implementation and evaluation of multisource feedback for Memorial University's pediatric residency program

K. Soper, R. Chafe, A. Drover

Memorial University, St. John's, NL

Introduction: The CanMEDS framework identifies and describes seven roles of a competent physician. Certain roles, such as professionalism, communicator, and collaborator are difficult to assess. Multisource feedback (MSF) has been proposed as an effective tool for the assessment of these roles. This project aimed to evaluate the need, acceptability, usefulness and the best method to implement MSF in Memorial University's Pediatric Residency program.

Methods: A pilot project was developed through a focus group with pediatric residents, guidance from the pediatric residency training committee, and meetings with nursing staff, who would be asked to complete the MSF. The pilot project has been implemented during the pediatric inpatient ward rotation for five rotations.

Results: During the pilot project, 18 of 24 pediatric residents were evaluated using MSF. The results of the evaluations are being sent to residents along with a survey to complete about the acceptability and usefulness of the MSF. A survey is also being given to nurses about their experience with the MSF. Results from the surveys are expected mid-March, 2014.

Conclusions: Feedback is an important part of resident education. MSF is suggested as a better tool for the assessment of interpersonal, communication, professionalism, or team work behaviors.  In order for MSF to be successful, its use needs to be accepted by the raters and ratees. The surveys will capture the acceptance of the MSF and then a decision can be made whether this is an appropriate form of feedback to continue for the pediatric residency program.

## 179

### Resident behaviour during the online preparation phase for a 'flipped classroom' method: The Clin Epi Blitz experience

T. M. Chan, A. Worster, S. Upadhye, T. Vallera, M. Ackerman

McMaster University, Hamilton, ON

Introduction: Flipping the classroom by providing lecture material prior to classroom work, allows teachers to use valuable contact time to troubleshoot difficult topics. However, behaviors of learners during the preparation phase have not been well reported and even fewer studies have reported when and how much learners utilize the preparation materials.

Summary of Innovation: The McMaster Clin Epi Blitz course is a review course for senior residents preparing for their Royal College examinations. In 2014, the course piloted a new 'flipped classroom'. A password-protected coursework system was created using a free web service (www.wix.com) that allowed tracking of user entry. Eleven preparation videos (4-23 minutes long) were created and hosted on an online video archival portal (YouTube.com) that tracked the videos' Views and Viewing Time. Reminder emails were sent to participants 3 and 4 days prior to the workshop. In the 3-weeks before the workshop day, organizers tracked the following metrics: 1) Logins to the website; 2) Total Views of Videos; 3) Viewing time for Videos.

Results: 51/51 residents requested website access. The median views for each video was 45, with the average number of minutes spent on each video per view 8.5 minutes as reported by YouTube analytics.  The number of logins markedly increased in the 5 days prior to the course date, two days prior to reminder emails.

Conclusions: Learner participation in the flipped classroom method is high in this particular model. Future research should determine if these results are reproducible and how student participation can be maximized.

## 180

# Implementation of a learner-created virtual patient curriculum for surgical residents

K. M. McKendy[1], N. Posel[2], D. Fleiszer[1], L. Feldman[1], G. Fried[1], M. Vassiliou[1]

[1]McGill University, Montreal, QC, [2]McGill Molson Medical Informatics, Montreal, QC

Background: Incorporation of Virtual Patients (VPs) in undergraduate medical curricula improves knowledge and skills in live patient encounters. However, the role of VPs in post-graduate education is unclear. The aim of this study was to determine the feasibility of a learner-created VP curriculum for PGY-2 surgical residents.

Methods: As part of their Surgical Foundations (SF) curriculum, PGY-2s created a VP scenario based on one of the SF objectives of the Royal College of Physicians and Surgeons of Canada. Once complete, they had one month to review all of their peers' VP cases. Finally, they were asked to complete an online questionnaire about the learning value of the project and participate in a focus group.

Results: Twenty of the 29 residents who completed the assignment filled out the survey. Most agreed that creating a VP (89%) and completing cases created by their peers (71%) had educational value. The majority (94%) felt that well-designed VPs had the potential to accurately reproduce real-life clinical decision-making, and 71% preferred active participation in a curriculum to traditional didactic teaching. The 11 residents who participated in the focus group expressed that the time allotted to complete the assignment was inadequate, and may have been better spent reading. They also expressed concern that the content of the cases was potentially inaccurate.

Conclusions: Although residents had reservations about the VP assignment, they nonetheless recognized its educational value. Implementation of a learner-created VP curriculum for surgical residents is feasible, but requires further fine-tuning and perhaps a cultural change among residents.

## 181

# Initiation of a small-group, interactive, Resident-Led Obstetrics and Gynecology Teaching (ReLOT) workshop with the aid of popular digital media

C. Hui[1], J. Tung[2], L. Tan[3], B. Chern[4], K. Tan[4]

[1]Singhealth Obstetrics and Gynecology Residency, Singapore, [2]Singhealth Academic Clinical Program, Singapore, [3]Singapore General Hospital, Singapore, [4]KK Women's and Children's Hospital, Singapore

Background: Four years ago, Singapore witnessed the transition to a new model of graduate medical education, similar to the United States residency program. Across all disciplines in the US, "resident-as-teacher" (RaT) programs are found to have overall high satisfaction rates among residents. The Obstetrics and Gynecology residents initiated the first Resident-Led Obstetrics and Gynecology Teaching (ReLOT) with a small focused interactive workshop for medical students to prepare them for an Obstetrics and Gynecology internship.

Method: The workshop format developed was a 3-hour interactive session for a small group of 7 students. Digital media was used to create an interesting movie-themed role-play walk-through of commonly encountered case scenarios in the obstetrics and gynecology wards. Content focused on recognizing emergencies, providing informed consent, communication tools, and ensuring patient safety. The students' feedback was collected and analyzed.

Results: All students found the workshop to be of high quality, useful, relevant and would recommend this workshop to others. The media helped to increase audience engagement with the resident tutors. Both faculty and residents indicated interest in continuing similar resident-led education activities.

Conclusion: From this pilot initiative, similar focused interactive ReLOT workshops may be further developed into a sustainable package with institutional memory and continuation, with the aim to improve teaching standards in the Obstetrics and Gynecology residency training program in Singapore.

## 182

# Building a community of teachers: Relationships are still important in the digital age

F. Janke, E. Denga, J. Konkin

University of Alberta, Edmonton, AB

Background: The Future of Medical Education in Canada –Postgraduate Report highlights the importance of meeting societal needs, creating positive learning and work environments and supporting clinical teachers. Fort McMurray is a remote municipality (population 73,000) in northeastern Alberta which has had significant challenges over the years with attracting and retaining medical staff. In 2005, only 3 physicians were involved in teaching.

Objective: Building teaching capacity and a new residency program was the goal.

Methods: Sites visits from the Office of Rural & Regional Health (ORRH) in the Faculty of Medicine & Dentistry (FoMD) at the University of Alberta began in 2006 to support clinical faculty and to expand the teaching capacity. Faculty travelled to Ft McMurray regularly to build relationships and develop teachers. A new family medicine residency program was implemented in July 2012.

Results: This new residency program has had a direct impact on the medical community. There are now 40 local physicians who are active preceptors, an increase since the program started. They have enthusiastically embraced faculty development activities. These include: attendance at the residents' structured learning sessions; weekly grand rounds presented by the residents and sessions offered by visiting FoMD faculty members. There is a new after-hours clinic that provides further learning opportunities for the residents and has increased the availability of urgent care in the community.

Conclusion: Spending the time to visit communities and build relationships can result in significant gains for a community, for residency training and for a faculty of medicine.

## 183

# A collaborative pilot project to enhance leadership education in undergraduate and postgraduate programs in Vancouver Island

A. Yee[1], R. McFayden[2], D. Kirkham[3], S. Fenwick[4], J. Baidwan[3], O. Casiro[2]

[1]University of British Columbia, Victoria, BC, [2]UBC and Island Health, Victoria, BC, [3]Island Health, Victoria, BC, [4]Royal Roads University, Victoria, BC

Background: It is increasingly recognized that physician leadership can play a critical role in improving the quality and performance of our health care system. In our undergraduate and postgraduate training programs, there is a predominant emphasis on the medical expert, communicator, scholar and professional CanMEDS roles. However, there is a gap in providing education to enhance leadership and managerial skills.

Summary: This two-week elective experience offered to both medical students and residents provides an introduction to leadership in health care, based on the LEADS framework (Lead self, Engage others, Achieve results, Develop coalitions and System transformation.) Most BC health authorities now use this framework to guide leadership development. The pilot elective program consists of small group seminars, interactive discussion, directed reading and preceptor based field experiences where students engage with leaders in various areas of health care practice. The objective is to use a variety of instructional methods to introduce conceptual frameworks while balancing this with experiential learning. The project will be evaluated by surveying faculty, learners and focus groups.

Conclusion: This collaborative project between the UBC Faculty of Medicine (Vancouver Island), Island Health and Royal Roads University explores an innovative way to address gaps in the formal curriculum and aims to enhance education in leadership skills for undergraduate and postgraduate learners. We will present the findings from our initial evaluation.

## 184

## Comprehensive Research Education Online (Creo™): Addressing the gaps in resident research education

J. Hatchette, K. Ritchie, J. Corbin, P. McGrath

IWK Health Centre, Halifax, NS

Introduction: Many residency programs require a research component to satisfy the CanMEDS scholarly activity competency and encourage a clinician-scientist role. Research to date indicates residents possess negative attitudes toward research identifying time, irrelevance of research education to immediate research progress and didactic teaching as barriers. To address these barriers, the online learning environment Creo™ was created to provide a more accessible and relevant research education program for residents.

Method: Target audiences are PGY2/3s from anesthesia, internal medicine and pathology at Dalhousie University. Using a blended education model, residents attend once-weekly, live sessions of the Fundamentals of Research Design Course which is supported online by Creo™. By design, Creo™ provides residents the freedom of self-directed, self-paced learning of research design topics that were traditionally taught didactically. Residents cover relevant sessions in advance and come to live sessions prepared to apply the lessons learned in Creo™ to the work-shopping of individual research projects.

Summary of Innovation: Creo™ is an online learning environment providing practical lessons across the full range of the research process (refinement of research questions, literature searches, critical appraisal, grantsmanship, study design, data analysis, knowledge transfer). Creo™ is engaging in its teaching modules; matches learning objectives with concrete examples through cases, activities and videos; provides the user with a personal library for activities; provides support through peer discussion boards and ask-the-expert sections.

Conclusion: Creo™ is expected to address barriers identified in resident research training, subsequently creating a learning environment that is supportive, relevant and productive in fostering the future clinician-scientist.

## 185

## Connecting oncologists to become stronger leaders: Women in Cancer / All in Cancer

R. N. Leonard[1], C. Simmons[1], C. Chung[2], N. Hammad[3], M. Naseem[4], Z. Poonja[1], S. Dowden[5], S. Verma[6], M. Trinkaus[7]

[1]BC Cancer Agency, Vancouver, BC, [2]Princess Margaret Hospital, Toronto, ON, [3]Kingston Regional Cancer Centre, Kingston, ON, [4]University of Toronto, Toronto, ON, [5]University Of Calgary, Calgary, AB, [6]Sunnybrook Odette Cancer Centre, Toronto, ON, [7]St. Michael's Hospital, Toronto, ON

Introduction: Despite the advancements in social media, there are currently limited secure and web-based platforms for physician networking in health care. Social Media has the potential to encourage collaboration, leadership and ultimately, best practices in patient care. Development of a secure online networking forum could help physicians further develop all CanMEDS competencies, especially the roles of Physician as Collaborator, Manager, Scholar and Leader.

Methods: Women in Cancer (WinC) and All in Cancer (AlinC) were developed with the intention of improving mentorship connections, providing leadership skills resources and improving connection amongst oncologists. Using a secure online networking forum, clinical oncologists and oncologists in training have been able to connect and discuss career development issues. Since inception, over 300 oncologists and oncologist in training have connected using WinC and AlinC. Monthly highlights of exceptional mentors across Canada have also helped to improve knowledge of the network of oncologists across the country. In addition, dissemination of links to leadership skills resources are sent electronically biweekly. To date, the average open rate for links to these materials using this forum is 25%. While this can be improved upon, this initiative has succeeded, at the very least, in highlighting the importance of leadership development in physicians, and in physicians in training.

Conclusion: WinC/AlinC has been successful in connecting oncologists across the country and has improved dissemination of leadership materials in this subspecialty. The applicability of this initiative to the CanMEDS competencies demonstrate that it could be expanded to other medical sub-specialties.

## 186

### Development of a pilot Competency-Based Medical Education (CBME) curriculum for postgraduate obstetrics and gynecology at the University of Toronto using the Dutch model (BOEG) as a framework

N. C. Caccia[1], A. Nakajima[2], F. Scheele[3], D. Steele[1]

[1]University of Toronto, Toronto, ON, [2]University of Ottawa, Ottawa, ON, [3]St Lucas Andreas Hospital, Amsterdam

Introduction: The RCPSC is embarking on a major paradigm shift in medical education incorporating CBME. Design and implementation of CBME requires not only an understanding of the underlying educational theory, but also the ability to operationalize this change.

The UofT ObGyn Residency Program Committee decided to implement pilot curricula in Maternal Fetal Medicine and Reproductive Endocrinology & Infertility, using the successful Dutch implementation of CBME in ObGyn in the Netherlands (BOEG),

Methods: The Royal College ObGyn Objectives of Training and the Dutch Entrustable Professional Activities were mapped onto each other. The UofT Residency Rotation-Specific Objectives were then used to create a matrix, mapping rotation-specific procedures and management of rotation-specific problems against a competency spectrum, ranging from "Observed/Assisted" through "Full Supervision" and "Limited Supervision" to "No Supervision". This matrix acts as a portfolio of activities, which is to be reviewed frequently during the rotation, so as to allow adjustment of training opportunities to ensure achievement of the expected competencies. Rotation-specific assessment tools will be used to provide frequent, formative assessment, as well as summative assessment. The pilot will begin in July2014 and will be evaluated by faculty and trainees mid-rotation and at the end of each rotation.

Conclusion/Implications: This pilot will facilitate exploration of CBME and provide a platform for the implementation of CBME in all rotations using ongoing, iterative evaluation and improvement of the curriculum.

## 187

### Development of minimal competencies for paediatric residents rotating through a clinical teaching unit

G. Vomiero, S. Hall, S. Cooke, L. Walker, D. Eustace, A. Sandhu, L. Long

Alberta Children's Hospital, Calgary, AB

Introduction: As the landscape in medical education shifts towards demonstrating competency, the role of clinical educators has to evolve into one where it is not enough to assume that trainee presence equates to sufficient learning. However, despite formulating rotation-specific objectives, Paediatricians staffing the Clinical Teaching Units (CTU) at Alberta Children's Hospital (Calgary, AB) still struggle to determine which objectives need to be minimally achieved in order to deem a rotation "successful". This scenario has the potential to lead to inconsistent and inappropriate promotion or remediation of residents both of which have wide-ranging impacts.

Method: A focus group was developed to review objectives for the individual junior- and senior-resident CTU rotations. The goal of this group was to determine "minimal expectations" that needed to be met to be eligible to pass the rotation. Within the CanMeds framework, objectives that were categorized as "minimal expectations" were primarily based on expert judgment and supported by data and evidence where available. Each "minimal expectation" was also selected based on the concept of being specific, measurable, observable and objective.

Conclusion/Implication: We have developed a set of "minimal expectations" that attempt to be objective, transparent, specific, observable, and measurable for paediatric residents rotating through a CTU. The goal is that residents will be more aware of what is expected of them upfront, and that supervisors will focus their observations and evaluations in a more meaningful way. This has implications for improved outcomes in resident education and may be applicable to other Pediatric CTU's and clinical rotations.

## 188

### Development of mobile evaluations to enhance the learner experience

A. Pattern, S. Spadafora, G. Bandiera, L. Muharuma, K. Adatia, T. Cameron, C. Abrahams

University of Toronto, Toronto, ON

The Post Graduate Medical Education (PGME) Office at the University of Toronto use the POWER system to electronically track learner registration and assessment data. There are three main evaluations that are facilitated through POWER; the Resident in training evaluations, rotation evaluations and at least one teacher evaluation. This data is used to assess learner performance, to improve the educational experience and to support teacher promotions.

Since the inception of the POWER system in 2004, there have not been any changes to the evaluation tools. In 2014, the PGME Office began developing a mobile evaluation application to modernize the evaluation tool and to increase evaluation rates and learner response time.

The POWER vendor Knowledge for You, provided PGME with a prototype based on a mobile evaluation application developed for the Undergraduate Medical Education at the University of Toronto. The prototype was circulated to a group of Program Directors, learners and administrative staff. Feedback was applied to the prototype and the application was released into the quality assurance environment for further testing by faculty, learners and administrators.

The application is scheduled to be delivered into the production environment for the 2014/2015 academic year. Beta testing feedback from learners indicate a positive reception for this application. An evaluation of the application will be conducted after it has been launched for a year to determine what the impact on evaluation rates and learner response time.

## 189

### Improving IT learning for learners, by learners: A resident-led initiative

C. Choong, A. WL. Chen, J. Ting, R. Acharya

Tan Tock Seng Hospital, Singapore

Introduction: New doctors face steep learning curves and little room for error in the wards. Hence the need to bring them up to speed in patient safety and core acute medicine – all in the little extra time they have for learning.

An interactive IT module called "The patient must not die!" was previously developed to balance residents' service and time constraints with the need for core knowledge.

A resident-led quality improvement project was undertaken to further fine-tune it.

Method: In order to allow learners to take charge of their own learning, and in the belief that learners themselves would best understand the changes on the ground to be made, our residents, who were last year's recipients of the above blended learning module reviewed the topics, fed back on accuracy, flow, content, and coordinated with the education team to improve learning from their perspective.

Feedback from the subsequent batches of learners who will go through the resident-led improved IT modules will be analyzed.

Summary of Innovation: A Learner- led initiative allows us to continually improve on our IT module much more than a purely senior/educator driven initiative would have. The result is a streamlined module that maximizes the filling of knowledge gaps and keeps in mind the constraints of time.

Conclusion: While digital tools enhance learning in this age, its effectiveness should be continually evaluated by today's learners, as the expertise they inherently have in enhancing their own education should be harnessed.

## 190

# Residents productivity tools for conducting research: When, where and how?

A. Elguindy, E. Marie

Tanta University Faculty of Medicine, Tanta

Introduction: The problem of poor resident contribution to research and new knowledge production has been reported in Egypt.

Method: The possible causes of the problem were analyzed. Perceptions about the current structure of postgraduate medical education and how to upgrade residency programs for building their research capacity were investigated.

Summary of Innovation: Elective research courses has been integrated in residency programs with in-depth focus on when, where and how these courses were delivered to effect designing, conducting and publishing new research. In January 2012, Tanta University Faculty of Medicine in collaboration with the Egyptian medical council supported embedding research curricula in residency programs where critical thinking, creativity, innovation and entrepreneurship are the core. These elective courses are namely Study Design, Clinical Trials, Scientific Writing, International Publication, Descriptive Biostatistics, Inferential Biostatistics, Research Ethics, Evidence-based Medicine and Critical Appraisal, Systematic Review and Meta-analysis Formulation (using RevMan and GRADEpro software's as recommended by Cochrane Collaboration), Mastering Endnote (a reference management software), and Research Network and Research Extraction Data Capture (REDCap). Each elective course represents one credit hour and is assessed through pre- and post-testing. Residents are required to apply their research projects and are expected to end with writing, submission and publication.

Conclusion: The integration of Elective research courses in residency programs improved results of research capacity building tests, increased submission of research proposals, registration of Cochrane review titles, submission of protocols and reviews, and added to their contribution of new knowledge and publication. On-going evaluation of the new program is needed.

## 191

# Tracking learner activity at the University of Toronto: A case study of collaboration, systems change and accountability for clinical education

S. Spadafora[1], J. James[2], A. Pattern[1], S. Chan[1], L. Muharuma[1], C. S. Abrahams[1]

[1]University of Toronto, Toronto, ON, [2]Mount Sinai Hospital, Toronto, ON

Background: Residency rotations are increasingly complex with multiple sites, an increase in ambulatory activity, longitudinal experiences and community-based activity. Government and medical schools are also seeking methods to better identify the location and volume of activity of medical trainees in Ontario.

Objective: To create a collaborative solution with hospital partners, residency and fellowship programs and trainees to better track, schedule and report complex multi-site clinical experiences.

Summary of Innovation Process: Extensive consultation occurred with Residency program directors, UG course directors and administrators as well as medical education leads in hospitals to accurately identify the current structure of clinical rotations. Information was translated to enhanced rotation scheduling systems which are fully integrated with evaluation systems. The process was led by the Vice Dean, Postgraduate Medical Education to ensure accountability and oversee communications and consultations in the 2 years of development.

Results: An enhanced learner activity tracking system will capture detailed activity for over 3,000 postgraduate trainees at 27 hospitals engaged in almost 100 clinical services. It has promoted increased collaboration between the Faculty of Medicine and partner hospitals for purposes of accountability, funding and emergency planning

Conclusion: Prior to this collaboration, hospitals incurred significant effort and time in resolving conflicts in learner activity at their respective locations. Conflicts and omissions resulted in inaccurate reporting, potential funding losses from government and an unreliable system of learner tracking and accountability. This collaborative approach has yielded new partnerships, a better understanding of new models and practices of clinical education and an important integration of university and hospital medical education systems.

## 192

### What and how can we learn from other domains to improve education in generic competencies for residents?

T. v. Kempen, P. Dörr

LUMC, Leiden

Introduction: Over the last decade all PGME curricula started to become competency-based. Much progress is already visible, for example in workplace-based assessment methods, but extra attention is needed to reinforce the integral position of the generic competencies in PGME1. There is a need to explore how residents' development in the generic competencies can be further enhanced. The design of new educational activities is a solution, and remarked as one of the remaining challenges in medical education2. We used examples of education from other domains to take on this challenge.

Method: We studied educational activities used in the domains of Teacher Professional Development and Human Resource Development because both are experienced in competency-based education. We picked two examples and we used 'design principles' to translate them to PGME. These 'design principles' are basic assumptions for educational design and always grounded in theory. To find these 'design principles' we started an iterative process of going back and forth between their practices and learning theories.

After we found several design principles, the same iterative process was performed for the translation to PGME.

Summary of innovation: It is original to use 'Design principles' to relate successful practical experiences from other domains to PGME. The examples from other domains helped us design two new educational activities which can be added to our existing teaching repertoire.

Conclusion: Design principles can be used to relate educational activities from other domains to our own. This is a useful way to create new educational activities to improve competency-based PGME.

## 193

### Changes in performance on a multiple choice based test on Form 1 following exposure to an online e-learning module in a cohort of residents

C. Lazaro, R. Bismil

University of Ottawa, Ottawa, ON

Purpose: Several studies have identified knowledge of the Mental Health Act as one of the challenges in early residency. This study attempts to create an effective e-Learning Module for providing introductory knowledge to residents with focus on the Form 1.

Method: The study participants were voluntarily recruited from year 1 residents. The residents were exposed to an online e-Learning module on Form 1. The module consists of a 25 item multiple choice test (Pre-Test) followed by a multimedia presentation. This multiple choice test was repeated after the module (Post-test) and the change in scores was the outcome variable for the study.

Ethics approval was obtained for the study from The Ottawa Hospital REB. No identifiable information was collected as part of the study.

Results: There were 27 participants in the study. Mean score on Pre-test was 61.9 (Median = 68.0, SD=15.7) and Post-test was 76.1(Median =72.0, SD=9.1). The data did not meet parametric assumptions. The change in scores was statistically significant (Mann-Whitney U = 137.5, p=.02, Effect size r=.44).

Conclusions: The scores on a multiple choice test increased significantly on exposure to an e-Learning module on Form 1.

## 194

# Adapting residency training to address the health crisis of obesity

A. T. Kraftson, A. Rothberg

University of Michigan, Ann Arbor, MI

Introduction: Addressing the health challenges posed by obesity is a mandate that is shouldered by primary care physicians (PCP). As the landscape of health care evolves, a PCP's ability to address obesity may come under scrutiny. However, the traditional structure of residency training does not equip the learners to be proficient in obesity medicine. The current curriculum does not involve substantial exposures to promote competence in obesity treatment. At the University of Michigan, house staff training in the area of obesity is being enhanced. The internal medicine (IM) residency program has partnered with the division of endocrinology to provide residents with exposure to a clinical and research obesity program.

Methods: The Investigational Weight Management Program is a 2-year, outpatient, multidisciplinary, behavioral, obesity management program. Though currently under the auspices of endocrinology, there are plans to pilot the program for implementation in the primary care setting. Internal Medicine residents may rotate through the obesity clinic as part of their ambulatory medicine rotation. Training includes the following: review of orientation materials, scientific literature, and curricular documents. Training on the obesity-specific documentation "templates" constructed within the electronic health record. Exposure to digital tools used in weight management. Delivery of 16 hours of clinical care per rotation (will see ~ 8 new consultations and 20 return patients). Review of the key methodologies and findings of the program.

Conclusion: Through the implementation of this clinical rotation, we aim to produce physicians at the forefront of addressing challenges posed by obesity.

## 195

# Supporting residency education through a teaching and education community of practice approach

D. Richardson[1], D. Kwan[1], M. Lowe[1], J. Maniate[2], L. Nirula[3], L. Matmari[1], S. Ng[4]

[1]University Health Network, Toronto, ON, [2]St. Joseph's Health Centre, Toronto, ON, [3]Centre for Addiction and Mental Health, Toronto, ON, [4]University of Toronto, Toronto, ON

Context/Setting: For the past decade, the Centre for Faculty Development (CFD), University of Toronto has offered programs to assist health professional educators in their education roles. In program evaluations, participants stressed the importance of the community and a desire for continued educational networking after completing their formal programs. A recent systematic review (Leslie et al., 2013) calls for exploration of how communities of practice (CoPs) can be used to support scholarly education efforts within local practice contexts.

Intervention: In response to this need, TESCoP (Teaching and Education Scholarship Community of Practice) was launched to provide a forum to engage staff /faculty across professions in education scholarship using the theoretical framing of community of practice. TESCoP is informed by O'Sullivan and Irby's (2011) re-framing of faculty development from an individual, linear model to a community, embedded model; TESCoP consists of both faculty development communities and workplace communities.

Observations: To date, an advisory committee for TESCoP has been struck and 3 academic hospitals (CAMH, SJHC, UHN) have agreed to partner with CFD by locally hosting a TESCoP group and providing in-kind support. The 3 sites also come together for larger community meetings, discussing and planning scholarly activity, including research, inspired by their collective needs and relevant literature.

Discussion: TESCoP has gained momentum and holds promise to enrich the field of residency education. CoPs have the potential to translate collaborative learning to the clinical workplace, facilitate knowledge mobilization, and contribute toward evidence-informed and high quality teaching of residents and other health professional trainees.

## 196

# Implementation of an effective, goal-directed remediation program

A. Lim, G. Wahi, C. Williams, M. Ladhani

McMaster University, Hamilton, ON

Introduction: An effective, supportive remediation process is an integral part of a successful Residency program. We describe the formation and implementation of an academic support process at the McMaster Pediatric Residency program.

Methods: A comprehensive remediation process has been developed to assist residents needing academic support. The key enablers for this process are i) early identification of residents  ii) Thorough and accurate identification of areas of deficiency through self-assessment and objective measures such as neuropsychological or psychometric evaluation iii) formulating individualized learning plans iv) Close tracking of progress to ensure adherence to the plan.

Summary of Innovation: Residents identified using formative evaluations including 2 or more scores below the mean of the year of training in either the OSCE, MCQ, SAQ or American Boards Pediatrics in-training exam are required to meet with the Academic Support Committee to assess areas of deficiency and establish an achievable learning plan. A tracking tool is developed to track resident's progress monthly. A remediation contract is agreed upon by the resident and the Academic support supervisor which signifies accountability of both resident and supervisor committing to the remediation process. An interim and final report of remediation are submitted to the Pediatric Residency Program Director.

Conclusion: The implementation of a goal directed, effective remediation process through early identification and intervention is important in successful remediation in ensuring that residents are competent in delivery of care. This remediation process will be further evaluated through qualitative and quantitative studies.

## 197

# Professionalism remediation: Creative approaches to support reflective understanding

E. Abner, D. McKnight

University of Toronto, Toronto, ON

Program Directors struggle to find creative methods to engage, support, and instruct residents on remediation for professionalism lapses, which are often combined with failures in other CanMEDS competencies. Professionalism lapses occur across a wide spectrum of behaviours, including criminal activity, breaches of privacy and confidentiality, ineffective self-care, and inappropriate responses to feedback. These lapses engage different key features of professional behaviour and each may require a different remediation response. Further, the background to and context of the lapse should inform the approach to remediation. This presentation will describe a stepwise approach to remediation with specific reflective writing assignments designed to address the type of lapse, the background, and the resident's understanding of his/her professional role. Reflective understanding of the gap between the resident's self-concept and the profession's expectations is developed through discussion and multiple revisions of the reflective writing.

Specific writing assignments may include: developing a departmental policy, creating a learning module, or designing a personal checklist. Within these assignments residents may be expected to research the literature on expected behaviours within their discipline, interview key informants on best practices, observe exemplary practitioners, or analyze College discipline decisions. Multiple coaching sessions over time allow the resident time for deeper reflection on learning as well as an opportunity to discuss behavioural change in the workplace. We conclude that remediation coaching is considered effective when the resident can articulate a heightened self-concept and demonstrate improved behaviours.

## 198

### Creating learning resources for doctors in the future: Applying the physicians role as a scholar within web 2.0 technology

N. Bugden, J. Maniate

St. Joseph's Health Centre, Toronto, ON

Introduction: Looking at the CanMEDS role of the Physician as a Scholar, our initiative aims to establish a model for educating physicians using Web 2.0 technologies. Currently there is little research on developing a model for Digital Learning Resources for Physicians in an academic community hospital. We will be implementing an updated version of a Learning Management System (LMS) which we call LMS 2.0. The focus is blending characteristics from a traditional LMS with the capabilities of Web 2.0 technologies to create an enhanced online learning environment for Physicians in an academic-community hospital.

Methods/Intervention: The literature review will focus on developing an understanding of the Physician's Role as a Scholar and comparing that to adult learning theory. We will also develop an understanding of traditional LMS and Web 2.0 technology to develop a blended model called LMS 2.0. Analysis and synthesis of the research will develop our digital learning platform. A complete assessment of the Physicians experience will be incorporated through a feedback process. This will address functionality, content, and learning style. This will be used to address changes to the LMS.

Conclusions / Implications: Potential benefits include the development of synchronous/asynchronous learning environment for Physicians which will remove the boundaries and restrictions of traditional learning environments. Challenges include addressing the technical abilities of physicians. This initiative can enhance practice by offering new learning contexts/resources. It can also impact patient care by removing borders for learning and increasing resources for physicians.

## 199

### Mind maps in the digital age

F. Toonsi, W. Kattan

McGill University, Montreal, QC

Introduction: Mind maps are known to be useful educational tools that may be underutilized due to limitations of space (paper or blackboards) and time (requires drawing, difficulty of adding or editing information over time). Using digital mind maps may be one way to promote their use by learners.

Although mind maps are widely utilized in many disciplines, medical education -especially when a problem or case based approach is used- lends itself particularly well to mind mapping. Mind maps enhance visual learning and knowledge construction, and help learners maintain a global view of a given topic (e.g: chest pain), while still allowing for details to be visible. Information is laid out in a way that promotes the memorization of headings, and the comparison of similarities and differences between subheadings (e.g: gastric, cardiac, pulmonary).

Methods: Various popular mind-mapping software developed for different operating systems and devices are reviewed. The features and limitations of each are discussed, and examples of completed digital mind maps are presented. This review may promote the use of mind maps among individuals and groups by familiarizing learners with an easy, accessible and pragmatic technology.

Conclusion/implication: Mind maps are useful learning tools that are often used in medical education. The availability of Mind mapping software has the potential to enhance learning by simplifying this technique. This initiative reviews some of the available software with the aim of promoting the use of digital mind maps in medical education.

## 200

### Teaching leadership to residents: The future of medical education is now

D. Martin[1], P. Philbrook[2], R. Wyman[3], C. Canteenwalla[4]

[1]Women's College Hospital, Toronto, [2]Trillium Health Partners, Mississauga, [3]Toronto East General Hospital, Toronto, [4]University of Toronto, Toronto

Introduction: Recent reports on the future of medical education in Canada contained important recommendations related to leadership. But do we know how to help our trainees develop the knowledge, skills and attitudes to be the leaders our health system needs them to be? In 2013 a small group in the Department of Family and Community Medicine (DFCM) at the University of Toronto resolved to try. Our vision was "to foster the development of collaborative leadership skills in future physicians, so they can work effectively with other stakeholders to help shape our healthcare system to better serve society."

Methods: We had 5 days in which to accomplish this goal with a captive audience of Enhanced Skills Residents from a variety of different programs. Join us for a presentation about leadership and our collective role in its development, why it is so important, and how we can do better. Come and learn from the successes and failures of a brand new curriculum on Leadership in Medicine, still hot off the press from its first iteration over a period of 6 months. Dream with us about better ways to train the next generation of reflective, passionate, fearless activists for socially responsive healthcare. Imagine the impact of these activists who are trained and equipped to take their places in Boardrooms.

Conclusion: Our journey led us to some surprising observations about the literature, ourselves, and what can and cannot be taught, evaluated and measured in the world of medical education. Come and share the experience.

## 201

### Reducing the incidence of physician disruptive behaviour by increasing personal accountability and decreasing anonymity

J. Chan[1], B. Harrison[2]

[1]The Ottawa Hospital, Ottawa, ON, [2]University of Ottawa, Ottawa, ON

Introduction: The CanMEDS 2015 framework specifies professionalism as maintaining "high personal standards of behaviour"; yet the problem of Physician Disruptive Behaviour (PDB) seems resistant to change. Efforts to address PDB have been mostly at the institutional and policy level, such as creating codes of conduct and tiered institutional sanctions. New paradigms in tackling PDBs may be found in the social science literature, where systems issues, such as anonymity and unaccountability, are thought to be contributors to anti-social behaviour. The emergency room-internal medicine consultation often involves misleading information, obstruction, and abusive behaviour. Much of this can be traced to the relative anonymity and unaccountability in the consultation process, which are not addressed in traditional approaches to PDBs. We suggest an alternative method of medical consultation that mitigates anonymity and unaccountability as a way to decrease PDBs in academic training centers.

Methods: We propose a pilot study where traditional consults between emergency and internal medicine are replaced by The Facetime Consult. The Facetime Consult uses video conferencing and text messaging to communicate. The iPad-based solution will allow exemplary and negative consults to be recorded, and forwarded to the hospital professionalism committee. The incidence of PDBs will be tracked in the intervention group and control group. Surveys will also be implemented for qualitative outcomes.

Conclusion: The Facetime consult, when implemented within a professionalism program that recognizes systems-based contributors to PDBs, has the potential not only to reduce PDBs, but to also alter how we teach and promote professionalism in residency education.

## 202

# Assessing the continuing medical education needs in a community academic hospital

N. Bugden, J. Galbraith, J. Maniate

St. Joseph's Health Centre, Toronto, ON

Introduction: Using information gathered from past and current Clinical Day events at St. Joseph's Health Centre, we seek to define the preferred learning style and resources of Physicians in a community academic hospital. Using data collected, the research focuses on the structure of the event, preferred learning technologies and efficiency of resources used. This research is consistent with Thomas, et al. (2006) who established that accessible learning that evaluates the education process is valuable and necessary for Physicians within a community setting.

Methods: Phase I – Existing data has been collected from Clinical Day 2012 and assessed to develop our baseline understanding of Physicians learning needs. Phase II – The needs assessment was designed to capture what the Physicians identify as their needs for learning. This survey taken prior to the event, informed the event structure based on trending themes, needs and interests. Phase III - The Evaluation will be used to compare the needs defined before and after the event so it can be determined whether the Physicians' needs are consistent pre- and post-event. Phase IV – Using both the data from 2012 and 2013, the co-investigators will define common learning styles and preferred resources across the events.

Conclusions / Implications: A deeper understanding of the learning styles and needs of Physicians in a Community Hospital setting is anticipated. Furthermore, the development of more relevant learning opportunities/ resources for SJHC's Annual Clinical Day and beyond. Support for digital learning technologies has been identified as relevant during the preliminary analysis.

## 203

# Assessing the impact of a 360-degree survey on perceptions of feedback culture within interprofessional healthcare teams

N. Bugden[1], P. Gregory[2], L. Harmon[3], J. Maniate[1]

[1]St. Joseph's Health Centre, Toronto, ON, [2]Physicians Development Program, Miami, FL, [3]Paul@pdpflorida.com, Miami, FL

Introduction: This research project aims to evaluate if the feedback culture of inter-professional healthcare teams may be improved through the use of a 360-degree feedback intervention. According to the Canadian Inter-professional Health Collaborative, inter-professional collaboration is a 'partnership between a team of health providers and a client in a participatory collaborative and coordinated approach to shared decision making around health and social issues'.

Methods: The study will implement a quazi-experimental design with a full intervention group, limited intervention group, and no intervention (control) group to assess the change in feedback culture perceptions measured between three inter-professional teams. The limited intervention group will be subjected to a pre-intervention feedback culture survey followed by minimal intervention/ feedback strategies, and followed up with a post-intervention feedback culture survey. The full intervention group will be subjected to the same pre-intervention survey, and then a full intervention will be implemented involving a 360-degree survey and related activities, and followed by the same survey post- intervention. Change in feedback culture perceptions will be measured by comparing pre-intervention and post-intervention survey scores for each of the three groups.

Conclusions/Implications: The goal of the current project will be to determine if feedback culture perceptions within inter-professional healthcare teams may be differentially impacted through the use of varying levels of intervention related to providing feedback to colleagues. This study will be a significant contribution to the feedback literature and specifically provide a greater understanding of the concept of feedback culture.

## 204

# Evaluating the impact of researching on residency education in the viewpoint of residents of Shiraz University of Medical Sciences (S.U.M.S)

Z. Amiri[1], M. Smiri[1], Z. Abdi[2], R. Alipour[3]

[1]Kazeron University of Medical Sciences, Shiraz, [2]High School of Medical Sciences, Shiraz, [3]Tehran University of Medical Sciences, Tehran

Introduction: Researching is vertical part of all universities. Researching can support education and make it better and put it in the best situation. The aim of this study is to assess the importance of researching for residents of S.U.M.S.

Method: 458 residents participated in this descriptive sectional study. Our study group produced a questionnaire with 10 multiple choices and 5 description questions about the value of research and how it can improve residency education in S.U.M.S. Data were analyzed by SPSS19. (P<0.05 was consider significant).

Result: This study showed that 72% of residents of S.U.M.S thought that doing researches is remarkable effective for improving residency education in S.U.M.S but 10% of residents were totally disagree with researches and claim that researches do not have value for residency education and because of some limited about doing research, researches just waste residents time and it cannot help and support residency education and cannot put it in the better condition. 18% of residents believe that doing researches or not to do it is the same and no one is better as the other one.

Conclusion: by this investigation we realized that Researching is so available in S.U.M.S for residency education and might be the best strategy to improving residency education. Researching make education so much enjoyable and interesting. By researching, residents feel a particular potential in themselves to continue their education in the best way so they can be more successful in their education.

## 205

# MRI: Mapping radiology information

F. Toonsi, W. E.. Kattan, J. Chankowsky

McGill University, Montreal, QC

Introduction: Some specialties, such as diagnostic radiology, rely heavily on the understanding and processing of visual information, and this specialty may well attract visual learners. Mind mapping is a very visual learning method, that allows for the display of the broad differential diagnoses radiologists must consider. In addition, mind maps allow for images to be placed in proximity for ease of comparison and review. For these reasons and others, mind maps may be a very good fit for radiology residents, and a way to enhance their learning. Mind mapping is an effective educational technique in general. It involves arranging the details of a subject under general headings, which provides learners with a clear view of the "big picture" as well as a way to see links, compare similarities, and recognize relationships within large bodies of information. Collectively these features help organize knowledge in a way that enhances retrieval and promotes clinical reasoning. Despite these advantages, it is believed to be underutilized by residents and there is a paucity of textbooks and learning material that utilize this method.

Methods: Various uses of mind maps in the field of diagnostic radiology are discussed, and clear examples are presented on topics such as: creating differential diagnosis lists, outlining disease summaries, reading studies by using a mind map checklists.

Conclusion/Implication: Mind mapping is demonstrated to be an educational tool that can be beneficial to residents training in radiology. The widespread use and sharing of mind maps by residents could have great implications for enhancing their learning.

## 206

### Optimizing clinical competency of internal residents by evaluating their clinical performance through an OSCE exam in Shiraz University of Medical Sciences

F. Alipour[1], Z. Abdi[2], R. Alipour[3], M. Alipour[4], M. Jaladat[1], M. Aran[1], M. Tajvarpour[5]

[1]Jahrom University of Medical Sciences, Jahrom, [2]Shiraz High School of Medical Sciences, Shiraz, [3]Tehran University of Medical Sciences, Shiraz, [4]Medical Sciences, Shiraz, [5]Shiraz University of Medical Science

Introduction: Residents' clinical competency is challenging and it needs consideration to prevent medical errors. We conducted this descriptive cross sectional study to evaluate the residents' clinical performance in internal ward   in Shiraz University of medical sciences.

Method and Materials: An OSCE was performed to assess the competency was completed by residents of Shiraz University of medical sciences and an after their performance in internal ward. They were evaluated based on their ability to manage emergencies, prescribing adequate lab data, prescribing appropriate medicine. Data were analyzed by SPSS19.

Results: assessment of clinical competency of internal Residents self is essentoial.236 residents participated in this study .34%of students achieved highest score in prescribing adequate lab data,68% got highest score in prescribing adequate medicine,48% could manage emergencies well.

Conclusion: Surveying medical resident 'assessment in internal ward help them to recognize deficiencies. And it is clear that we should focus more on clinical competencies as theoretical knowledge is no a surrogate of clinical performance. Weaknesses .Low competency level in some systems might be because of some weak points in educational curriculum in our country that it should be improved by suitable schedule in medical education.

## 207

### Peer-teaching simulation program for family medicine residents

A. Nagji, A. Seto, L. Matemisz

University of Alberta Family Medicine Resident Simulation Group, Edmonton, AB

Introduction: Family Physicians must maintain a high level of comfort with the initial care of critically ill patients; a challenge in a short residency program where exposure can be varied. Simulation has been well documented to provide an avenue for enhanced comfort, communication and preparedness. Our pilot project sought to remedy this through peer-led acute care simulations, with an emphasis on in-office presentations relevant to primary care providers.

Methods: Three, 20 minute simulations (asthma exacerbation, cardiac arrest and anaphylaxis) were run for University of Alberta Family Medicine residents (n=15). Each station concluded with 10 minutes of didactic teaching. 3 resident teachers led the didactic and simulation sessions. Resident learners had their performance evaluated with an OSCE-style checklist hosted on Fluidsurveys.com and then given feedback. The overall goal was to allow residents to practice their acute care skills in a safe environment and learn together.

Conclusion: The pilot project harnesses simulation for the out of hospital critical scenario, focusing on immediate stabilization for a solo provider with untrained staff. This targeted design was well-received, indicating that resident-led initiatives can strengthen residency programs through peer-to-peer sharing. As facilitators, we developed further insights into teaching modalities while participants enhanced their comfort with critical scenarios. The low-fidelity and interactive nature makes this easily portable to family medicine clinics in urban and rural scenarios. As well, peer-led resident simulation sessions would be beneficial in all specialties seeking to customize their curriculum to bridge educational gaps

## 208

## Transition to senior resident: Improving preparedness via the CanMEDS framework

S. Rawal, J. Druker

BC Children's Hospital, Vancouver, BC

Introduction: The CTU Senior role encompasses all seven CanMEDS competencies in a manner not otherwise encountered in the University of British Columbia Pediatrics residency.

Method: Given the complexity of the transition, a dedicated teaching curriculum was introduced, involving a series of goal-specific workshops.

Summary of innovation: Following a literature review and a needs assessment, lectures were created for each of 7 goals: "efficient patient handover", "running family-centered rounds", "admissions and consults", "managing time on call", "teaching junior learners", "managing deteriorating patients", and "discharge planning". Nine residents completed pre- and post-workshop assessments on preparedness for senior responsibilities and associated CanMEDS competencies, and qualitatively assessed workshop utility. As a control, the nine current seniors who had completed the workshop in its previous iteration were surveyed. Given the small population, standard statistical analyses were not done. However, it is clear that residents participating in the workshops felt more comfortable (76% responding "well prepared" or "very well prepared" in the post-workshop group compared to 39% in the pre-workshop group and 44% in the control group). Qualitative responses additionally supported our primary hypothesis. Also, an increased number of residents identified how the senior role reflects CanMEDS competencies, particularly the non-medical expert roles, after workshop completion.

Conclusion: A CTU Senior workshop series including dedicated lectures for each of 7 identified goals improves junior resident preparedness for the promotion to Senior and facilitates learning for all team members by permitting better organization and increased comfort with the role.

## 209

## Developing a valid, reliable and objective tool to assess the quality of procedural teaching

T. Syed[1], J. Wald[1], K. Azzam[2]

[1]McMaster University, Hamilton, ON, [2]Hamilton General Hospital HHS, Hamilton, ON

Introduction: Senior residents in internal medicine are expected to teach procedures to junior residents and medical students. Despite this expectation residents often receive little feedback on their teaching skills and faculty often rely on subjective assessments of resident teaching ability, which may limit the utility of any feedback. As we move towards competency-based medical education, new tools are needed to improve assessment. A reliable, validated tool to assess the quality of procedural teaching could help to address these needs.

Methods: A literature search was conducted of EMBASE and Pubmed through 1980 onwards to identify available tools for assessment of the quality of procedural teaching. We also assessed tools developed by other industries particularly the aviation industry, where formal assessment of procedural instruction occurs frequently. When no appropriate tools were identified an assessment tool was created using as a framework of medical education theories related to technical skills teaching and expert opinion from faculty with experience in medical education and procedure teaching to develop an objective assessment tool.

Conclusion: Currently no assessment tools appear to exist that objectively assess the teaching of procedures. We seek to address this gap via a novel tool developed for the objective assessment of procedural teaching. We present the existing state of research on this topic and the development of a novel assessment tool. The next step will be to assess the tool's validity in differentiating low, moderate and high quality teaching and assess inter and intra rater reliability.

## 210

# Resident peer review process: An innovative teaching methodology for internal medicine residents to enhance patient safety and quality improvement

A. J. Samdani, S. Malayala, K. Qazi

SUNY at Buffalo - Catholic Health System/ Sister of Charity IMTP, Buffalo, NY

Introduction: We present a novel "Resident Peer Review Process" (RPRP) introduced by the Internal Medicine Residency Program at University at Buffalo/ Sisters of Charity Hospital, as part of a comprehensive Patient Safety (PS) and Quality Improvement (QI) curriculum.

Methods: Each 4-weekly RPRP cycle is conducted by a rotational Resident Peer Review Committee (All PGY levels). In week-1, cases are assigned to specific committee members for review. They present their findings to the committee in week-2, which then seeks explanation from the involved residents. In week-3, the committee adjudicates the cases and identifies any relevant 'teaching points'. The week-4 meeting named 'Outcomes from Peer Review' is a morning presentation focusing on the teaching points. To evaluate the process, a 28-item tool (Likert scale: range 1-5; with 4-5 considered positive responses) is administered to the committee members.

Results: In a total of 18 cycles of RPRP since its inception, 62 cases have been reviewed. Most common deficiencies identified involved System Based Practice (48%), Patient Care (40%), Medical Knowledge (34%) and Interpersonal and Communication Skills (29%), whereas 15% cases revealed no deficiencies. Residents perceive that the RPRP is an excellent initiative (90%), well structured (90%), non-punitive (95%) and beneficial for their professional development (93%). They believe that the process would improve Patient Safety and Quality (87%). All (100%) residents graded the 'Outcomes from Peer Review' presentation as educational.

Conclusions: Our results indicate that RPRP can be an effective resident driven teaching methodology for Internal Medicine Residents to augment PS and QI in their practice.

## 211

# Online portfolios: The curriculum vitae 2.0

B. Thoma[1], T. Chan[2], J. Sanders[3], N. Joshi[4], M. Lin[5]

[1]University of Saskatchewan, Saskatoon, SK, [2]McMaster University, Hamilton, ON, [3]University of Pittsburgh, Pittsburgh, PA, [4]Stanford University, Stanford, CA, [5]University of California, San Francisco, San Francisco, CO

Introduction: As the job market becomes saturated, healthcare organizations will look to hire physicians that meet their particular needs. The limitations of the traditional curriculum vitae (CV) make differentiating between applicants difficult. New online tools have made it feasible for physicians to create online portfolios that can be used to (1) highlight the competencies of physicians and trainees, (2) demonstrate and model online professionalism, and (3) enhance collaboration and knowledge translation.

Methods: In 2013, a Wordpress.org website was created on the domain MedEdLIFE.org. A pilot cohort including a medical student, resident, fellow, junior attending, and senior attending was given a customizable website template and a domain name. Each was coached to upload the details of projects/publications in portfolio posts containing text, images, videos and hyperlinks to additional information. The impact of publications could be quantified with Altmetrics and citation data. Social media and contact information was listed to facilitate contact and collaboration.

Summary of Innovation: As of March 2, 2014 40 portfolio entries are discoverable using public search engines. The websites have >5000 page views despite no promotional efforts by the authors. Multiple personal inquiries have been made about the websites' functionality by individual physicians and national medical organizations.

Conclusion: This innovation demonstrates the ease of building a customized online academic portfolio. Highlighting the competencies of academically inclined physicians could enhance competitiveness in the job market and lead to opportunities for collaboration and scholarship while demonstrating a professional online presence.

## 212

## Can blended learning address learning obstacles in new residents?

J. Ting

Tan Tock Seng Hospital, Singapore

Introduction: Imparting principles and practical points about acute medical conditions to new residents via compulsory didactic lectures yields limited results, particularly with heavy service loads and the diversity of learning styles and levels. We explored blended learning to address these problems and increase the effectiveness of education delivery.

Methods: We developed a program with four distinct platforms: a multiple choice question exercise, an anonymous online interactive module and discussion forum, a live face-to-face session, and an integrated resuscitation drill involving residents and nurses. The key innovation was the design of thematic acute medicine conditions, consistent through all platforms, to meet the core competencies of our residency program: Medical knowledge, practice-based learning and improvement, professionalism, and interpersonal skills and communications.

96% of participants felt that the online module improved their knowledge. Although 81% liked the concept of online learning, 69% preferred a face-to-face session. Many felt that the integrated resuscitation drill helped to consolidate learning through physical, mental and emotional stimulation combined with situational realism.

Conclusion: Blended learning can engage new residents more effectively. While online learning is popular, interactive classroom learning continues to feature prominently. Further study is required to investigate the impact this method of learning has on patient care.

## 213

## I forgot the attachment: An educational intervention for pediatric residents to identify and assess for concerns in parent-child interactions and relationships

S. Suleman, S. Talarico, J. Wittenberg

Hospital for Sick Children, Toronto, ON

Introduction: Disordered attachment and emotional dysregulation in childhood may lead to worse outcomes in managing pediatric chronic illness. Early identification and intervention with families at high risk of disordered attachment can improve outcomes for children, and pediatric residents are among the frontline workers in identifying these families. However, pediatric residency programs have no formal preparation to observe parent-child interactions, which is necessary for subsequent assessment. We designed, implemented and will evaluate a curriculum to teach pediatric residents about attachment, and provided residents with an assessment and referral framework and community resources. Our intervention highlights residents as Medical Experts in attachment and Health Advocates for children at risk.

Methods: Pediatric residents (PGY-1 and PGY-3) attended an interactive small-group lecture taught by a resident expert teacher. The residents attended infant psychiatry assessments to provide opportunities to apply their knowledge. Using levels 1 - 3 of Kirkpatrick's four levels of evaluating training programs, a pre- and post-test will be administered before and after the lecture to assess learning. An online questionnaire will be sent 6 months after the training session to determine changes in clinical practice and knowledge retention. The number of times residents accessed online resource materials will be recorded using web analytics.

Conclusion: Preliminary data suggests that pediatric residents have little to no formal knowledge about healthy and disordered attachment, yet emerging evidence suggests poor parent-child interactions can significantly influence health outcomes. Our intervention is an educational initiative for pediatric residents, combining didactic teaching with experiential learning to assess parent-child interactions.

## 214

# Call preparation curriculum for success: Recognizing the importance of CanMEDS intrinsic roles on call

D. Walker, K. Finlay

McMaster University, Hamilton, ON

Formal residency educational curriculum for on call in radiology has traditionally focused on the Medical Expert Role; however, this curriculum emphasis in isolation is insufficient to ensure success on call. Residents deal with heavy volumes, challenging colleagues, inter-professional issues and long hours, all of which create a stressful work environment. It is critical for call preparation curriculum to also address intrinsic CanMEDS roles skills development in communication, collaboration, management and professionalism, in order to comprehensively prepare junior residents for success on call.

Over the past two years, the radiology program at McMaster University has dedicated a full academic half-day to the Intrinsic CanMEDS aspects of call. The chief resident has engaged residents with an interactive lecture format, using an innovative presentation tool called Prezi. This is followed by a group discussion, during which senior residents share their experiences and advise the junior residents on skills to cope with the non-image based stresses of call. This type of sharing and collaboration has enhanced the junior-senior resident relationship, as well as engaged discussion around a new teaching and presentation format.

This new curriculum format and content has been received positively in our program. Feedback comments from junior residents entering call highlights their recognition of the importance of communication, collaboration and management skills to enhance professionalism on call and decrease stress. We believe the curriculum developed at McMaster would translate well to other radiology programs, as well as to other residency programs across the country.

## 215

# The role of the global radiation oncology elective in teaching CanMEDS competencies

K. L. Schnarr[1], I. Dayes[1], J. Bourque[2], J. Kuk[1]

[1]McMaster University, Hamilton, ON, [2]Western University, London, ON

Introduction: Existing literature outlines benefits of Global Health electives (GHE) in different postgraduate medical education (PGME) specialties. At present, no such data exist for Radiation Oncology. Given the increase of Global Health interest among Canadian residents, there is a need to better structure residents and program directors wishing to participate in such electives.

Methods: A review of the literature on global health in PGME was conducted. Based on the results, a panel of experts adapted each of the CanMEDS roles to create a framework for a global oncology rotation. To evaluate the latter, we examined one resident's elective experience in Uganda. The resident summarized their experience with respect to each of adapted CanMEDS roles, and responses were evaluated. Each competency was assessed to determine on how to best meet the CanMEDS framework criteria.

Results: The CanMEDS learning objectives for a GHE rotation may differ considerably than those set for a standard resource rich experience. The GHE in Radiation Oncology provided an opportunity for the resident to gain significant experience in all CanMEDS roles. In particular, the Health Advocate, Manager, Collaborator and Communicator roles had a different and unique context as compared to a resource rich experience. An oncology modified CanMEDS-based framework was developed to guide learners and educationalists in pursuing a GHE in Radiation Oncology.

Conclusion: GHE in Radiation Oncology has meaningful benefits when appropriately conducted. We developed a tool that can help to properly measure the educational benefit of a Global Oncology rotation in the context of PGME.

## 216

## Development of a knowledge test for a neonatal ethics teaching program

G. Moore, E. Ferretti, T. Daboval, K. Eady, K. Moreau

Children's Hospital of Eastern Ontario, Ottawa, ON

Background: The Neonatal Ethics Teaching Program (NETP) at the University of Ottawa provides neonatal-perinatal medicine trainees with foundational knowledge required to manage ethically charged clinical scenarios encountered in practice. Though appreciated by trainees, the NETP requires formal evaluation to determine its efficacy. The objective of this study was to develop a knowledge test to assess the impact of the NETP on participating trainees' knowledge about neonatal ethics.

Summary: A four-step iterative process was used to systematically develop a pre- and post- knowledge test. The four steps were to: create a blueprint for the test, populate a question bank, obtain feedback from content experts, and pilot the test. Due to the small sample size, only descriptive statistics were used. The blueprint established the framework for the test: 30 minutes in length, multiple choice questions, and proportional representation of weighted objectives (29 in total) from the NETP's 10 sessions. The four instructors independently created questions then refined them by consensus. One reviewer determined inadequacies in some questions' structure; two content reviewers believed that not all items were easily understandable. Four past NETP participants piloted a revised draft: scores ranged from 52-80%; 11 questions were altered based on feedback. Fourty-four questions formed the final test.

Conclusions: This test is the first dedicated assessment tool of neonatal-perinatal medicine trainees' knowledge in neonatal ethics. Administering the test to future trainees will allow for evaluation and improvement of the NETP. Other residency programs may benefit from its implementation to assess their trainees' knowledge.

## 217

## ADVOCATE: A stuDy to eValuate smartphOne teChnology on knowledge And delivery of social assisTancE programs

H. Mir, C. Kraeker, G. Guyatt, T. Syed

McMaster University, Hamilton, ON

Introduction: Social determinants play a major role on the health of an individual. Social assistance programs have been created by the government to boost income and services for those in financial need. However, many patients and healthcare workers do not know of their existence or how to use them effectively. This study aims to introduce these programs to physicians in training to increase their knowledge and comfort with their use and to study its impact on patients.

Methods: The population for this study will consist of medical students and resident physician on the Internal Medicine service (N=30-50). Additionally, we will recruit and follow all patients admitted to the Internal Medicine service at three hospitals in Hamilton (HGH, JH, and SJHH) who self-report financial need, are cognitively intact to respond accurately to our survey, and plan to be discharged home rather than a care facility (N=150-200).

This observational study will compare standard practice/ teaching to the study intervention- a structured lecture session on social assistance programs and an easy-to-use, point of care smartphone application on social assistance programs. The outcomes will be measured via a pre- and post-intervention survey and analyzed qualitatively and quantitatively. We will also conduct follow-up surveys with patients to assess whether the intervention led to an increase in their social assistance.

Conclusions: This study is currently ongoing and although data is not available at the time of submission, we hope to have all data collection and analysis completed prior to the ICRE meeting.

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# Implementation and evaluation of an immersion curriculum within first-year pediatric residency program

S. Vairy, C. Chartrand, O. Jamoulle, A. Carceller

CHU Sainte-Justine, Montreal, QC

Background: Transition from medical school into residency program is stressful. Pediatric residents often have reported feeling uncomfortable during the first months of training. We hypothesized that an educational intervention could decrease anxiety, increase confidence and abilities, leading residents to feel better prepared for new responsibilities. In July 2013, we implemented an immersion curriculum during the first month of residency in a large Canadian Pediatric Training Program. This pilot program provided an overview of CanMEDs skills with hospital inter-professional encounters, pediatrics topics and practical courses. Aims of the project:

1) To compare resident's knowledge, abilities and confidence, before and after the program

2) To compare them to a historic cohort that was not exposed to the program

Methods: Pre and post-immersion surveys were administered to 11 pediatric residents (PGY-1). We compared them to 16 pediatric juniors' residents, not exposed to the immersion rotation.

Results: Response rate was 100%. After the training program, PGY-1 felt more confident about specific pediatric diseases, management of newborns, respiratory distress and convulsion cases ($p=0.04$, $p=0.01$, $p=0.04$, $p=0.008$). After their 1st month of training, 45.5% of PGY-1 felt confident to face residency compared to 14.3% of residents without the immersion rotation.

Conclusion: This immersion curriculum increased pediatric resident's confidence to start their training. A prospective study with a larger sample acquired over several years will give a better evaluation of this program.

## Author Index / Index des auteurs

## Keyword Index / Index des mots-clés

# Plenary sessions / Séances plénières

## PS-01

### Collective competency: Adapting our concept of competence to healthcare teams

L. Lingard

Western University, London, ON

The medical community has embraced the notion of "expert teams" as critical to its clinical and educational mandates. Now, how do we assess "competence" in this domain? Our orientation has been towards individual competence; but what about situations in which individually "competent" health professionals combine to form an "incompetent" team?.

## PS-02

### Khan Academy: Reimagining medical education

R. Desai

Khan Academy, Mountain View, CA

Dr. Desai leads the Khan Academy medicine initiative. Khan Academy is a not-for-profit online education platform that reaches >10 million unique users each month. His talk will focus on how this approach can be applied to health and medicine education and how Khan Academy is leveraging their platform to offer a powerful free resource for learners around the world. Rishi Desai is a pediatric infectious disease attending at Stanford and trained at the Centers for Disease Control.

## PS-03

### Futurecasting in educational technologies: Fun new toys and a reality check

A. Jalali[1], D. Cook[2]

[1]University of Ottawa, Ottawa, ON, [2]Mayo Clinic College of Medicine, Rochester, MN

Rapidly advancing computer technologies are becoming ubiquitous in our personal and professional lives, and have permeated medical schools and residency education. Educators now face the task of taming these technologies and channeling them to benefit learners. This symposium will explore the role of emerging technologies in health professions education. Presenters will first use specific examples to illustrate how newly-developed technologies such as tablets, social media, 3D printing, and Google Glass can be used to promote learning in exciting ways and push the boundaries of education. They will then pause to consider hype vs reality. How well do these technologies measure up to expectations? How expensive are they, and are they worth the added cost? Will these new technologies turn out to be a disruptive innovation with lasting benefits, or a flash in the pan?

## PS-04

### Disruption, peer to peer healthcare, creativity and YouTube: New skills for new doctors

M. Evans

University of Toronto, Toronto, ON

This talk will review the changing landscape in healthcare; how it is changing (email clinics, apps, quantified self) and how it is not changing (relationships, self-care, attitudes). The talk will be interspersed with media developed in Dr. Evans' lab. Concepts such as curation, nudge, and evidence-based storytelling will also be covered. Dr. Evans is also interested in interventions that work for many illnesses.

# Admissions: Selecting residents / Les admissions : sélection des résidents

## AD-01

### Best practices in residency applications and selection: File review

L. Probyn, S. Glover Takahashi, C. Abrahams, M. Ruetalo, G. Bandiera

University of Toronto, Toronto, ON

Selection practices and processes need to result in physicians who will meet population healthcare needs. Recent initiatives such as the Future of Medical Education in Canada projects (MD and PGME) and the Independent Review of Access to Postgraduate Programs by International Medical Graduates in Ontario by George Thomson and Karen Cohl have directed attention, and a call to action around resident application, selection and admissions practices.

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

Based on the BPAS work, the Postgraduate Medical Education (PGME) office at U of T developed tools and resources to support residency programs in application review and resident selection such as file review tools and practices.

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

By the end of this session, participants will be able to identify best practices in resident applications and selection; evaluate whether their own file review assessment tools and processes are consistent with identified best practices; and create a best practices implementation strategy for their particular environments.

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

## RA-01

### Crucial conversations: The key to successful remediation for residents in difficulty

S. Lee

University of Toronto, Toronto, ON

Remediation is a challenging process for most teachers and learners, due to the lack of standardized evidence-based methodology and the high stakes involved. Much literature has described common themes that identify the learner in difficulty, yet the actual process of how to remediate residents successfully has not been well described. As professionals, we need to ensure that we protect the public, and appropriately identify learners in difficulty. Remediation is a potentially a powerful tool for ensuring that both feedback and evaluation processes are truly effective, as the goal of remediation is to help learners overcome perceived deficiencies.

Through case-based learning and role-playing, this workshop will provide examples of common competency issues that arise for learners at different stages of their training. Identification of core remediation components and structure will be reviewed, as well as specific requirements when carrying out the process of remediation. One of the key elements for successful remediation is to have multiple tools for identifying deficits, with individualized plans and a process that ensures establishment of expectations. Crucial conversation skills to guide learners through the remediation process are essential to establish expectations, and in helping learners adapt healthy behaviors to influence them to change their behavior and improve performance. Evaluation tools for specific competency deficiencies will be reviewed.

Upon completion of this session, participants will be able to enhance their understanding of learners who require remediation, and integrate new techniques into their practice for remediating learners successfully. Emphasis will be placed on identification of learners that may be more vulnerable to remediation, and strategies to help them succeed in the process.

## RA-02

# Observing residents: Looking without seeing

G. Peeraer[1], G. De Win[2]

[1]University of Antwerp, Wilrijk, [2]Academic Hospital Antwerp, Edegem

Being a good observer is paramount for medical doctors. It is both a necessary clinical skill, as well as a useful tool when training future doctors. Especially in resident education, assessment relies heavily on observation by experts. Based on a myriad of observations, (high stakes) decisions on residents' readiness for independent medical practice are made.

Although we think that we are able to observe and see everything, research in the field of cognitive psychology has come up with 'unintentional blindness' and the 'looking is not seeing' theory. Even when looking from an expert position (such as experienced medical educators with years of hospital practice or an anthropological researcher) we are not immune to the illusory belief that people notice far more than they do.

This workshop makes trainers and other interested parties aware of the pitfalls of observation. We use examples from cognitive psychology and literature from observation as a research technique to make participants aware of how they can look with/without seeing.

Giving a second thought to observation might be useful for future training programs and decisions on readiness for independent medical practice. Researchers who want to use observation as a research technique might also benefit from this workshop.

## RA-03

# A programmatic approach to mapping the milestones and diagnosing the learner to better reflect the purpose and content

N. Koh, F. Chia, S. Kosim

National Healthcare Group, Singapore

Multiple evaluation tools are frequently used to evaluate the competencies of the resident, but not the achievement of milestones in a longitudinal fashion. In the recent times, ACGME-I had developed Resident Competency Tracking Evaluation (RCTE) which aims to track the residents' performance over time using the Dreyfuss Model.

The inherent challenges faced by programs in the evaluation of residents include multiple training sites, multiple evaluation tools, varied evaluation frameworks, varied vocabulary, varied interpretation of the rating scores by faculty, and unmotivated residents.

The session aims to address how the existing evaluation tools can be used for tracking the achievement of milestones and progress of residents, communication of expectations for performance, and for informing decisions regarding suitability of residents to practice at various levels. The session will also discuss the inaugural use of Conscientiousness Index (CI) in residents' evaluation.

## RA-04

# KeyLIME: The (disputed) top assessment papers for 2013-2014

J. Sherbino[1], E. Holmboe[2]

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

Effective assessment is an essential component of competency-based medical education. As a result, the field of assessment is undergoing a process of evolution. During this interactive discussion, ten key papers on assessment from the past year will be discussed. The important findings from these papers and their impact competency-based medical education will be the focus.

## RA-05

### Failure to rescue, failure to assess? Assessing the quality of ward-based clinician care

P. Pucher[1], R. Aggarwal[2], A. Wei[3]

[1]Imperial College London, London, [2]University of Pennsylvania, Philadelphia, PA, [3]University of Toronto, Toronto, ON

The need to reliably and objectively assess the varied facets of surgical and medical performance has been a driving force in education research. It is critical to trainee development, clinical quality control, and care improvement.  Over the past several decades, numerous well-validated tools have been developed for the measurement of surgeons' varied technical and non-technical abilities within the operating room. However, recent evidence suggests greater variability still in the provision of ward-based care, and management of postoperative complications in particular, resulting in poor outcomes and potentially avoidable deaths. To understand this variation in care, one must first have the means to measure it.

The ward round is the critical process and primary point of clinician-patient interaction in ward-based care. The generic principles presented in this workshop, whilst focusing on the context of general surgery for the purposes of the session, are relevant to medical and surgical specialties alike.  This session will explore the current evidence linking ward round quality to patient outcomes such as adverse events and postoperative morbidity.

In this session, participants will be invited to discuss what defines high quality ward-based care and how to measure clinician performance.  Participants will be introduced to validated assessment tools and their use, with interactive opportunities to rate examples of ward round behaviour. Finally, they will be invited to discuss means to optimize ward-based care and improve trainee ward round performance.

## RA-06

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

S. Schipper[1], M. Donoff[1], C. Brailovsky[2], C. Bethune[3], K. Lawrence[4], K. Schultz[5], T. Laughlin[6], T. van der Goes[7], T. Allen[2], T. Crichton[2]

[1]University of Alberta, Edmonton, AB, [2]College of Family Physicians of Canada, Mississauga, ON, [3]Memorial University, St. John's, NL, [4]University of Saskatchewan, Saskatoon, SK, [5]Queen's University, Kingston, ON, [6]Dalhousie University, Halifax, NS, [7]University of British Columbia, Vancouver, BC

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

This workshop will allow participants the opportunity to reflect on and discuss their own institution's current processes of assessing learner's daily clinical activity. Strategies for enhanced observation and documentation will be highlighted, and there will be opportunities to clarify further roles, skills and tasks of learners, preceptors, faculty advisors, and program directors in assessment of competencies in medical education.

## RA-07

This abstract has been withdrawn / Ce résumé a été retiré

## RA-08

# Writing effective workplace assessment reports: Authenticity and impact

N. Dudek

University of Ottawa, Ottawa, ON

Workplace assessment is thought to be the best method of assessing professional competence. There are several tools for workplace assessment including the mini-clinical evaluation exercise, direct observation of practical skill, multi-source feedback and in-training evaluation. They usually consist of a list of items on a checklist or rating scale and written comments. They can have formative and as well as summative roles. Effective workplace assessment provides feedback to the trainee that can be used to modify and develop future performance. On the other hand, given that these assessments document performance they can be used as evidence that a trainee has met a set standard, a summative role.

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 with CBME.

Past work has focused on improving the various tools used for workplace assessment and on training raters to more consistently assign the various quantitative ratings given to the medical trainees being assessed. Recently, there has been a strong call in the literature for more emphasis on qualitative assessments, with some even suggesting that narrative descriptions replace numerical ratings for clinical performance. Rich narrative evaluations of performance enhance the formative function of workplace assessments but also are required for defensible decisions in summative assessments. This workshop will focus on improving the quality of the comments completed by clinical supervisors on the various forms of workplace assessment.

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 their observation of trainees and 3) learn and practice strategies for improving the quality of written comments.

# Competency-based education / La formation médicale fondée sur les compétences

## CB-01

### Developing a competency-based approach for training medical residents in manuscript peer review and critical appraisal

J. Galipeau[1], D. Moher[2], C. Campbell[3]

[1]Ottawa Hospital Research Institute, Ottawa, ON, [2]University of Ottawa, Ottawa, ON, [3]Royal College of Physicians and Surgeons of Canada, Ottawa, ON

The quality of healthcare research relies heavily on a rigorous peer review system that incorporates academics and practitioners from a broad range of disciplines, each with expertise in their domain(s). Likewise, the quality and advancement of healthcare practice(s) is impacted by the ongoing ability of residents, clinicians, and other service providers to critically appraise published research in order to determine its quality and utility in practice. However, despite their importance, both of these skills have received relatively little attention in medical education or within the larger community of healthcare researchers and practitioners. One reason for this neglect may be the lack of a concrete set of core competencies that outline what is needed to efficiently and effectively engage in the peer review and critical appraisal of scientific publications.

This session will explore the evidence, perceptions, and latest efforts to develop a set of core competencies for the effective training of medical residents, as well as other researchers and practitioners, in the peer review and critical appraisal of scientific publications. Through an interactive presentation, we will discuss the importance of being competent in peer review and critical appraisal within the medical residency context, the larger context of healthcare research and practice, and in relation to the field of journalology (i.e., the scientific study of writing for publication, manuscript peer reviewing, and scientific journal editing and publishing). We will also explore the facilitators and barriers to training medical residents and members of the larger healthcare community on this topic. Finally, we will share resources, tools, and strategies that can help improve the quality of peer review and critical appraisal.

## CB-02

### Milestones as a complex social and educational intervention: Implications for implementation

E. Holmboe[1,] J.R. Frank[2]

[1]Accreditation Council for Graduate Medical Education, Chicago, IL, [2]Royal College of Physicians and Surgeons of Canada, Ottawa, ON

Both Canada and the U.S. are embarking on a wide-scale implementation of competency-based medical education, seeking to realize the full potential of their respective competency frameworks. Using developmental progression as a primary construct, Milestones and Entrustable Professional Activities (EPAs) are serving as core components of residency and fellowship programs to guide curriculum and assessment. Seven U.S. specialties implemented Milestones in July 2013 and the remaining core specialties began July 2014. The RCPSC will implement Milestones as part of its Competence by Design initiative in the next few years.

Implementation of Milestones and EPAs requires change on multiple levels: institutional and program culture; assessment methods and tools; curriculum; training of faculty in assessment, new clinical care models and other educational competencies. This workshop will explore key implementation issues and strategies, building on some early experiences and lessons from the U.S. Milestones initiatives.

During this workshop, participants will be briefly introduced to complex intervention and program theory and how they can use these theories to enhance their own training programs. Early specialty Milestone performance data and lessons learned from the U.S. will be discussed. Using complex intervention theories, participants will work in small groups to perform a Milestones mapping exercise to integrate assessment and curriculum for a specific competency in their respective specialty.

The other key component of the Milestones is the use of competency committees to enhance judgments around learner development and provide better feedback to both learners and the program. In the second small group exercise, participants will explore how they can use group process to enhance judgment of learner performance and development and how the initial mapping exercise can be used to structure assessment information for committee deliberation.

## CB-03

### Entrustable professional activities as an organizing framework for assessment across the continuum

R. Englander[1], C. Carraccio[2]

[1]Association of American Medical Colleges, Washington, DC, [2]American Board of Pediatrics, Chapel Hill, NC

Entrustable Professional Activities (EPAs) provide a framework for workplace based assessment of competence. They are defined as work units or tasks that individuals can be entrusted to perform unsupervised based on the demonstration of competence. They are measurable, observable, and executable in a given time frame. Additionally, they require the integration of competencies, generally across at least two domains and align with the milestones associated with those competenices. The framework has been successfully implemented at the specialty level in Obstetrics/Gynecology in the Netherlands and in Psychiatry in Australia and New Zealand. Recently, the Association of American Medical Colleges has delineated a set of Core EPAs for Entering Residency (CEPAER), modifying the original concept to describe activities that are entrustable to individuals without direct supervision. At the same time, the United States Pediatric community has developed a list of specialty-specific EPAs to define the transition from residency to practice, and the pediatric sub-specialty boards have done the same for the transition from fellowship to practice.

In this session, we will review the concept of EPAs briefly, and then share the CEPAER, pediatric EPAs and examples of the pediatric sub-specialty EPAs to demonstrate the linkage that can ultimately lead to a seamless approach to competency-based assessment from medical school through practice. Finally, we will take a "deeper dive" look at the medical school-to-residency transition to prioritize the CEPAERs requiring most urgent attention by identifying the ones with the largest gap between expectation and performance on day one of residency and those with the highest impact on patient care at this transition point.

## CB-04

### Implementing a non-linear curriculum to achieve competencies in systems-based practice and teamwork and enhance experiential learning in junior surgical residents

V. Appasamy[1], M. Tan[1], W. Seek[1], L. Tse Hang[2]

[1]National Healthcare Group, Singapore, [2]Tan Tock Seng Hospital, NA

In 2010, Singapore adopted the Accreditation Council for Graduate Medical Education International (ACGME I) residency framework for its post-graduate medical education. Three Sponsoring Institutions were identified to implement the changes in the country. The National Healthcare Group (NHG) cluster of hospitals was one of the Sponsoring Institutions. The curriculum for surgical post graduate training was revamped to better prepare the residents for the challenges of surgical practice in a rapidly evolving and complex health care environment. Amongst the curriculum design changes made in the NHG's General Surgery Residency Program was the introduction of non-linear learning activities to achieve the various competencies described in the ACGME I framework.

This session will present the design and implementation of a curriculum to introduce and develop competencies in systems-based practice and inter-professional teamwork. Utilizing the surgical acute care clinical system as a framework, this session will explore the critical knowledge and skills required by junior surgical residents for the delivery of safe and timely health care to patients.

The session will review the concepts of adult learning as applied to post-graduate medical education. It will demonstrate the application of modular curriculum design, problem-based learning, facilitated small group discussions, team based learning, simulations and feedback.

The learning activities were organized in a modular fashion to progressively introduce and assess the residents' knowledge and skills in clinical systems and inter-professional teamwork and to enhance their experiential learning in a dynamic clinical environment.

The participants of this session will be organized into small groups. They will use standardized clinical case studies to develop a prototype curriculum addressing their understanding of their learning environment, the development of learning objectives, organization of the modules and tools for assessments of the residents in the knowledge and application of systems based practice and inter-professional teamwork.

Initial results from this NHG curriculum show superior knowledge and practice of systems-based practice and teamwork in 80% of the NHG surgical residents. Anonymized detailed assessment results will be shared at the session.

## CB-05

# Safeguarding caring and compassion in an era of competence-based education

E. Van Melle[1], B. D. Hodges[2]

[1]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [2]University Health Network, Toronto, ON

Competence-based education models are increasingly popular in medical education. The premise is to define more clearly discrete, observable competencies and to monitor the trajectory of learners using concepts such as milestones. This is relatively straightforward for competencies that are knowledge or skills based, but more challenging for complex domains such as professional self-identity formation and ability to demonstrate caring. Further, much of the drive toward competence-based models arises from a desire to shorten training and render it more efficient. These imperatives may run counter to ensuring the development of qualities such as compassion. This inter-active workshop, based on work of both the Royal College 2015 revisions and the AMS Phoenix Project, explores these challenges and focuses on ways to safeguard caring and compassion in an era of competence-based education."

## CB-06

# From competence by time to competence by design: An update to the proposed transformation of Canadian medical education

K. Harris[1], J.R. Frank[1], K. Imrie[1], L. Flynn[2], S. Berry[3], J. Karpinski[1]

[1]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [2]Queen's University, Kingston, ON, [3]University of Toronto, Toronto

Competency-based medical education, or CBME, continues to gain momentum around the world as medical educators, physicians and policy makers ask important questions about the future of medical education. In 2013, the Royal College launched Competence by Design, a multi-year transformational program to introduce a hybrid model of competency-based medical education (CBME) in Canada. This announcement signaled the Royal College's intention to adopt a key recommendation of the Future of Medical Education in Canada Postgraduate (FMEC-PG) project.

The college's plan for CBD is built on a desire to better support residents and practicing physicians as they move into, through and constantly improve performance in practice to better respond to ever changing health care needs of Canadians. There is no question that the current system produces skilled and capable certified physicians. However, research shows that a system based exclusively on time is not optimal for meeting the education and assessment needs of physicians from residency through to retirement.

Now that the Royal College is in the second year of this project, this symposium will provide an overview of the first concrete steps that the Royal College has been, and will be, taking towards successful implementation and evaluation. Through an interactive session, you will have the opportunity to hear from the early adopters, discuss implications, share feedback and provide advice to the Royal College.

## CB-07

# Transition towards a competency based graduate medical education in Singapore: The National Healthcare Group experience

N. Chew

National Healthcare Group, Singapore

The training of specialists in Singapore started in the 1970s. It was modeled after the UK system of training and featured 6 monthly rotations, with intermediate and final summative examinations. The system had served the country well and had distinct strengths. However, in 2010, the Ministry of Health, Singapore, embarked on an ambitious effort to change the system of medical specialist training. The move was part of a systematic effort to prepare specialists for practice in line with Singapore Healthcare 2020 master plan, while concurrently addressing certain short-comings within the traditional training system.

Method: The National Healthcare Group is one of 3 healthcare clusters providing graduate medical education in Singapore. We documented the implementation of the nationwide competency based education structure from 2010 to 2013.

Findings: We report the main changes to the education structures in the National Healthcare Group, focusing on our key successes and lessons learnt.

We identified the following key enablers of change.

1. Innovative financial support structure designed to reinforce the delivery of graduate medical education.

2. Ministry and inter institutional engagement throughout the implementation process.

3. Rapid creation of education governance structures using principles of quality improvement and the ACGME-I accreditation model.

Conclusion: Singapore has undergone a massive change in the graduate medical education structure. As we welcome our first graduates in 2015, we recognize the need to continue to innovate and evolve the education systems.

## CB-08

# CanMEDS 2015 symposium

L. Snell[1], A.E. Oswald[2]

[1]McGill University, Montreal, QC, [2]University of Alberta, Edmonton, AB

This session is designed for residents, educators, program directors and others with an interest in the draft CanMEDS 2015 framework and the working draft of the Milestones Guide. Upon completion of this session, participants will be able to provide an overview of the draft framework, the rationale and process for updating it and the major changes from 2005 to 2015; discuss with colleagues the strengths and weaknesses of the new framework and associated milestones; provide input into the penultimate draft of the framework and the evolving Milestones Guide.

## CB-09

# Designing your own competency-based assessment program

F. Bhanji

Royal College of Physicians and Surgeons of Canada, Ottawa, ON

Post-Graduate Medical Education is evolving across the world - away from exclusively time-based training towards Competency Based Medical Education with an increased emphasis on assessment. The traditional focus on high stakes point in time examinations and the associated psychometrics needs to be balanced by increased recognition of the importance of a Program of Assessment and for us, as educators, to consider the educational impact of our assessment strategies. This session will focus on the changes required for competency based medical education to succeed.

# Education research methods / Les méthodes de recherche en éducation

## ERS-01

### Making education scholarship "count": Considerations in disseminating your work

J. M. Lockyer[1], E. Van Melle[2], S. Lieff[3]

[1]University of Calgary, Calgary, AB, [2]Centre for Studies in Primary Care, Kingston, ON, [3]University of Toronto, Toronto, ON

Education scholarship (ES) is an "an umbrella term which can encompass both research and innovation in health professions education. Quality in ES is attained through work that is: peer-reviewed, publicly disseminated and provides a platform that others can build on". With the many calls for transformation of medical education, it is critical that the work being done towards competency based medical education, implementation of new teaching and assessment approaches to CanMEDS, and other innovations be studied and made available to others. This may be done through a variety of traditional venues such as publication in peer review journals or presentations at conferences as well venues you might not typically consider such as electronic portals.

This workshop will draw on the work done to develop the Canadian Association for Medical Education position paper, Toward a Common Understanding: Advancing Education Scholarship for Clinical Faculty in Canadian Medical Schools (http://www.came-acem.ca/pubs_position_papers_en.php). The focus will be on how participants can intentionally approach and disseminate their educational work in a way that "counts" in an academic environment.

The workshop will present an overview of ES and describe a 6 step framework that can be used to develop a project focusing on having clear goals, adequate preparation, effective methods, meaningful results, effective presentation, and reflective critique. Participants will have an opportunity to discuss and consider their own work vis a vis the framework.

Panelists and participants will address the following questions: How do I select a meeting for my work? How do I determine whether I am more likely to be successful submitting an oral presentation, poster or workshop? How do I decide whether my work is 'good enough' for publication in a peer review journal? How do I decide on a journal vs. an on-line website (e.g., MedEdPortal, RCPSC site)? How do I decide on the type of publication (editorial, research paper, procedure or description)?

## ERS-02

### Ethnography: An important approach to studying digital postgraduate medical education

A. MacLeod, C. Fournier

Dalhousie University, Halifax, NS

The increased use of, and reliance upon, digital technologies in postgraduate medical education (PGME) may create unexamined challenges. Understanding the impact of technologies in workplace-based learning is becoming increasingly important. Given the increasing complexity of our day-to-day lives, it important that our methods of inquiry and research match this complexity.

Ethnography is the study of interactions that take place within a group. A typical ethnographic study will include a variety of data sources in order to develop a rich understanding of the situation being explored. These generally include observations and interviews, but may also include a variety of other sources including documents and audiovisual materials. This inclusion of multiple data sources is important, as what people say can be quite different than what people actually do.

In 2000, Savage wrote "as a detailed way of witnessing human events in the context in which they occur, ethnography can help healthcare professionals to solve problems beyond the reach of many research approaches, particularly in the understanding of patients' and clinicians' worlds." In 2014, it is clear that order to understand PGME in a digital age, it is essential that our ethnographic explorations evolve to take into account both social (people, relationships, power dynamics) and material (tools, technologies, learning spaces) influencing medical education.

Participants in this workshop will have the opportunity to learn about the strengths and challenges of using ethnography to study PGME in a digital age. They will be encouraged to think about the effects of taken-for-granted technologies upon social life, and how they can best design an ethnographic research project to match that complexity.

## ERS-03

## Knowing what we mean, meaning what we say: Clarifying controversies in the language of medical education

S. Taber, S. De Rossi, L. Gorman, J.R. Frank

Royal College of Physicians and Surgeons of Canada, Ottawa, ON

The language of medical education imparts the enterprise of the medical profession and physician training. It is an essential tool for clear, direct, and meaningful communication across all disciplines. However, many terms in medical education have, to date, been mired with a lack of consistency in usage. This lack of consensus on the definitions of controversial terms causes confusion, challenges in clarity, and may lead to inefficiencies when stakeholders aim to work collaboratively. Perhaps most importantly, without commonly understood and consistent language, there is a risk that confusion may arise among the public – whose trust in the profession is essential.

Recognizing the need for greater precision and better consistency in setting standards, credentialing, and accreditation, the Royal College embarked on a collaborative process to develop and release a proposed dictionary of key terms in medical education. However, this work is not yet finished: there remain a number of contentious terms for which the Task Force was unable to reach consensus and still more ambiguous terminology that has yet to be considered.

In this session, participants will have the opportunity to provide input on the new Royal College dictionary of key terms in medical education, and discuss how these terms are used in other provincial or national jurisdictions. Participants will be asked to consider the controversies in medical education terminology and to share instances where the problems of ambiguity caused challenges and may have resulted in harm to the profession. Participants will also be engaged to provide input on terms where consensus has not yet been reached by the Task Force: most particularly, the benefits and challenges of using "postgraduate" versus "graduate" medical education.

Their input will be presented to the Task Force for consideration in the next iteration of the dictionary.

At the end of this session, participants will be able to recognize current issues surrounding the language inherent in medical education and will be able to comment on efforts to standardize and streamline terminology to improve clarity anonsistency. Finally, they will be provided an opportunity to lend their own expertise, reflections, and input to the ongoing work of the Task Force.

## ERS-04

## CQI in medical education at U of T PGME

G. Bandiera, L. Probyn, S. Glover Takahashi, S. Edwards, L. Muharuma, S. Spadafora, B. Pakes, C. Abrahams, A. Matlow

University of Toronto, Toronto, ON

The showcase will reflect UofT PGME's evidence-based, centralized processes and educational and technical supports for over 1,900 residents and 5,000 faculty members involved in 79 residency programs across 27 affiliated sites.

Task Forces and working groups involving faculty members and residents were established and recommendations made to implement best practices and set minimum standards in assessment of residents, teachers, and rotations. The standardization has resulted in benchmark-setting across the Faculty's programs and training sites.

Exit survey results for residents and fellows reflecting the continuous quality improvement cycle will be displayed. There will be reports on technical developments such as case logs, a mobile platform, and trainee rotation reporting.

Developments in CanMEDS e-learning modules and competency-based training will be presented, as well as a workshop on resident wellness and remediation services. Initiatives recently undertaken as part of the PGME strategic plan such as the development of a web-based repository for medical education resources, expansion of global health programming, and leadership and resource management curriculum development will be discussed.

## ERS-05

## Dialogues on the design of surgical training: Competence by design and the task force on general surgery in international perspective

E. M. Webber[1], L. Gorman[2], S. Taber[2], A. Ronson[2], K. A. Harris[2]

University of British Columbia, Vancouver, BC, Vancouver, BC, [2]Royal College of Physicians and Surgeons of Canada, Ottawa, ON

The discipline of surgery has seen a tremendous amount of change. Around the world, the practice of surgery has undergone significant evolution over the past thirty years as a result of growing subspecialization, demographic, fiscal and technological changes. As a result, impacts are being seen on surgical knowledge and divisions of labour in surgical disciplines globally. In the face of this evolution, we need to turn our attention to a new era of surgical training. How do we, as stakeholders in surgical education, train our resident surgeons in a manner that is optimal for the realities of the 21st century and beyond?

In response to these changes, many discussions have arisen both in Canada and internationally. In Canada, two national initiatives have been launched. First, recognizing that some of these evolutions have been especially marked in the discipline of General Surgery, a national Task Force was commissioned to develop recommendations to optimize General Surgical training. In addition, Canada has also seen the launch of the Competence by Design program to introduce a hybrid, competency-based model across all specialist disciplines, both surgical and non-surgical in nature. General Surgical training is at a crossroads; similar challenges are being experienced in other countries and an international dialogue has emerged.

In this session, participants will have an opportunity to hear about case studies and innovations around the world. How are varying countries such as Canada, the United States, and Australia responding to these challenges and changes? A facilitated panel discussion will aim to exemplify how the two Canadian initiatives, Competence by Design and the Task Force's recommendations, fit into the international context of other similar discussions and reforms. In particular, speakers' presentations will contrast both the context (i.e. the societal health needs, demographics, and technological changes) and the response (recommendations and innovations undertaken) in other jurisdictions. Are there preliminary lessons learned from other jurisdictions? How are these similar evolutions playing out in different ways across various locations?

At the end of this session, participants will be able to recognize current trends in surgical training both in Canada and abroad, describe some future directions for surgical training. Finally, they will be provided an opportunity to lend their own expertise, reflections, and input to the ongoing work in each country

## ERS-06

# Focus your focus group!

R. Stalmeijer[1], G. Peeraer[2]

[1]Maastricht University, Maastricht, [2]Universiteit Antwerpen, Wilrijk

Focus groups are a popular research method to collect qualitative data within various research- and educational settings. Focus groups are a form of group interview that capitalizes on communication between research participants in order to generate data. This group is led by a moderator who stimulates active engagement of the participants in the discussion. In this process moderators often use a semi-structured discussion guide for structuring the questions during the focus group.

Focus groups could be used exploratory (e.g. how do residents experience their role of manager in the health care setting?) explanatory (e.g. why do some clinicians experience their role as resident supervisor burdensome?) or in combination with other methods (questionnaires, interviews, observations, document-analysis).

When designing a focus group study there are several elements that need to be taken into account. Like 'does my research question require focus groups?', 'how do I design a discussion guide?', and 'what should the moderator do?'

The goal of this workshop is to introduce the participants to the various possible uses of focus groups in postgraduate medical education research (interactive lecturing). During small group work participants will develop their own discussion guide and in role play they will practice the role of moderator.

We will start with a short presentation on qualitative research and its characteristics. Then we will discuss the characteristics and possibilities of focus groups as a research method. In break out groups participants will thereafter practice with designing a discussion guide. We will end the session with role play to practice the role of moderator.

# Faculty development / Le perfectionnement des corps professoraux

## FD-01

### Navigating between technophilia and sound educational practice: Dilemmas for clinician educators

A. M. Cunningham[1], M. Lin[2], R. Cavalcanti[3]

[1]Cardiff University, Cardiff, [2]University of California, San Francisco, CA, [3]University of Toronto, Toronto, ON

In 2014 the practices of medicine and medical education are flooded with technology: e-learning, tablets, smartphones, twitter, MOOCs, flipped classrooms, the list goes on. This year's clinician educator dinner is an opportunity for an engaging discussion on the pros and cons of these innovations. The conversation will emphasize reflection and critical thinking in the adoption of technology. This highly interactive session will be facilitated by an international panel of speakers featuring Dr. Anne Marie Cunningham from Cardiff, UK and Dr. Michelle Lin from UCSF.

## FD-02

### Passive learning is passé: Interactive didactic techniques

A. Singh, S. Wahi-Gururaj, M. Bar-On

University of Nevada School of Medicine, Las Vegas, NV

Some of the most memorable educational experiences can be fun and informative. Faculty often default to the time-honored tradition of teaching via lecture. Yet, modern adult learning theory recognizes that passive forms of instruction do not generally result in retention. This workshop is designed to provide a framework for faculty development sessions. Participants will review and discuss a diverse armamentarium of educational tools that faculty can potentially implement as they fulfill their teaching responsibilities.

We will begin by engaging participants in a large group discussion about what subject matter they believe can be taught using less conventional, didactic methods and what methods participants have seen employed. Participants will then take part in a small group activity, which can be utilized in a faculty development session. Participants will choose from a menu to design their own educational encounter. Specifically, the participants will select a topic, a learning venue, and an educational tool to craft their experience. Next, large group debriefing will follow to share the innovations developed so that participants may obtain additional ideas for utilization at their home institutions. Finally, the presenters will provide examples of methods employed at their home institution, allowing audience members to participate and have first-hand experience with these interactive models. Participants will be provided tools discussed by presenters as well as ideas shared during large group debriefing.

## FD-03

## The CanMEDS 2015 Leader Role: Enhancing leadership in residency education

D. Dath[1], M. Chan[2], G. Anderson[3], A. Burke[4], S. Razack[5], L. Susan[3], G. Moineau[6], A. Chiu[2], P. Ellison[3]

[1]McMaster University, Hamilton, ON, [2]University of Manitoba, Winnipeg, MB, [3]University of Toronto, Toronto, ON, [4]Western University, London, ON, [5]McGill Unversity, Montreal, QC, [6]University of Ottawa, Ottawa, ON

The Royal College's Competence By Design project has engaged stakeholder groups to provide feedback that will be used to revise the CanMEDS 2015 framework. The stakeholders clearly identify a need to enhance the position of leadership training.  Wide discussion and debate encouraged a more central position of leadership in the new framework, anchored by the concepts of physician responsibility, engagement and contribution. This resulted in re-naming the Manager Role to Leader.

Other strong feedback involved incorporating patient safety, using technology to improve care, and demonstrating stewardship of healthcare in the Role. Frontline medical teachers and clinician educators must become better acquainted with these leadership and managerial concepts and understand how they apply to the everyday practices of individual physicians as well as to the healthcare system.  They must be able to translate the Leader competencies that they use in everyday practices into explicit teaching of this Intrinsic Role. Faculty development will be a key part of successfully implementing these changes.

## FD-04

## Debriefing: From simulation to the clinical setting

A. Kotsakis[1], E. Ng[1], T. Everett[2]

[1]Hospital for Sick Children, Toronto, ON, [2]University of Toronto, Toronto, ON

Clinician-teachers and educators have been challenged to provide effective feedback with the intent to improve the trainee's performance. Debriefing can be considered as a specialized form of feedback where the trainee actively participates in the discussion, with guided facilitation that enables identification and closure of the gaps in knowledge and skills.

An effective debrief enables a transformative experience for cognitive and reflective learning to occur. Debriefing is considered a necessity after a simulation-based learning experience and is increasingly used in the clinical settings especially after critical events.  Our experience from simulation-based teaching and debriefing, and application in the clinical settings will be shared. The first portion of the session will present a brief overview of debriefing approaches. Incorporation of adult learning theory to enhance debriefing skills will be discussed. In the second portion of the session, participants will have an opportunity to practice the debriefing skills on a clinical event. Feedback will be provided to the participants. Strategies to manage challenges and barriers to a successful debrief in the clinical setting will be discussed.

## FD-05

# Academic leadership for the 21st century

S. Lieff[1], C. Creede[2]

[1]University of Toronto, Toronto, ON, [2]Centre for Faculty Development, Toronto, ON

Current practices of leadership in the academic health science network are primarily based on heroic and transformational leadership models derived from the industrial age. At that time, the design of medical and other health professional schools were dominated by factory-like production paradigms that emphasized aligned processes and structures in order to ensure reliable outputs and efficiency. In these models, the leaders role is to inspire, design, and drive faculty and staff performance (the human resources of the unit) in service of the production of learners, research and innovations (the products and deliverables)  While this model has merits, it's limitations have increasingly been identified as times have changed.

In the 21st century, the world has become increasingly collaborative and networked and teams and communities have replaced individual leaders as the heart and energy of an organization. Collaborations are recognized as essential to successful innovation and resource development. Thus, leadership in the academic health sciences needs to be shared within units, across units and across organizations. Energy for change needs to come from a sense of broad ownership of the change by members of an academic unit rather than buy-in. Additionally, resilience and adaptability of the unit are essential in order to respond to a constantly changing environment.  A new model of academic leadership in the health sciences is emerging that can guide current and future leaders to enable their academic units to achieve their goals in this complex environment.

In this workshop, participants will have the opportunity to explore an emerging model of academic leadership in the health sciences. Motivations for academic leadership will be elaborated followed by discussions of how successes and challenges can be situated within this model.

## FD-06

# Program director confessions: What wasn't in the job description

A. Atkinson[1], T. Baron[2], S. Manos[3], M. Ladhani[4], H. Writer[5]

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

Being a Program Director is an exciting and rewarding role, with a diverse job description. Leadership in education, direction setting in educational curricula and the shaping of future physicians attract many to the position. The job, however, is not without challenges and/or surprises, often on a daily basis. It is impossible to be prepared and trained for every issue which may present itself. 'On the job', peer to peer mentoring is an invaluable tool in this context.

Through the experiences and reflections of a group of "seasoned" program directors this interactive, case-based workshop involving role play will address common (and not so common) issues that face Program Directors, Facilitated small groups will address approaches to scenarios and report what they have learned in an interactive engaging large group session. The session will end with a summary of key learned takeaways as well as "pearls" collected from experienced Program Directors.

## FD-07

### Do you know what your millennial learners are sharing on social media?

E. Tsai, T. Gondocz

Canadian Medical Protective Association, Ottawa, ON

The use of social media and electronic communication has exploded over the past two decades. There is an increasing demand from patients to have greater access to healthcare providers and health information, including websites, emails, texting, electronic medical records and even social networking sites. Medical professionals are thus faced almost daily with requests to be more connected to their patients.

Paralleling these trends is the fact that most trainees today are from the millennial generation, for whom the Internet, instant messaging and Facebook are ubiquitous and part of their lives for as long as they can remember. Many millennial learners have the perception that they can maintain separate private and public social networking personae, whereas norms of professionalism set by regulatory bodies would suggest otherwise. The limited ability to monitor the appropriate use of social media and other technologies thus presents challenges for faculty responsible for teaching these millennial learners in this already complex and rapidly evolving healthcare environment.

This interactive workshop will describe medico-legal pitfalls in the use of social media and other means of electronic communication with patients and colleagues. Faculty will also learn about the CMPA Good Practices Guide, a new online educational resource, and how it may be used to support medical education and patient safety.

## FD-08

### Small bites: Effective, efficient faculty development

M. E. Bar-on[1], L. Konopasek[2], S. Wahi-Gururaj[1], A. Singh[1]

[1]University of Nevada School of Medicine, Las Vegas, NV, [2]New York Presbyterian, New York, NY

Models of faculty development have traditionally focused on 60 minute grand rounds presentations and multiple-hour workshops. While these models have been shown to be effective, they may not be the best mode for delivering this material to faculty with multiple competing priorities i.e. clinical care, administrative duties and teaching. In addition, the next accreditation system and specialty specific milestones require faculty to develop new skills in point of service assessment in addition to basic teaching skills. To address these challenges, a shorter "bite-sized" faculty development session "the snippet" - has been created. Each 15-20 minute snippet is designed to focus on a specific skill related to effective teaching or learner assessment. Snippets are a combination of didactic information and interactive activities. They can be included in faculty meetings and other venues where faculty attendance is required, therefore, accommodating faculty's need for efficient use of their time. They are for the most part not discipline specific and can be applied across the medical education continuum. Snippets do not replace traditional in depth faculty development, but rather bring it to individuals who cannot routinely attend these types of sessions. The purpose of this workshop is to demonstrate this innovative methodology and engage attendees in designing their own snippets. Participants will leave with the shared wisdom of the group and have a collection of snippets to implement at their own institutions.

## FD-09

# How to effectively incorporate patient safety and quality improvement into PGME

A. Nakajima[1], S. Microys[2], L. Peckan[3]

[1]University of Ottawa, Ottawa, ON, [2]The Ottawa Hospital, Ottawa, ON, [3]Children's Hospital of Eastern Ontario, Ottawa, ON

In Canada, an estimated 7.5% of hospitalized patients experience a serious adverse event each year, with higher rates in teaching hospitals. Yet, clinician teachers and educators struggle to teach learners about patient safety (PS) and quality improvement (QI) principles in practical and meaningful ways.

The Canadian Patient Safety Institute and the Royal College of Physicians and Surgeons of Canada collaborated to develop a PS framework, The Safety Competencies: Enhancing Patient Safety Across the Health Professions. Objectives of this project were to: identify the knowledge, skills and attitudes related to PS competencies required by all healthcare professionals; develop a simple, flexible framework as a benchmark for training, teaching and assessment of PS; and make PS competencies easily understood and integrated into the continuum of medical education. Furthermore, PS and QI competencies will be more evident in CanMEDS 2015.

Inconsistent PS and QI content in Canadian medical education curricula is an indication that The Safety Competencies has been challenging to translate into formal, informal and incidental education. This tension between the relevance of, and need for, PS and QI content in medical education and the current state is captured in an Institute for Healthcare Improvement project completed in 2011; the objective was to facilitate alignment between academic medical centres and PGME programs in quality and safety programming. This project included completion of a multi-faceted scan, which found the current state as having: poor institutional PS and QI alignment; faculty who do not have time, motivation, or knowledge to participate in PS and QI activities; and residents completing training with little to no exposure to PS and QI methods and practice. This lack of teaching is echoed in shortcomings in PS knowledge among medical trainees across a broad range of training levels and specialties, demonstrating need for effective educational interventions. Challenges to incorporate PS and QI in PGME will be discussed. Strategies for engaging learners, and embedding The Safety Competencies into formal, informal and incidental teaching will be presented, including formal rounds, OSCE's, simulation sessions, role play, case-based learning, narratives, popular media, and using occurrences in everyday clinical practice, including adverse event reporting.

## FD-10

# Early career medical educator

K. Dore[1], C. Watling[2]

[1]McMaster University, Hamilton, ON, [2]Western University, London, ON

This "Fireside Chat" is geared towards Early Career Medical Educators (ECME). The session will include 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). An interactive session, which will serve as a resource for questions and discussion around career opportunities and planning, trigger discussion around how to successfully navigate the deluge of "projects" that come one's way as an early career medical educator, and to make decisions about where to focus one's time for optimal productivity. Dr. Watling's talk will include: describe my own personal career journey from community clinician to enthusiastic teacher to education researcher; discuss the challenges and opportunities associated with playing multiple professional roles simultaneously – educator, research, administrator/leader, clinician; discuss approaches to PhD-clinician collaboration around research in education.

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

## HP-02

### Selecting IMGs for residency programs: Myths and shibboleths

S. Banner[1], I. Bowmer[2]

[1]Canadian Resident Matching Service, Ottawa, ON, [2]Medical Council of Canada, Ottawa, ON

The purpose of a shibboleth is exclusionary as much as inclusionary: a person whose way of speaking violates a shibboleth is identified as an outsider and thereby excluded by the group. This phenomenon is part of the universal use of language for distinguishing social groups. It is also one example of a general phenomenon of observing a superficial characteristic of members of a group, such as a way of speaking, and judging that characteristic as 'good' or 'bad', depending on how much the observers like the people who have that characteristic.

## HP-01

### (Re-) defining the health care practitioner of the new millennium: A discourse of generational segmentation

J. Busari

Maastricht University, Maastricht

The changing trends in health care are posing new challenges for the way health care is being organized as well as the way physicians need to be trained. As a result a lot of medical institutions worldwide are facing difficulties in designing training programs that can properly prepare residents for this fast-paced changing process.  In addition, as physicians are increasingly working with other health care partners in health care teams (or integrated care systems), the education of physicians need to be modified to match the various demands and values that are emerging

This session will explore the phenomenon of generational differences, and provide insight in to why there is a need for a new sort of physician (the 'Millennial physician") and the effect this would have on the duration and content of many training programs. The session would also substantiate why the focus of many curricula would need to shift from the traditional and static educational approach to a more dynamic and engaging ways of learning. Finally, the session would enable participants reflect on the end product of future training programs i.e. the "millennial physician". The millennial physician can be described as one who is expected to be a digital native, can easily navigate the vast array of web-based, electronic and mobile technology and use these not just as a means of communication, but as the primary access to (medical) information and resources on the web.

# Humanities and history in medical education / Sciences humaines et histoire de l'éducation médicale

## HIS-01

### Arts-based training to improve residents skills in observation, communication and empathy

J. Zazulak[1], N. Knibb[2]

[1]McMaster University, Hamilton, ON, [2]McMaster Museum of Art, Hamilton, ON

Over the past several years much has been written about the importance of developing reflective healthcare professionals who are able to provide compassionate, caring, and sustainable care to patients. 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, in turn, 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 and finding new ways to nourish this domain of professional development is of paramount importance.

In 2010, McMaster University Department of Family Medicine and the McMaster Museum of Art introduced The Art of Seeing, a visual literacy course for Family Medicine Residents. After three successful years the program now includes Obstetrics and Gynecology Residents becoming The Art of Medicine. The new course takes a multifaceted arts-based curriculum featuring not only visual literacy, but also art therapy, reflective writing, and dance and movement. These changes reflect our engagement and responsiveness to the transformation of Canadian medical 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 details of the program from both perspectives, clinical and cultural, and how the goals of building residents' skills in observation, communication, collaboration, empathy, and mindfulness 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 also experience a participatory visual literacy activity as offered in The Art of Medicine. We hope to address the changing landscape of both medical education and cultural institutions in the hopes of influencing others to lead change and consider similar partnerships.

# Physician health and wellness / La santé et mieux-être des médecins

## Resident research in the history of medicine for the uninitiated

D. Gilchrist[1], J. Nelson[2]

[1]University of Alberta, Edmonton, AB, [2]Royal College of Physicians and Surgeons of Canada, Ottawa, ON

The study of the History of Medicine provides context and allows for an understanding of the present. The skills derived from exploring the historical aspects of medicine encourage investigation, strengthen judgment and enhance critical thinking.

Residents often shy away from exploring History of Medicine research projects because of their unfamiliarity with the process. This workshop will explore the barriers that exist in resident research in the History of Medicine, and will provide ways to overcome them.

This session will discuss the process of identifying a history of medicine research topic and how to develop a research plan.

Lastly, this session will delve into e-resources, including social media, which are available for research and how to disseminate research through these channels after completion.

## Five fundamentals of civility for physicians: A framework for considering professional behaviour in doctors

D. Puddester[1], M. Kaufmann[2]

[1]University of Ottawa, Ottawa, ON, [2]Canadian Physician Health Institute, Ottawa, ON

In recent years there has been increasing attention placed upon physician behaviour in the workplace, mostly in a negative sense. As a result, a variety of approaches have been developed to address so-called disruptive behaviour by doctors. Less has been written about the understanding and promotion of a desired style of physician behaviour which can be conceptualized as civility.

Civility is about more than politeness and courtesy, although it begins there. High quality professional comportment is essential for healthcare teams to function effectively. Physician incivility, often revealed at times of tension, can cause stress, distress and poor productivity in co-workers of all kinds.Incivility can propagate itself and erode the very culture of a workplace, and, indeed, a profession.

On the other hand, civil behaviour results in positive social interactions. Civility amongst colleagues is associated with lower rates of professional burnout. Civil collegial relationships create comfortable and energizing workplaces with lower turnover rates and higher worker satisfaction. Everyone, including patients, benefits from civil professional behaviour.

The impacts of civility (and its absence) in the professional environment, even if self-evident, have been demonstrated by research and the evidence will

be reviewed in this paper. Even so, the various dimensions of civility are not always surfaced in a deliberate manner in medical training and beyond. It appears, then, that a civil approach to physician behaviour in the workplace has merit, but there are questions to explore. While most doctors interact with others in a civil manner most of the time, anyone can experience lapses occasionally, and the literature reports that it appears that some doctors lapse more often than others. When the many dimensions of civility are reviewed, it appears that there are specific strategies that can be adopted to foster civil behaviour in doctors, even at times of risk. A practical selection of these strategies, grouped into five categories as "Five Fundamentals of Civility for Physicians" will be described in this paper. They are: respect others, be aware, communicate effectively, take good care of yourself, and be responsible. These Five Fundamentals are offered as a framework for the promotion of civil professional behaviour in doctors at all career stages. A variety of ideas as to how to build upon this framework and achieve this goal will be presented.

# Supporting residents in difficulty: Issues and options

M. Nayer, S. Glover Takahashi, D. Martin, L. Probyn

University of Toronto, Toronto, ON

Residents in difficulty' are those trainees unable to meet the training expectations of their residency program. The causes are many and complex but a recently completed systematic review of 10 years of residents in difficulty found that the top three areas of academic difficulty are medical expertise, communication and professionalism (Zbieranowski & Glover Takahashi, 2013). Additionally, over 80% of residents in difficulty also have wellness issues (Glover Takahashi & Edwards, 2008).

Remediation takes a large toll on the resident, the program and the PGME system. While the day to day management of remediation for 'residents in difficulty' varies with the needs of each learner, themes have emerged. This workshop addresses the common building blocks in planning a program for each learner to optimize outcome and manage the human and financial resources involved in remediation programs. These building blocks include: communication, transparency, collaboration, mentorship, teamwork, competency based education and assessment. Support of all stakeholders is central to the resident's success (e.g. the resident, the program, the program director and the faculty supervisors).

This highly interactive workshop will provide practical solutions in planning remedial learning activities for the residents in difficulty. Small groups will identify learning/teaching resources and assessment resources specific to the Communicator, Medical Expert, Collaborator and Professional roles. Using resources provided the groups will then select appropriate learning activities and assessment strategies for sample scenarios that will be provided. Large group discussion will be used to summarize the approach to the 'learner in difficulty'. The workshop will finish with a general discussion of principles and next steps for participants interested in improving the remediation process in their environment.

At the end of this workshop participants will be able to match resident needs with appropriate educational resources, identify appropriate learner support resources, and identify assessment strategies appropriate for the identified weaknesses.

## PHW-03

# Exploring our stories of transition

C. Hurst, S. Edwards

University of Toronto, Toronto, ON

Findings from recent research conducted by the Office of Resident Wellness (ORW) at the University of Toronto, as well as research in cognitive science, learning theory and the psychology of emotion, support the notion that self-regulation skills are critical components of effective clinical performance and physician well-being. Such research suggests that a well-developed repertoire of self-regulation skills can enhance our ability to successfully navigate transitions. From a self-regulation perspective, one of the greatest challenges to successful adaptation is finding the time to slow down, step back, accurately assess multiple factors, gain new perspectives and develop appropriate strategic responses to transition challenges. This workshop is designed to offer such a reflective and planning opportunity through the use of shared narratives, group discussion and individual reflection.

To establish the ground for discussion and exploration workshop facilitators first draw a psychological map of the transition experience and present a brief overview of adaptive processes and self-regulation skills relevant to managing transitions and sustaining well-being. Participants are then led through a series of exercises that invite reflection on their transition processes (past and present), and an assessment and sharing of existing skills sets and current challenges through an appreciative enquiry approach. In the final segment of the workshop, individual reflection and group discussions are carried out regarding possible strategic responses to current challenges and options for exploring the acquisition of new self-regulation behaviors.

An earlier version of the workshop has been presented to residents and staff at the University of Toronto and at the International Conference on Resident Education and the International Conference on Physician Health held in 2012. Workshop evaluation forms were completed at the end sessions. 85% of participants have consistently indicated that they were satisfied or very satisfied with the workshop. Participants most valued group discussions, having time for self-reflection, and learning mindfulness exercises and coping techniques. The present workshop has been significantly revised as our thinking and research in the area of transitions has continued to expand.

## PHW-04

# Fatigue management for optimal well-being and performance

C. Hurst, S. Edwards

University of Toronto, Toronto, ON

The National Steering Committee on Resident Duty Hours, in their 2013 report Fatigue, Risk and Excellence: Towards a Pan-Canadian Consensus on Resident Duty Hours, identified that "a comprehensive approach to minimize fatigue and fatigue-related risks should be developed and implemented in residency training in all jurisdictions in Canada". In addition to calling for the development of fatigue risk management plans, they recommended the creation of specific fatigue mitigation strategies and techniques as well as the teaching of effective self-regulation skills required to recognize and mitigate the impact of fatigue on performance.

Since 2011, the Office of Resident Wellness (ORW) at the University of Toronto has delivered over 70 workshops to 25 different postgraduate training programs incorporating a skills-based approach to teaching key concepts of physician health, well-being and performance. One of the core workshops in the series is Fatigue Management for Optimal Well-Being and Performance. The workshop draws from relevant literature within medical education, occupational health, and sleep medicine to outline current knowledge and optimal strategies for managing fatigue and accompanying states of low mood and motivation. Countermeasures and strategies for improving sleep and alertness are covered. Experiential exercises for pre-sleep relaxation rituals, approaches to working with insomnia, and a repertoire of on-call tactics are offered to participants. Participants will also have the opportunity to explore how fatigue management strategies might be developed within their work settings.

Evaluations of the workshops indicate they are well received with 86% of postgraduate participants indicating that they were satisfied or more than satisfied with the workshops and recently the ORW was asked to showcase their Fatigue Management Workshop at a Faculty Development Summit.

# Research in residency education / La recherche dans le domaine de la formation aux résidents

# Simulation in residency education / La simulation dans la formation des résidents

## RRE-01

### Data and discussion on the hot topics in PGME

S. Slade[1], S. Spadafora[2]

[1]Canadian Post-M.D. Education Registry (CAPER), Ottawa, ON, [2]University of Toronto, Toronto, ON

Postgraduate medical education shapes tomorrow's physician workforce and plays a key role in creating a health care system that meets the future needs of society. Acknowledging this formative role, it is important to create opportunities for the stewards of PGME to articulate issues, reflect on trends and plan for change. In response to this need, the Canadian Post-M.D. Education Registry (CAPER) has been gathering medical training data since 1989. Covering residency and fellowship programs at all Canadian universities, CAPER gives a long-term picture of the numbers and types of physicians moving through the post-M.D. training system. The CAPER Workshop at ICRE 2014 is an opportunity for the PGME community to discuss today's hot topics through a data lens, with a view to fostering a health care system that will meet the future needs of society.

The 2014 CAPER Workshop explores two main trends in PGME. Firstly, attention will be given to changes in length of training. The Workshop will look at how training time – from PGME entry through to completion of training – has changed for medical specialties. Factors, such as trainee characteristics, training leaves, subspecialty and fellowship training, will be examined as potential contributors to increased length of training. As a second and related topic, the Workshop will explore how PGME contributes to the "right number, mix and distribution of physicians" (FMEC PGME, 2012). Data and discussion will hone in on the numbers and types of physicians Canada trains as well as physician workforce mobility and retention. For both of these hot topics, discussion will focus on variations across jurisdictions/faculties, interpreting changes over time, and trying to gauge the likelihood of further change in the future.

## SIM-01

### KeyLIME: Top papers in simulation-based education

F. Bhanji[1], V. Naik[2]

[1]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [2]University of Ottawa, Ottawa, ON

Simulation-based education is increasing utilized in Postgraduate Medical Education. The opportunity for experiential learning in 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 two experts in simulation-based education, debating the merits of papers you simply can't miss.

# Teaching and learning in residency education / L'enseignement et l'apprentissage dans la formation des résidents

## TL-01

### Improving resident feedback skills and medicine clerk communication (IMPRESS-ME): The workshop

L. J. Melvin, K. Connolly, L. Pitre, P. Wasi

McMaster University, Hamilton, ON

Proficiency in written and verbal communication is a key competency of medical education. Instructional methods for these skills vary institutionally and juniors often gain these skills through trial and error. Residents spend significant time teaching and providing feedback to junior learners in order to improve their communication skills, yet receive little training in this role. The IMPRESS-ME study used a curriculum for clinical clerks and senior residents to facilitate teaching and retention of core communication skills.

This session is ideal for senior residents, faculty, and program directors looking for effective methods to teach communication and feedback skills at their own institution in addition to enhancing their own feedback abilities. The session is designed to equip participants with skills and tools that can be easily applied in a clinical encounter with no loss of efficiency or time. This session will use interactive video simulations of realistic clinical encounters and small group discussion to highlight where and how to deliver feedback in real-time. Assessment tools will be used in simulated exercises to familiarize the participant with use in clinical practice.

Participants will be able to discuss the key competencies that can be assessed from the verbal and written case presentations; review key features of effective verbal and written case presentations; deliver focused, effective, real-time feedback on the written and oral presentations of junior learners; and utilize tools (RIME-based encounter card and validated consultation note assessment checklist) to enhance feedback and assessment of oral and written communication skills. Furthermore, participants will be able to share techniques from the workshop at their institutions.

## TL-02

### Indigenous health case studies to develop instructional interventions

B. Lavallée[1], T. Dignan[2], C. Bourassa[3], C. Barnabe[4], D. Fréchette[2], P. Tomascik[2]

University of Manitoba, Winnipeg, MB, [2]Royal College of Physicians and Surgeons of Canada, Ottawa, ON, [3]First Nations University of Canada, Regina, SK, [4]University of Calgary, Calgary, AB

The emerging educational tool, cultural safety, was set up in 2009 by the Indigenous Physicians Association of Canada (IPAC) and the Association of Faculties of Medicine of Canada. In the same year the Royal College with IPAC developed recommendations for core curricula to promote Indigenous health in postgraduate medical education. In 2013 the Royal College released the Indigenous health values and principles statement to establish a foothold for cultural safety in practice.

Cultural safety has two components. First, it recognizes Indigenous epistemologies, sciences and the continuing impact of colonization upon the health and healing of First Nation, Métis and Inuit communities. Secondly, it advances professional and personal development through self-reflection. The first component articulates respect for Indigenous knowledge and experiences. The latter embodies the principles of self-learning in the context of dialogue with all Indigenous patients.

This workshop will assess the merits of learning and teaching culturally safe practices using instructional interventions in the digital age. It will offer a safe platform to discuss opinions about Indigenous health, whether emerging or formed, and the tools to advance it.

Physicians who apply culturally safe practices are better equipped to defy destructive behaviour catalyzed by stereotyping, challenge racism and deconstruct misinformation about Indigenous health. They are more inclined to understand the significance of upstream factors (e.g., historical legacies) and their connection to the downstream effects, like intergenerational trauma, influencing the healing of populations under threat — and do something about it.

Participants will be able to propose and discuss new educational techniques in Indigenous health and how they can be applied. The session will raise a thought provoking question; does a truly patient-centred system isolate, differentiate and analyze the unique health needs of those populations with persistent health disparities or integrate them within a system that functions, for the most part, on homogeneity?

## TL-03

## Program director survival stories

F. Ankel[1], E. Borman-Shoap[2], J.F. Latulippe[3], C. Joynt[4], J. Busari[5]

[1]Regions Hospital, St. Paul, MN, [2]University of Minnesota, Minneapolis, MN, [3]Université de Montréal, Montreal, QC, [4]University of Alberta, Edmonton, AB,  [5]Maastricht University, Maastricht

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. xplain CDM to medical students.

## TL-04

## Best practices in handover education

C. W. Little[1], M. Rayar[2], N. Sumar[3], G. Parr[4], Z. Bismilla[5], T. Coffey[6]

[1]Canadian Association of Internes and Residents, Vancouver, BC, [2]Canadian Association of Internes and Residents, Ottawa, ON, [3]Canadian Association of Internes and Residents, Calgary, AB, [4]Canadian Association of Internes and Residents, Halifax, NS, [5]The Hospital for Sick Children, Toronto, [6]University of Toronto, Toronto, ON

Handover is a complex process that serves as the medium for transferring responsibility and accountability of patient care between healthcare teams. The World Health Organization (WHO) has prioritized communication in patient care handovers as one of its High 5 Patient Safety Initiatives. Recognizing the relationship between handovers and patient care, bodies such as the WHO and Institute of Medicine have called for standardization of handover education. Despite this, a recent national survey of residents by the Canadian Association of Internes and Residents (CAIR) confirmed that few trainees receive formal training in handover.

Developing curriculum for handover education is difficult as a one size fits all models cannot be applied across specialties or institutions. Canadian residents have indicated that receiving feedback on their current handover practices would be the most useful tool in improving their current handover skills.

This workshop will review the principles of effective and efficient handover to optimize patient safety and inform participants of current best practices in this complex process. A variety of established handover tools will be evaluated in an interactive setting using multimedia technology to engage workshop participants and stimulate discussion. Following this, a small group format will be used to enable participants identify challenges in current handover practices and discuss strategies to improve handover education in their own specialties, namely; surgery, medicine and emergency medicine. Through this, participants will develop practical solutions for implementing handover education curriculum in their respective programs.

## TL-05

## Global health and residency training: Addressing physician as communicator, health advocate and manager

A. McCarthy, P. Moroz, H. MacDonnell

University of Ottawa, Ottawa, ON

Increasingly medical trainees are demanding international global health opportunities. Research shows that such opportunities provide a benefit to the individual resident trainee, but also to the trainee's healthcare system. Appropriate and successful global health experiences expand cultural competence, as well as addressing the role of the trainees as a health advocates and managers for their patients. Such expertise is increasingly needed to care for the cultural mosaic that is Canada. Many residency training programs are struggling to fulfill requests by trainees to have international opportunities and many feel under-resourced to prepare their trainees for these experiences. Given the growing interest and demand, programs need to ensure the well-being of not only their trainees but also the host community in the developing world.

At the end of this session participants will be better prepared to analyze global health opportunities and to plan training sessions to properly prepare their residents undertaking these activities. Participants will furthermore be able to evaluate their individual programs with respect to ideal resources required to train residents for global health.

This 90 minute workshop will include a brief review of the global health training landscape (Moroz), and the recently published ethics and best practice guidelines (McCarthy). Resources to assist trainees and educators will also be introduced (MacDonnell). As well, the presenters will facilitate small group sessions to discuss experiential case studies, pre-departure training, and post-elective debriefing.

The presenters will facilitate discussion related to issues for preparing and evaluating residents, and their faculties, related to international global health electives. The session will consist of case studies that address issues related to residency teaching, and particularly competency-based curriculum.

## TL-06

## KeyLIME: Top 10 papers in teaching and learning

A. E. Oswald[1], J. Busari[2]

[1]University of Alberta, Edmonton, AB, [2]Maastricht University, Maastricht

Simulation-based education is increasing utilized in Postgraduate Medical Education. The opportunity for experiential learning in 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 two experts in simulation-based education, debating the merits of papers you simply can't miss.

## TL-07

### Residency education at Stellenbosch University, South Africa: Successes and challenges in a unique setting

J. Blitz

Stellenbosch University, Cape Town

Stellenbosch University Faculty of Medicine and Health Sciences presents 24 residency programs on a geographically wide training platform. While providing training for South Africans, it both accommodates postgraduate students from the rest of the continent and is developing outreach to and collaboration with other sub-Saharan African faculties.

This was the first faculty in South Africa to start a Rural Clinical School where research is creating evidence for curricular, and teaching and learning innovations which can be considered for application to the central academic units.

The Centre for Health Professions Education provides support for medical education research and strengthens the teaching role of both residents and faculty.

Residency education is challenging in an environment which is resource-constrained, dependent on an over-burdened public health care system, against a backdrop of high academic demand and with barriers to recruitment and retention of faculty.

Examples of challenges in residency training will be presented for consideration.

## TL-08

### Integrating resource stewardship into medical education

B. M. Wong[1], W. Levinson[2]

[1]Sunnybrook Health Sciences Centre, Toronto, ON, [2]University of Toronto, Toronto, ON

There is an urgent need for physicians to advocate for appropriate use of finite healthcare resources. A number of subspecialty societies in Canada are coming together to launch the Choosing Wisely Canada campaign (April 2014). This campaign seeks to raise awareness and open a dialogue amongst providers and with patients about limiting unnecessary tests and treatments that offer little value and potential cause harm. The CanMEDS framework also recognizes the importance of resource stewardship, and lists within the Manager role a key competency "allocate finite resources appropriately". Despite this, few residency programs in Canada currently include formal training in resource stewardship. This is an important gap that needs urgent attention -- medical education has a critical role to play in training future physicians to view stewardship of finite resources as a professional obligation and equip them with the knowledge, skills and attitudes to do this effectively. Fortunately, there are examples emerging in both Canada and the United States of curricula that specifically address resource stewardship that could feasibly be adapted to the local educational context of any postgraduate training program. This workshop will engage participants in an interactive session that will introduce them to the enabling competencies that allow physicians to become effective stewards of finite healthcare resources, summarize available teaching materials that participants might consider using for their leaners, and help participants develop a strategy for incorporating resource stewardship education in their residency training programs.

## TL-09

### Beginning at the end: Creating a career development curriculum for residents

A. Punnett, M. Wilejto

SickKids Hospital, Toronto, ON

The recent publication of the Royal College's Employment Study (2013) highlights the rates of unemployment and underemployment among specialists and subspecialists in Canada. Up to 16% of recent graduates cannot find suitable employment and 31% report continuing in some sort of training to better position themselves for subsequent employment. Securing a job at the end of residency is a major source of stress for trainees during residency. Providing residents with the skills to navigate the current job market, successfully interview and then negotiate their positions is critical to making the process transparent and alleviating stress. This workshop will engage participants in the development of a longitudinal career development curriculum relevant to their own specialties and subspecialties, modeling the process with the conduct of a needs assessment and guided reflection exercise; considering different methodologies of teaching CV and letter writing, communication skills and conflict resolution; and planning career mentorship programs for trainees. Participants will have the opportunity to share best practices from their own programs and National Specialty Societies. The facilitators will share resources in the context of a case study of their local career development curriculum and participants will leave with a plan and toolkit for implementation of their own curricula.

## TL-10

### Teaching clinical decision making: A model for explaining how it works

W. Crebbin

Royal Australasian College of Surgeons, East Melbourne, VIC

As part of a Tripartite collaborative initiative during 2012-13 representatives from the Royal College of Physicians and Surgeons of Canada (RCPSC); the Royal Australasian College of Physicians (RACP); and the Royal Australasian College of Surgeons (RACS), formed a Working Group to explore ways to improve the teaching and assessment of clinical decision making (CDM). Because of the interests of the members of the group this approach expanded beyond the initial stages of diagnosis to include preparing for and during a procedure, plus a review stage which can be implemented after a key step in a procedure or at the end of the procure.

A course based on the model has been trialled in Australia, with the outcome that experienced surgeons can understand and explain their own cognitive processes, less experienced doctors - and other team members - to ask questions, and both more and less experienced proceduralists to assess the efficacy of their decision making processes.

In this workshop I will present the four stage model as a tool that will enable participants to better understand and put language around the complex, multi-layered, conscious as well as sub-conscious, thinking processes which underpin the success of any medical procedure.

In small groups participants will review a small number of real clinical cases comprising incomplete information, inherent complexity, and a sequence of multiple decision points. They will be encouraged to relate these cases to the stages of the model as well as their own CDM experiences and observations.

Clinical proceduralists will potentially learn to understand their own thinking processes and new ways to explain this process to junior doctors. Whilst Medical Educators will gain a clearer way to explain CDM to medical students.

## TL-11

### Effective writing for journals and conference abstracts: Lessons from a journal editor

F. Moss

Stewart House, London, UK

An interactive session. Participants will describe their own work in medical education or other relevant areas such as quality improvement and, with colleagues, identify key messages and lessons of interest and potential use to others. From these accounts, using a structured framework, participants will write about the key points of their work. Finally by sharing ideas and others' reflections, participants, as authors, will modify their messages and their accounts of their work and produce a first draft abstract and plan the next steps of writing about their work.

## TL-12

### Emerging concepts in medical education – What's in your NEXT curriculum!

E. Van Melle

Royal College of Physicians and Surgeons of Canada, Ottawa, ON

Currently, the 2005 CanMEDS framework is used extensively to guide curriculum development in residency education in both Canadian and international settings. The past 10 years however, have brought changes to medical practice. Consequently, the framework is being updated to ensure that the described competencies reflect the realities of present day practice across the globe. Although the revised framework will not be launched until 2015, there is an extensive process underway describing required changes. One project in particular has focused on the identification of new and emerging concepts. In this workshop participants will consider these new and emerging concepts and their potential impact on curriculum development in residency education.

# Using innovative technologies for medical education / L'utilisation de technologies innovantes en formation médicale

## TEC-01

### Bridging the digital chasm: Linking digital natives with digital immigrants

S. Aulakh, G. Luciano, M. Rosenblum, A. Stepczynski, A. Atreya

Baystate Health, Springfield, MA

The rapid pace of technological innovation has created a digital chasm between educators and learners. Most educators completed their training in the pre-internet era and have slowly immigrated to a new world of connectivity. These educators (digital immigrants) are now responsible for teaching and linking with digitally savvy learners (digital natives). Digital immigrants need to be aware of their assumptions about teaching and learning to appreciate this new culture and develop the competence to teach and communicate with digital natives effectively.

Bringing technology into our internal medicine residency program has enhanced access to educational resources, improved the exchange of ideas and facilitated social networking. Utilizing technology has also improved team-based communication and quality of care benchmarks. Challenges in the use and perception of technology can create barriers to an optimal learning environment. However, failing to embrace technological advances is not an option in modern education or healthcare.

The focus of this workshop is to explore the cultural differences between educators and learners created by rapid technologic advancement.

In this workshop:

We will describe the digital native, the digital immigrant and the concept of digital cultural competency. We will explore our preconceived notions of digital natives and gain understanding of this demographic.

We will explore how the learning environment has changed due to advances in technology. We will discuss the impact of the differences in digital culture between the teacher and the learner, the expectations of digital natives and the adaptations digital immigrants need to make to teach effectively.

We will describe the experiences at a large academic health center in the use of technology to improve our residency program. We will discuss successes and challenges in implementing various tools to improve education, recruitment and patient care, as well as the technological support and cost to implement this media.

## TEC-02

### Selecting the ideal electronic portfolio platform for postgraduate medical education residency programs

L. K. Sonnenberg, P. Von Hauff, M. Karstad, J. Ogilvie

University of Alberta, Edmonton, AB

Educational portfolios were first introduced into medical education over fifteen years ago.  Portfolios have the ability to help learners organize and prioritize their learning, building and reflecting on what has already been experienced.   For Medical Educators, however, the question no longer is, "should we use educational portfolios", but rather, "how do we implement their use across the curriculum"?  Since we are providing residency education in the digital age, integration of electronic portfolios (e-portfolios) through various applications should be common practice, but knowing how to select an e-portfolio platform can be overwhelming.

This session will present the 12 essential features needed in an e-portfolio, which are: (1) Customization/ Functionality, (2) Sharing, (3) Scalability, (4) Incorporation of Feedback by Mentor/Faculty, (5) Privacy, (6) Personalization by Learner, (7) Mobile Accessibility, (8) Sustainability, (9) Portability, (10) Support, (11) Cost, and (12) Ease of Use, including Navigation and Usability.

The e-portfolio platforms of Google Sites, Moodle and Blogger will be discussed, highlighting their particular strengths and weaknesses as sample platforms.  In order to learn from the shared knowledge of the group, small group discussions, based on the participants' personal experiences with various platforms and the ways in which e-portfolios are currently used in Post Graduate Medical Education (PGME) and other educational settings, will be explored.

Finally, this workshop will guide the participant through Google Sites as an e-portfolio platform, demonstrating how to create an e-portfolio with this application and how to easily share templates between Departments, Programs and Universities, in the spirit of collaboration.

## TEC-03

### Building apps on a shoestring budget: The myths of app building

N. Bugden, J. Maniate

St. Joseph's Health Centre, Toronto, ON

In summer 2013, the Department of Medical Education & Scholarship took on the initiative of developing St. Joseph's Health Centre's (SJHC) first ever mobile app. Our session will present the theory, process, and feedback that was used to develop our mobile app. The inspiration for the mobile came about through the need to develop up-to-date resources in the palm of our trainees' hand.

The session will utilize Kern's Six Steps for Curriculum Development as a framework for how to think about and plan for developing a mobile app. Kern's framework has been widely adapted in medical education and focuses on a general needs assessment, needs assessment of the learners, producing goals and objectives, developing educational strategies, implementation, and evaluation.

Following this introduction we will work through a conceptual model that we have implemented at SJHC based on Kern's framework. This will include defining the purpose of a mobile app as well as breaking down the different available technologies and systems that can be used to create mobile apps. We will also develop an understanding of the hardware and software associated with developing a mobile app. This will all culminate to the demonstration of building a basic mobile app for way finding and information. The session will discuss future directions and possibilities when developing mobile apps as well as the limits when using pre-manufactured technologies. This will include, but is not limited to the possibility of creating customizable real-time information for users.

## TEC-04

# Information technology primer for the clinician educator

T. Tang[1], R. Cavalcanti[2], T. Jamieson[3]

[1]University of Toronto, Toronto, ON, [2]Toronto Western Hospital, Toronto, ON, [3]St. Michael's Hospital, Toronto, ON

Information technology (IT) has become ubiquitous in everyday life, and can be successfully leveraged in medical education, improving efficiency and enhancing educational outcomes. IT has many applications in medical education including administration, scheduling, coordination, evaluation, and content delivery for many CANMEDS roles. Data gathered through medical education projects involving IT can also aid in education research. The general advances in IT (e.g the Web, social media, mobile computing, online collaboration, open source concepts, security) can be harnessed by clinician educators to engage learners in innovative and interactive ways. However, most clinician educators have limited training in IT. As in other fields, the implementation of a educational IT (EIT) projects can therefore be daunting, requiring collaboration with IT professionals who have limited understanding of medical education and clinical medicine.

This workshop aims to bridge this gap by empowering clinician educators to address educational needs using IT, by providing an approach to EIT concepts, and how they relate to medical education projects. The session will cover: selecting the appropriate technology and exploring its limitations; understanding hardware/software/data/connectivity/security options and requirements; and how to effectively communicate with IT professionals about the needs of a project. Five key factors essential to successful project implementation will be shared.

The initial large group session will cover an introduction to basic concepts in IT based on previous examples and challenges of implementing medical EIT. This is followed by small group activities in which participants will work collaboratively on a chosen project (can be self-selected). Activities will include three main steps: First a hands-on exploration of established Med Ed IT initiatives; this will be followed by small group discussions on the participants chosen projects, applying project implementation principles and EIT concepts; lastly a role-play of communicating project requirements to an IT professional will illustrate challenges and strategies in collaboration.

## TEC-05

# Digital curation: How and why?

A. M. Cunningham

Cardiff University, Cardiff

Learners can feel overwhelmed with the rising amount of publicly available content which is free to access online. Digital curation sites allow educators to select the online content which they see as most relevant to their learners. Importantly, learners can also be engaged as co-curators and use these tools to collaborate with their peers and faculty. It is not just about producing a list of weblinks but adding value by explaining to learners what is particularly good about the resource and what the weaknesses might be.

This session will share the lessons learned from a project in Cardiff University, UK, to embed digital curation within a new case-based curriculum. How did we engage staff and students? How did we deal with uncertainties around copyright and sustainability? These and other areas will be addressed.

But mainly we will be focusing on the experience and practice of participants. In small groups we will discuss how we currently manage online content. We will then sign up to an online digital curation platform and begin co-curating resources.

By the end of the session participants will be able to champion digital curation to their peers and learners. They will understand how digital curation could fit into current curriculums and be used in work-placed learning settings.

**TEC-06**

## #MedEd & #SoMe 101: An introduction to Twitter

A. Jalali[1], E. Purdy[2], I. Pereira[2]

[1]University of Ottawa, Ottawa, ON, [2]Queen's University, Kingston, ON

Medical education has seen significant progress and innovation over the last decade. Today's students and residents use a variety of technological tools in their everyday life and for their education. One example is the social networking tools such as Twitter, which has become increasingly popular. This workshop will help attendees learn about benefits, perils and professional behavior regarding Twitter.

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