**Accepted Abstracts for Oral and Poster Presentation for OSMERC 2020**

**Data source prioritization among novice raters in competence committee decision making**

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**Introduction**

Competence committees (CCs) make judgments about trainees’ progression towards competence using different data sources. However, the relative weighting of these data sources remains unclear, making member training and data curation a challenge. This study investigated data source prioritization in CC decision making using a sample of novice raters.

**Methods**

Fifty-eight undergraduate students were presented with 32 simulated resident portfolios and made decisions about whether or not to promote each resident based on their portfolio. Each portfolio was composed of five data sources indicating strong or weak performance in various combinations: numeric entrustable professional activity (EPA) data, narrative EPA data, numeric multisource feedback (MSF) data, narrative MSF data, and numeric examination data. To determine the relative weight of each source, the promotion rate of each resident was compared with the positive control portfolio, where all data sources were strong.

**Results**

Participants weighted EPA and MSF numeric scores more heavily than EPA and MSF narrative comments. Only 29% of participants promoted a resident whose EPA and MSF numeric scores were weak but whose other data indicated strong performance. Conversely, 90% of participants chose to promote a resident with a similar portfolio except with weak narrative EPA and MSF data.

**Conclusion**

Novice raters prioritized numeric data over narrative comments, potentially reflecting their perceived “objectivity” and ease of interpretation. This may have implications for understanding the decision-making processes of new CC members and member training, although further study using a sample of clinicians is required in order to build on these exploratory findings.

**Health Artificial Intelligence Ethics in Medical Education**

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As Artificial Intelligence (AI) continues to be used in medicine, and ethical issues emerge, there is a need to teach health AI ethics in medical schools. As future leaders in health care, medical students should have an ethical appreciation of the challenges that health AI brings. We have developed a case-based curriculum based on real-life events that addresses the ethical issues of informed consent, bias, safety, transparency, trust, data privacy, and allocation. In this presentation, we will outline the key features of this curriculum, including the definition of health AI ethics, a foundation in ethical theory, a timeline of key developments in health AI ethics, an introduction to the current health AI landscape, and a discussion of health AI stakeholders. The focus of the presentation will be on a discussion of recent events in health AI that would make for useful case studies in medical schools.

**Exploring Medical Students’ Experiences with an Innovative Curriculum Supplement for Teaching Gross Anatomy**

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**Background**

Graduating medical students’ knowledge of gross anatomy is clinically insufficient, creating an educational imperative to maximize the efficacy of anatomy teaching. Gross anatomy is best taught using a multi-modal approach, in which sufficient preparation for cadaver labs is critically important and currently inadequate. 3D-Visualization Software (3DVS) is a powerful but underutilized resource in Undergraduate Medical Education (UGME). Thus, developing a method to deliver gross anatomy teaching via 3DVS that is well-received by students may improve UGME anatomy educational outcomes.

**Hypothesis**

Teaching gross anatomy via a lecture-style presentation employing guided instruction of 3DVS constitutes a novel teaching method that may uniquely benefit medical students’ preparation for cadaver labs.

**Methods**

We created a prototype program that operates in conjunction with a commercially available 3DVS, providing additional functionality by allowing the instructor to guide students through a ‘fly-by’ of digitally dissected anatomical structures. Using this approach, six modules that paralleled curricular cadaver lab content were created and delivered to 1st year medical students at Queen’s University, during optional lunch-time sessions. Pre- and post-surveys explored the value of the sessions across a number of measures.

**Preliminary Results**

All (n=25) students reported that the sessions were helpful for learning anatomical structures. Most students strongly agreed that the sessions helped preparation for cadaver labs, and understanding of 3D relationships between structures. 9/10 students recommended the sessions to future 1st-year medical students. Narrative comments included: “seeing it in 3D, in relation to everything else made the lab go more smoothly” and “[helpful to] gain exposure to 3D visualization of structures when cadaver time is so limited”.

**Discussion**

Providing pre-programmed but real-time instructor-guided exploration of curated 3D content represents a novel method for teaching gross anatomy that exploits the potential of 3DVS. Incorporating this novel teaching method may provide a meaningful supplement to current UGME anatomy curricula.

**A brief guideline on teaching ophthalmology to medical students in a clinical setting**

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University Health Network

For most Canadian physicians, the only exposure they will ever get to clinical ophthalmology is during medical school. Unfortunately, the ophthalmology component of the undergraduate medical curriculum is limited and on the decline. Given that compared to other specialties, learning clinical ophthalmology requires more hands-on skills development (such as learning how to use a slit-lamp), the short but valuable time must be optimized to provide foundational knowledge to all medical learners. There are many barriers that make the teaching experience either difficult or ineffective for physicians and students. Firstly, the lack of exposure to ophthalmology education steepens the learning curve students face. Moreover, the immense practical and technical skills comprising this specialty demand meticulous practice to learn and preserve knowledge, instead of the more hands-off, theoretical approaches that other specialties feature. Lastly, unfavourable clinical environments in ophthalmology, often characterized by high patient volumes, mitigate the efficacy of teaching and learning by restricting time for teaching, providing feedback, skills observation, and general orientation to the clinic. So, what are the impactful behaviors and strategies that ophthalmologists should emulate to optimize the learning environment? Here are three primary principles: 1. Orientation and Goal Setting 2. Clinical Immersion 3. Knowledge Synthesis Overall, ophthalmology can be a daunting field for many medical students. The medical school curriculum is unable to entirely address the gaps in learning that our students have. Therefore, it is up to clinicians to provide the foundational knowledge of clinical ophthalmology to our students to develop their skills and acquire a suitable level of competence. To do this, we need effective teachers. The principles discussed in this article are a core guide on how to teach ophthalmology, but ultimately, it is up to each ophthalmologist to hone their teaching gestalt and recognize that every great surgeon must be a great teacher.

**Observing others suture: Do novices benefit from observing errors?**

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**Introduction/Background**

Trainees spend a large portion of their time observing others, but the value of observing imperfect performances is unclear. Evidence suggests that observation of error-free performances provides learners with a correct guide for performing skills, while observing errors helps learners detect and then correct errors in their own performances.

**Hypothesis/Question**

The research question was: Does observing errors improve suturing performance because it makes individuals better at detecting errors? The hypothesis was that participants who observe performances containing a few errors will be better at suturing and rating performances, compared to those who observe performances containing no or many errors.

**Methods**

Undergraduate students observed a video of an expert performing three simple interrupted sutures, and then attempted the task. Participants then observed and rated an expert, intermediate, or one of two novices performing the task. One novice imitated the expert by performing a shortcut (novice-shortcut), while the other novice performed the task without the shortcut (novice-authentic). Participants attempted the task a second time, observing the same type of performance as previously, and then attempted the task a third time.

**Results**

The influence of observed performance type on participants’ suturing performance and performance rating ability were explored through two-way mixed ANOVAs. Task performance of participants who observed the expert, intermediate, and novice-authentic performances improved overall (F(2,116)=28.18, p<.001). Further, those who observed the expert and intermediate performances were significantly more accurate at rating performance compared with those who observed the novice performances (F(1,58)=18.71, p<.001).
 **Discussion/Conclusions**
Observing an expert, intermediate, or authentic novice led to improvements in performance, while observation of a novice performing a shortcut did not. Observing many errors did not help learners recognize good performances. When trainees learn novel tasks, we suggest they observe expert and intermediate performances (i.e., surgeons, fellows, senior trainees) to learn a correct guide for performance.

**The role of gender in the decision to pursue a surgical career: Perspectives and experiences from two academic centres**

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**Background**

Previous literature on gender equity in surgery has explored the underrepresentation of women in surgery. However, this research has often limited discussion by considering only the perspectives and experiences of women who have selected a career in surgery. Here, we use a qualitative methodology and a sample of women and men at various career stages to identify factors that influence an individual’s decision to pursue (or not pursue) a surgical career. We also explore the roles that gender plays in this process.

**Methods**

We audio-recorded and transcribed semi-structured interviews conducted with 12 women and 12 men at two academic centres in Ontario, Canada. Participants ranged in their level of training from medical students to residents to staff surgeons. We used Braun and Clarke’s six-step approach to thematic analysis to analyze the data, maintaining trustworthiness and credibility by employing strategies including reflexivity and participant input.

**Results**

Our findings suggested that non-gender-based factors such as characteristics inherent to surgery and early exposure and experiences served as primary motivators to pursue a surgical career. Gender-based factors were not necessarily primary motivators; however, perceived challenges around the surgical lifestyle and experiences with sexual harassment and discrimination could limit participants’ interest in a surgical career.

**Conclusions**

Our findings on non-gender-based factors suggest that surgical programs should provide mentorship and early experiences in the operating room to undecided applicants. Although gender-based factors may not drive individuals to a surgical career, they can serve as deterrents to surgery by contributing to gender inequity. This indicates a need for policy change promoting work-life integration and education to target sexual harassment and discrimination.

**Finding Flow: A Systematic Review on Cognitive Flow in Healthcare**

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**Background**

Cognitive flow is a state in which individuals experience heightened awareness, performance, and reward. Although this state has been deeply explored and applied in elite sport and psychology, less is known about flow states in healthcare settings. This systematic review sought to summarize the information currently available on the phenomenon of flow in healthcare and to identify gaps in knowledge on this concept.

**Methods**

A systematic search using keywords related to cognitive flow, positive psychology, the zone, healthcare, and clinical practice was conducted. Two independent reviewers screened all articles and extracted data pertaining to study characteristics, study design, and psychometric properties. Data pertaining to discipline and salient Results were noted.

**Results**

4834 articles were initially identified; after duplicate removal, 4824 remained. 207 articles were included in full-text review after title and abstract screening. Overall, we found a paucity of literature on flow in healthcare settings. Many articles focused on workplace engagement and enjoyment. Common themes included the potential impacts of engaged and disengaged workers in healthcare, prevalence of burnout and stress in healthcare, the importance of work environment on work engagement, and the benefits of self-awareness and mindfulness in both work and learning.

**Conclusion**

Understanding flow states in healthcare may lead to new avenues for combating burnout, enhancing career satisfaction, and promoting wellness among providers. Future studies are needed to more deeply understand how flow is experienced in clinical settings, and how we might tailor training to help students achieve flow.

**Teaching medical students political advocacy skills through experiential learning: lessons from the 2019 Canadian Federation of Medical Students (CFMS) Day of Action**

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**Background/Purpose**

Understanding the impact of policy on health, physicians are advocates for both individual patients but the communities they serve. It is challenging to effectively teach medical students advocacy through didactic lectures. Experiential learning is an increasingly utilized pedagogical tool to teach skills that are difficult to acquire in the classroom. We set out to determine whether experiential learning is an effective strategy in teaching advocacy skills for medical students.

**Methods**

We conducted a mixed-Methods study of medical students participating in the 2019 CFMS Day of Action, where students met with policymakers in Ottawa to advocate for healthcare policy change. Participants completed a modified Social Issues Advocacy Scale questionnaire prior and following Day of Action. A select number of participants also participated in semi-structured interviews, which were transcribed and analyzed using a grounded theory approach.

**Results**

Questionnaires were completed by 33/68 students (48.5%) prior to Day of Action and 27/68 (39.7%) following. Overall, participants scored 78.5 (out of 100) on the scale prior to Day of Action participation and 87.0 following (p = 0.0035), indicating increased political awareness and confidence in advocacy skills. This was confirmed in our analysis of individual student interview transcripts, where themes of increased understanding of political advocacy along with improved competence and confidence in advocacy skills were identified.

**Conclusions**

Our Results support the notion that experiential learning can be an effective means of teaching advocacy skills for medical students. Medical educators teaching advocacy should consider experiential learning as a supplement or alternative to in-classroom approaches for health advocacy training.

**Service-learning Curriculum Design and Implementation at the University of Toronto Faculty of Medicine**

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Community service-learning is an integral component of the undergraduate medical experience, as it provides students with the opportunity to respond to and address societal issues. Students at the University of Toronto, Faculty of Medicine have traditionally participated in a service-learning curriculum that required them to choose placement opportunities from a centrally developed catalogue of options. As the faculty recognizes that medical students must astutely understand social and physical determinants of health, they have introduced a new service-learning model which optimizes community immersion and longitudinal relationships. The mandatory Health in Community curriculum, within which the service-learning placement is situated, was re-designed under the guidance of long-standing community partners, community-engaged physicians, and academics. The new curriculum centralizes the relationship between faculty tutors and community organizations, who act as co-educators for the medical students, with tutors serving as the primary link to community organizations. Ultimately, students will develop a two-year longitudinal service-learning experience that will be more impactful to their development as clinicians than prior educational models. Community partners will develop deeper relationships to the institution, as sustainable connections are built with committed faculty members. The University of Toronto’s Faculty of Medicine is the first Canadian medical institution to implement this innovative curricular model, which reflects the institution’s unwavering dedication to social responsibility and equity.

**Global Health and Rehabilitation Education in Canada: A Qualitative Analysis of Experiences and Perspectives**

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**Introduction**

Professional healthcare curricula emphasizes clinical reasoning. Three contemporary trends are noteworthy to consider. First, healthcare services are increasingly tailored to be patient-centered, requiring knowledge of sociocultural contexts. Second, diseases are becoming increasingly chronic, highlighting the role of rehabilitation professionals in advocating for and optimizing the quality of life of patients. Third, globalization plays a considerable role in the presentation of disease and disability and access to healthcare services. These trends along with the dearth of research examining Global Health (GH) content in clinical curricula highlight the need to examine existing approaches, gaps, and opportunities for GH to be integrated into rehabilitation curricula.

**Objective/Question**

The aim of the study consisted of conceptualizing how Canadian Occupational and Physiotherapy professors understand GH in their professional practices, teachings and at the curricular level.

**Methods**

The project followed a qualitative design. Structured interviews were conducted with OTPT professors (n=12). A thematic analysis was performed using an inductive approach to describe professors’ perspectives around GH.

**Results**

A central finding of our study was that GH broadens the clinical training of students by encouraging a holistic ‘clinical toolbox’ via themes of professional development, cultural competency and a sense of global citizenship. However, two key obstacles were seen to hinder GH education: 1- GH was seen as being commonsensical by students in comparison to clinical topics, and 2- was described as being implicitly present in course content due to the ambiguities of what GH entails as a term and an overarching field.

**Conclusion**

This is the first study that assesses the representation and value of GH in rehabilitation education. The current Results highlight the need to uncover the scope and underpinnings of GH by using a mixture of research methodologies, considering the positive value of GH attributed by professors to the training of our future healthcare workforce.

**Evaluation of dermatology e-modules for continuing medical education in family medicine**

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**Background**

Dermatologic presentations account for a significant portion of family practice visits. Family physicians are faced with managing complex skin disorders in addition to their broad scope of practice. Furthermore, Canadian family medicine residency is limited to two years, and dermatology training time is not standardized. Therefore, providers could benefit from supplemental training via user-friendly resources such as e-modules.
 **Objective**

To create and evaluate the effectiveness of e-modules in teaching family medicine residents and physicians to recognize and manage common dermatologic presentations.

**Methods**

A retrospective chart review from one provider’s Ontario Telemedicine Network (OTN) consults was conducted to determine the top five reasons for dermatology referrals. Next, three e-modules were developed, with the goal of meeting the College of Family Physicians of Canada (CFPC) Exam Objectives on Skin Disorders by discussing morphology, differentials, and management. Pre- and post-tests for each e-module, and a demographic survey on stage of training and previous experience in dermatology were created. Recruitment was via convenience sample at Women’s College Hospital by email or personal invitation to family physicians and residents.

**Results**

Retrospective chart review of 442 dermatologic consults via OTN between September 17th, 2017 to December 21st, 2018 demonstrated the top five reasons for referral were seborrheic keratoses (9.4%); dermatitis (7.4%); non-melanoma skin cancer (6.8%); atopic dermatitis (6.1%), and benign nevi (4.5%). E-modules were developed for benign, malignant, and inflammatory lesions. Pre- and post-test scores will be analyzed using repeated measures t-test. We expect an increase in scores after completion of e-modules.

**Discussion**

E-modules will be submitted to CFPC for their Continuing Professional Development program. They can also be a standardized source of information for all Canadian medical trainees to access freely. With improved support and training, family physicians can accurately diagnose and appropriately manage patients, and importantly, reduce wait times and worry for patients.

**Exploring the impact of the Surgical Exploration and Discovery (SEAD) Program on medical students’ perceptions of gender biases in surgery: a mixed-method evaluation**

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**Objective**

The number of female surgeons is rising and several factors may play a role. The objective of the study is to assess the role of the Surgical Exploration and Discovery (SEAD) program on surgical interest and gender biases in surgery.

**Methods**

Students’ gender biases in surgery were assessed using a modified version of the Gender-Bias in Medical Education Scale (GBMES) administered pre- and post-SEAD. Mean difference for each item pre- and post-SEAD was calculated and differences between SEAD and non-SEAD participants as well as between male and female SEAD participants were analyzed using student’s t-test. Students’ free-text responses were qualitatively assessed to further determine experiences and attitudes regarding gender bias in surgery.

**Results**

Levels of interest in surgery did not significantly change between groups (P = 0.325) before and after SEAD. However, program participants had significant reductions in the strength of the following beliefs compared to controls: “Surgery is male-dominated”, “Medical studies are mainly done in males”, “Gender discrimination is more pronounce in surgery than other medical professions”, and “Consideration of my gender is an important factor in whether or not to pursue surgery as a career” (P <0.05). Stratified analysis revealed that the significance of these reductions were owing to female participants. Qualitative analysis revealed variable attitudes and experiences regarding gender biases in surgery.

**Conclusion**

Early surgical exposure through SEAD reduces gender bias in surgery, particularly in female medical students.

**The erosion of ambiguity tolerance and sustainment of perfectionism in undergraduate Medical training: A study of clerkship training effects.**

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**Background/Objective**

Medicine is a field that is simultaneously factual and ambiguous. While studies have examined medical trainees’ tolerance of ambiguity (TOA), the extent to which TOA is affected by clinical experiences and its association with other psychological factors such as perfectionism is unknown. Thus, the purpose of this study is to test the change in self-reported levels of TOA and perfectionism throughout clinical experience.

**Methods**

This was a longitudinal cohort study:175 Students in the first and last 12 weeks of their 3rd year comprising of 6 core rotations were invited to participate in an online anonymous survey. The survey comprised of demographic information along with published and validated TOA and perfectionism scales. Tolerance of Ambiguity in Medical Students and Doctors (TAMSAD) (Hanckock et al. 2015) and The Big Three perfectionism scale-short form (Feher et al. 2019) were used to assess TOA and perfectionism respectively. Pre-Post mean comparisons and correlations were used to detect the effect of clerkship on TOA, perfectionism and their relationship.

**Results**

51 students responded to pre-survey, 62 responded to post-survey. Clerkship was found to decrease TOA (p<0.00) with pre-TOA scores at m=59.57 and post TOA at m=43.89. There was a moderate inverse correlation between TOA and perfectionism before clerkship (r=0.32) that increased slightly after clerkship (r=0.39). Clerkship did not affect levels of perfectionism (P>0.05).

**Conclusion**

Clerkship does appear to influence student’s tolerance of ambiguity. However, perfectionism remained unchanged. Further work needs to be done exploring tailoring educational interventions to extremes of TOA and perfectionism.

**A situational analysis of pediatric ophthalomology training needs in Ethiopia**

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**Background**

Postgraduate medical training at Addis Ababa University (AAU) has been enhanced through support from University of Toronto (U of T) through the Toronto Addis Ababa Academic Collaboration (TAAAC). There is present need for improved training to address childhood blindness in Ethiopia. Our aim was to assess the feasibility of implementing a pediatric ophthalmology fellowship at AAU supported by U of T, modeled on the TAAAC.

**Methods**

A situational analysis was conducted at Menelik II, the teaching hospital providing pediatric ophthalmology services in Addis Ababa. Staff expertise, clinical, patient and educational resources were reviewed and compared to International Council of Ophthalmology fellowship guidelines. Local training needs were evaluated. A strategic working meeting facilitated program specification.

**Results**

A two-year fellowship program incorporating research, cumulative faculty feedback, case log review, and formal examination as quality indicators was proposed. Anterior segment, retinoblastoma, strabismus, and retinopathy of prematurity were identified as priority areas requiring support. Learning outcomes were deemed feasible given the high volume of complex cases, qualified staff supervision and sufficient equipment. Telemedicine, development of a larger eye hospital, and partnerships to support equipment acquisition and maintenance were identified as strategies to manage implementation barriers.

**Conclusion**

The on-site needs assessment demonstrated feasibility in implementing a pediatric ophthalmology fellowship, the first of its kind in Eastern Africa, and provided a way forward for its development. However, strategic partnerships may be crucial to ensure resource sustainability. Academic partnership between Canada and Ethiopia is an exciting avenue for initiatives to strengthen cultural competencies in both nations.

**Collaborative initiation of the first pediatric ophthalmology fellowship in Eastern Africa**

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2. The Hospital for Sick Children

**Background**

Postgraduate medical training at Addis Ababa University (AAU) has been enhanced through support from University of Toronto and the Toronto Addis Ababa Academic Collaboration (TAAAC). There is need for improved training to address the high burden of visual impairments among children in Ethiopia. A situational analysis conducted at Menelik II, AAU’s teaching hospital, demonstrated feasibility in implementing a pediatric ophthalmology fellowship, the first of its kind in Eastern Africa. Our aim was to develop curriculum following International Council of Ophthalmology’s guidelines and modeled on the TAAAC.

**Summary of Innovation**

A two-year fellowship program incorporating research, faculty feedback, and formal examination as quality indicators was proposed. Anterior segment, retinoblastoma, strabismus, and retinopathy of prematurity were identified as priority areas requiring support. Modules were designed to have in-person training by SickKids Ophthalmologists, supplemented by online tutorials. A secure platform for online content was created with OneDrive to house module content, journal libraries, and equipment tutorials. Pediatric-specific ophthalmology equipment was purchased and a strong tele-education link between Menelik II and SickKids developed.

**Conclusion**

The online component allows trainees to learn at their own pace and refer back to information as needed; combined with in-person training to build capacity, provision of equipment difficult to source locally and education in its care and maintenance supports longevity in practice. Successful tele-education facilitates transmission of weekly rounds for fellows at SickKids to Ethiopia, allowing real-time teaching and recording of lectures to OneDrive as additional resources. Continuous feedback from all stakeholders is incorporated as the program continues to develop.

**The Making of an MFM Specialist: How defining competency can improve fellowship training in Maternal Fetal Medicine**

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**Introduction**

Residency programs are increasingly adopting competency based medical education (CBME). To prepare for the transition to CBME in the long-term and to improve training curricula in the short-term, it is essential to understand the concept of competence within individual programs. This study aims to better understand how competence is defined within the Maternal-Fetal Medicine (MFM) Fellowship Program at the University of Toronto to aid in achieving these ends for MFM training locally and across Canada.

**Methods**

This was a qualitative study that employed grounded theory methodology and data collection through semi-structured interviews of trainees in the MFM Fellowship Program and faculty from the MFM Division at the University of Toronto. The interview guide was developed based on a document analysis of current RCPSC Objectives of Training and program curriculum documents. Iterative data collection and analysis by various coding processes were used to develop a sensitizing concept of the construct of competence within the MFM Fellowship Program.

**Results**

Competence is characterized by increasing independence in the ability to fulfill the perceived roles of an MFM specialist. Interview data revealed that “Skills and Attributes”, (ie. expert knowledge, technical skills and being a lifelong learner) were major components of how the participants conceptualized competence. Furthermore this conceptualization was through different frameworks, including competence being a continuously evolving construct or being experience based. These themes were consistent with those found in the document analysis. Formal assessment criteria demonstrate the program's priorities but are not the sole inputs used by trainees or faculty to understand an individual's level of competence.

**Conclusion**

The concept of competence is evolving. Future research will focus on the refinement of tools that better assess the competencies that are of increasing importance to the MFM specialist.

**An undergraduate medical education curriculum on environmental health**

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Climate change has been deemed the greatest health threat of the 21st century. Clinicians are already dealing with climate-related illnesses in their daily practices, with many feeling unprepared to manage them. In response to this changing reality, the United Nations 2015 Paris Agreement gave way to the Health Educator’s Climate Commitment, a pledge to ensure the next generation of healthcare professionals is prepared to deal with the health impacts of climate change. Despite this, there is currently little to no dedicated environmental health curriculum in medical education in Canada. The Canadian Federation of Medical Students, through its Health and Environment Adaptive Response Task Force, has put forth an urgent call to medical schools to implement a dedicated curriculum by 2020. As such, we propose an environmental health curriculum to be integrated into McGill University’s undergraduate medical program. We suggest a needs assessment framework, learning outcomes, as well as a curriculum overview with educational strategies and assessment Methods intended to facilitate implementation. Beyond that, we developed a logic model to guide program integration and evaluation. While the curriculum was developed with McGill's program in mind, it could be easily applied to other undergraduate medical programs as well. Climate change is a public health emergency and medical education institutions have a responsibility to treat it as such.

**Improving pre-clerkship experience: undergraduate medical education (cmp), uOttawa**

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**Introduction / Background**

For medical students, the transition from pre-clerkship to clerkship is a key period in undergraduate medical studies. Thus, at the University of Ottawa (uOttawa), it would be essential to regularly review the curriculum, especially the integration unit (last unit of pre-clerkship) and the pre-clerkship elective (first unit of clerkship).

**Hypothesis / Question**

Our research project aimed to identify key concepts to improve preparation for clerkship.

**Methods**

A mapping of the uOttawa medical curriculum was made by comparison to other Canadian medical schools. A structured literature review was completed in order to highlight the theoretical concepts which could serve as a basis for curriculum modifications allowing better integration of knowledge.

**Results**

At uOttawa, the integration unit is mainly divided into educational courses (54%), practical activities (19%) and workshops (21%). For the pre-clerkship elective, 22% are allocated to didactic courses, 29% to workshops and 48% to practice in hospitals. Of the nine Canadian schools analyzed, learning activities included: instructional courses, workshops, case-based learning, clinical experiences and self-study.

**Discussion / Conclusion**

To improve preparation for clerkship, specific modifications are suggested by prioritizing active learning; by putting cognitive integration first in the classroom; by introducing the more complex subjects at the end of the integration unit according to a life cycle approach as well as associated with a session of clinical skills development with each learning session by case.

**Online Anesthesia Quick Reference Guide (QRG) for University of Toronto Medical Students**

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**Introduction**

Just-in-time learning is an emerging concept in medical education in which the goal is to provide learners with timely and focused teaching. This type of learning relies on accessible and targeted learning tools and has typically been delivered through e-learning. The use of smartphones to deliver educational content allows for easy accessibility in the clinical setting. To provide medical students going through their anesthesia rotation with a resource to facilitate just-in-time learning, the University of Toronto’s Anesthesia Department recently developed an online quick reference guide (QRG), which is easily accessible via smartphones and computers. The QRG provides a concise summary of the major topics found in the current textbook, and is organized to facilitate easy access to topics. As the QRG is a new initiative, the aim of this study is to assess students’ response.

**Methods**

Third-year medical students starting their anesthesia clerkship rotations were sent an email before their rotation informing them of the QRG. After their rotation, the students were sent an online survey to assess their usage and thoughts regarding the resource.

**Results**

The majority of students stated that they were satisfied with the content of the QRG, and found it easy to navigate. Students enjoyed the concise nature of the resource, which seemed to be convenient to review on-the-go and for the exam. Most students thought that the resource made their studying more efficient. However, many of the students were unaware of the resource. Of the students who were aware of the QRG, most used it several times.

**Discussion**

Overall, feedback by the students on the QRG was positive. In order for any resource to be useful though, learners need to be aware of it. As such, future plans are to promote the resource more to students, and to continue to obtain feedback.

**The Influence of Income on Medical School AdmisACsions in Canada: A Retrospective Cohort Study**

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Michael G. Degroote school of medicine

**Background**

The socioeconomic status of applicants to Canadian medical schools has been understudied in the past two decades. Institutional efforts have been made to address the lack of socioeconomic diversity across Canada during this time. We investigated the income
characteristics of medical school applicants, as well as the relationship between applicant income and offer of admission, to characterize the current state of socioeconomic diversity in medical admissions.

**Methods**

We conducted a retrospective cohort study on 26,120 applicants at one Ontario
medical school from 2013 to 2018. Characteristics of applicants who were offered admission
were compared to the general population and applicants not offered admission. Regression
analyses were used to investigate the association between median total neighborhood income and successful admission, as well as performance on admission testing criteria, including: the MMI, CASPer, GPA, and the MCAT.

**Results**

The median total neighborhood income for medical school applicants was $98,816,
which was approximately $28,480 higher than the Canadian general population. Those not
admitted to the medical school had a median total neighborhood income of $98,304 compared to $105,984 for those offered admission (p<0.001). This trend was seen in every province and
territory in Canada. Median total neighborhood income was an independent predictor of
admission; applicants in the >75th percentile income group had 54% increased odds of being
offered admission when compared to applicants in the <25th percentile. Performance on the
MCAT, MMI and CASPer were moderately associated with income; applicants’ GPAs were not
associated with income.

**Conclusion**

Medical school applicants are from higher economic strata compared to the
general population. Despite already representing a high economic stratum, a higher median total neighborhood income relative to other applicants was associated with an offer of admission.

**Comparing the New Ottawa Emergency Department Shift Observation Tool (O-EDShOT) to the Old Daily Encounter Card (DEC) – Which is Better for Emergency Medicine Trainee Assessment?**

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**Background**

Daily encounter cards (DECs) were previously used in Ottawa’s Emergency Medicine (EM) program to assess resident performance during an emergency department (ED) shift 1. However, recent evidence suggests that the quality of assessments documented on DECs is poor. In response, the Ottawa Emergency Department Shift Observation Tool (O-EDShOT) was developed2-4. The O-EDShOT uses a rating scale that incorporates entrustment anchors, and the tool has demonstrated strong psychometric characteristics2.

**Objective**

What remains unknown, is whether the new O-EDShOT tool Results in improvements to the quality of documented assessments. The purpose of this study was to determine if assessments documented on the O-EDShOT are of higher quality compared to those documented on DECs.

**Methods**

O-EDShOTs were collected from July-December 2018 and DECs from December 2017-May 2018. Three randomly selected DECs and O-EDShOTs completed by 24 ED faculty were scored using a previously published formula, called the Automated Completed Clinical Evaluation Report Rating (A-CCERR)5. The A-CCERR incorporates word count, rating variability and proportion of completed comments to yield a quantitative measure of assessment quality5-6. A paired sample t-test was used to compare the mean A-CCERR scores for both the O-EDShOT and DEC assessments.

**Results**

A-CCEER scores were significantly higher for O-EDShOT assessments (Mean(SD)= 17.5(1.6)) than DEC assessments (15.5(1.2); t(24)=8.4, p<0.001).

**Conclusion**

The O-EDShOT yields higher quality documented assessments when compared to the old standard of assessment, the DEC. Our Results provide additional validity evidence for O-EDShOT assessments, which have since been incorporated into Ottawa’s EM program of assessment.

**Medical School Exposed: High School Outreach Program Aimed to Improve Student Wellness by Demystifying the Path to Medical School**

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**Background**

The pressure of becoming a competitive medical school applicant may begin as early as high school and can negatively impact student mental health throughout university. MedExpo is an outreach program targeted to high school students piloted at the University of Ottawa in 2016. The program was designed with medical student educators to lead an informative presentation on the pathway into medicine and teach an interactive anatomy session in order to decrease stress related to the medical school application process, increase interest in medical science, and answer questions about careers in healthcare.

**Hypothesis**

It was hypothesized that, as a result of project modifications stemming from feedback in the pilot year, this informative and interactive high school outreach program would reduce stress related to the medical school application process and pursuing a career in healthcare.

**Methods**

All high school participants (n=334) across the 12 sessions offered in 2018/2019 academic year completed an anonymous post-session survey, ranking their opinion of the program's components on a 5-point Likert scale (1=very poor or not stressed at all, 5=excellent or very stressed). Additionally, students were given the option to provide feedback in an open-ended format.

**Results**

Most (99%) participants ranked their overall experience as either 4 or 5, reported an increase in knowledge regarding work-life balance, careers in healthcare, human anatomy and noted decreased stress regarding the medical school application process.

**Conclusion**

MedExpo appears successful in achieving its goal to decrease stress regarding pursuing a career in medicine and applying to medical school. Furthermore, the program successfully increases high school students’ subjective knowledge regarding careers in medicine. To further improve the program, we recommend adding more objective Methods of evaluating student’s knowledge, careers in medicine, stress management skills, and to evaluate long-term impact on student participants, such as increased number applying for medical school.

**Medical Student Internship Experience: Using Knowledge Translation to Disseminate Lessons Learned**

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4. Canadian Medical Protective Association, Department of Practice Improvement
5. Canadian Medical Protective Association, Department of Medical Care Analytics

**Introduction/Background**

Finding research opportunities often occurs as a necessary expectation in medical school. Many would consider these placements as part of the hidden curriculum; although not a part of most official undergraduate curricula, they are an expectation for staying competitive when applying to residency programs. However, little guidance exists for medical students, undergraduate educators, or clinical researchers interested in creating valuable non-traditional research experiences.

**Summary of innovation/Discussion**

The aim of this project is to use knowledge translation (KT) science to describe the content knowledge and practical skills acquired during the Canadian Medical Protective Association’s (CMPA) medical student internship; a unique summer program designed to provide undergraduate medical students with an non-traditional training experience in a non-profit, medico-legal setting. Our project utilizes the KT Planning Template and KT Game from the Sick Kids Learning Institute as a framework to provide a rich description of the CMPA’s 2019 summer program as well as the cumulative reflections of three undergraduate students.

**Conclusion**

This project demonstrates that students gained valuable content knowledge and practical skills aligned with CanMEDS roles during this summer internship. It also provides a helpful tool for medical educators interested in a design framework for future undergraduate medical student opportunities. A preliminary internal evaluation demonstrated that this KT framework was effective in disseminating information and increasing awareness of the knowledge and skills acquired during the medical student experience.

**Is MedExpo an Effective Tool to Achieve Short and Long Term Retention of Medical Concepts?**

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**Introduction**

Currently, there are a limited number of programs assessing high school student familiarity with medical education. The uOttawa medical student-driven MedExpo program aims to elucidate the structure of medical school in the areas of anatomy education, point-of-care ultrasound (PoCUS), and vital signs.

**Hypothesis/Question**

Our objective was to determine if MedExpo is a valuable teaching tool for high school students and to determine if students are able to retain knowledge long-term.

**Methods**

High school students (n=218) from seven schools participated in four MedExpo sessions. Students completed identical surveys immediately prior to (n=218), immediately after (n=218), and three months following (n=44) the MedExpo session. Surveys assessed students’ knowledge in areas of anatomy, PoCUS, and vital sign assessment.

**Results**

Overall, average post-session survey scores (82%) were significantly higher than average pre-session survey scores (58%) (p<0.001). Survey scores for PoCUS, anatomy, and vital signs, were significantly higher after the session, with score increases of 29%,18%, and 24%, respectively (p<0.001). Additionally, analysis of 44 surveys completed three months after the session demonstrated significant increases from pre-session scores in each section (p<0.05).

**Discussion**

Our findings indicate that MedExpo can positively impact high school student knowledge well beyond the outreach sessions themselves, in several areas related to healthcare. Going forward, we plan to analyze the data from the remaining three months post-session surveys. Further investigation is warranted to determine whether differences in teaching styles (student-centered vs. didactic) impact students’ short and long-term knowledge retention.

**PERFORMANCE-BASED COMPETENCY IN THE INTERPRETATION OF PAEDIATRIC MUSCUSKELETAL EXTREMITY RADIOGRAPHS**

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7. CHU Sainte-Justine

**Background**

Pediatric MSK radiograph interpretation has been identified as a key deficiency among graduating ER trainees. We have developed a learning and assessment platform that exposes participants to 1,871 pediatric MSK radiographs where participants make a diagnosis and receive feedback. However, there is little evidence on what is an acceptable performance score for graduating ER physicians.

**Objective**

To determine a performance-based competency benchmark for practising ER physicians for the skill of pediatric MSK radiograph interpretation

**Methods**

Based on participant responses, 1871 cases were classified as easy, medium or hard using item-response theory derived interpretation. Cases were also classified as low, medium, or high clinical significance, by an expert panel of orthopedic surgeons. Difficulty and significance scores were combined to make 9 categories in a 3x3 matrix. A stakeholders panel of parents and physicians then determined acceptable accuracy rates for each of the nine cells. Using the Ebel criterion-referenced method, the overall competency threshold was calculated using the weighted accuracy scores from each of the cells.

**Results**

Of the 1,871 cases, 618 (33.0%) were easy, 627 (33.5%) medium and 626 (33.5%) hard. There were 1,060 (56.7%) low, 424 (22.7%) medium, and 387 (20.7%) high risk cases. Median (IQR) acceptable accuracy for each category was 88.7% (83.2, 91.8). The sum of weighted accuracy scores resulted in an overall performance-based competency score of 86%.

**Conclusions**

Achieving this evidence-based performance threshold using an education platform that simulates years of bedside experience allows ER residency programs to objectively assess trainees for practice-readiness, relative to a standard accepted by a broad range of stakeholders.

**Testing improves long term learning of procedural skills**

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**Introduction**

Tests are shown to enhance learning: this is known as the “testing effect”. The benefit of testing is theorized to be through “active retrieval”, which is the effortful process of recalling stored knowledge. This differs from “passive studying”, such as reading, which is a low effort process relying on recognition. The testing effect is commonly studied in random word list scenarios and is thought to disappear as complexity of material increases. The testing effect has not been studied in complex situations such as procedural learning.

**Question**

Does testing improve procedural learning of fracture fixation as compared to “passive studying”?

**Method**

Fifty participants watched an instructional video of an open reduction internal fixation of a Sawbones™ femur. Participants performed the procedure under guided supervision. After randomization, they either read the steps (passive studying group), or wrote down the steps from memory (active retrieval group) for a period of 15 minutes. After a washout period, all participants performed the procedure without guidance (immediate assessment) and then once more, one week after the initial testing (delayed assessment). The participants were assessed using the Objective Structured Assessment of Technical Skill (OSATS). Each performance was video-recorded for data analysis purposes.

**Results**

Participants in the passive studying group had significantly higher OSATS scores during immediate assessment in comparison to the active retrieval group (p=0.001), especially when remembering the correct order of the steps (p=0.002). The percentage of information forgotten was significantly less in the active retrieval group (p=0.02).

**Conclusion**

We demonstrated that testing with active retrieval (through writing) resulted in better retention of fracture fixation knowledge (i.e. less forgetting). These findings can easily be incorporated in existing work flows. Future studies are needed to determine the effects of different kinds of active retrieval Methods such as verbal retrieval (e.g. dictating) commonly seen in surgical practice.

**Identifying Strategies to Support Developing Health Promoting Learning Environments in Medical School**

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3. Dalhousie University
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6. University of Alberta

**Background**

Medical students have disproportionately higher rates of mental illness relative to the general population. The Canadian Federation of Medical Students (CFMS) previously developed documents with guiding principles for improving student wellbeing; however, an updated document reflecting current evidence is needed. In an effort to implement a standardized framework for a health promoting learning environment (HPLE) across Canadian medical schools, a concise, actionable, and up-to-date charter document is suggested.

**Objective**

To identify key components required for effective facilitation of a HPLE across Canadian medical schools.

**Methods**

A CFMS working group, comprised of Canadian undergraduate medical students, was assembled. The group examined three past CFMS position papers on medical student wellbeing and conducted an abbreviated literature review of recent publications focusing on medical student wellness strategies. Key themes required to facilitate a HPLE were identified and organized by (1) individual- versus systems-targeted strategies and (2) time point: preclerkship, transition to clerkship, clerkship, and transition to residency.

**Results**

There were common themes of medical student wellness that traversed all stages of training. Individual-level strategies included self-regulated learning, mentorship, and educational programs on wellness behaviours. Systems-level strategies included standardized accommodation policies, timely career counselling, and further research. Preclerkship-centered interventions included increased faculty training on student wellbeing, pass-fail grading, and active solicitation of student feedback. In transitioning to clerkship, longitudinal electives and transition courses helped promote student wellbeing. Clerkship-targeted strategies included accurately defining students’ scope of practice, addressing student mistreatment disclosures, and offering financial support. For students approaching residency, wellness-supporting strategies included improving the transparency of the residency matching process.

**Discussion/Conclusions**

This charter document offers an updated, evidence-based approach to improving Canadian medical students’ wellbeing. It has been designed to help the CFMS advocate for a HPLE and work alongside Canadian medical schools to establish a standardized approach to student wellness.

**Exploring lessons learned by medical students in a pediatric oncology buddies program**

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**Introduction/Background**

Pediatric oncology patients and their families must adjust to several stressors when faced with a cancer diagnosis. One of many support avenues is one-on-one partnership programs between patients and volunteer students. The “CHEO Buddies” program at the University of Ottawa’s Faculty of Medicine fosters nurturing relationships between pediatric oncology patients and medical students. Students gain useful insight into the intricacies of patient care and hands-on experiences important to developing the humanistic skills required in comprehensive medical care.

**Hypothesis/Question**

We explored medical students’ experiences over the course of the program to gain insightful evidence that can be applied to medical school curriculum development. We aimed to answer the following question: What is the lived experience of the medical students who participate in the CHEO Buddies program?

**Methods**

Transcendental longitudinal phenomenology, based on Moustakas’ approach, served as the foundation for this study, allowing for the exploration of the medical students’ evolving experience. Interviews were conducted with medical students at three time points: before meeting his/her buddy (pre-interview), four months after being with his/her buddy (mid-interview), and at end of his/her partnership (post-interview).

**Results**

Fifteen students participated. In the pre-interview, students predicted: 1) providing a supporting role; 2) developing empathy and drawing on prior experiences; and 3) anticipating emotionally charged and logistically challenging interactions with their buddies. Themes were similar in mid- and post-interviews, where students: 1) confirmed their supporting role; 2) explained the program was challenging but rewarding; 3) affirmed the tremendous learning opportunity; and 4) stated the experience was persistently emotionally charged.

**Discussion/Conclusion**

This study provides an in-depth understanding of what medical students experience in a pediatric buddy program. Tailored, one-on-one partnerships between medical students and pediatric oncology patients play an important role in the medical student’s life.

**Healthcare Providers Perspectives on Pediatric Home-Based Cancer Care: A Qualitative Descriptive Study**

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**Background**

Pediatric cancer care can be a taxing endeavor for families, with negative impacts that span psychological, physical, social and financial health. It has been suggested that home-based cancer care (HBCC), where appropriate, may help alleviate some negative aspects of the cancer experience. However, little is known about the opinions of key informants related to HBCC, which is needed to improve home care services.

**Hypothesis/Question**

What are the current opinions of healthcare providers on (a) the acceptability of currently provided HBCC, (b) the facilitators and barriers to providing and receiving HBCC, and (c) modifications to HBCC and other needed interventions to improve its acceptability and perceived utility?

**Methods**

Twenty-one English- or French-speaking healthcare providers from The Children’s Hospital of Eastern Ontario (CHEO) and home care agencies were interviewed and audio recorded by trained personnel. Recordings were then transcribed and coded using NVivo 10 by a research assistant, using a line-by-line approach. Codes were grouped into categories based on between-code relationships and then further grouped into themes. Any coding discrepancies were resolved through discussion with the principal investigator.

**Results**

Results revealed the following themes: (a) advantages of HBCC (i.e., financial relief for families), (b) disadvantages of HBCC (i.e., lack of familiarity with pediatric patients on the part of home care nurses), (c) barriers to receiving HBCC (i.e., jurisdiction of care), (d) facilitators to receiving HBCC (i.e., caregiver acceptability of HBCC), (e) needed modification to HBCC (i.e., standardized home care protocols).

**Conclusion**

Overall, healthcare providers advocated for HBCC and the holistic approach to care it provides. However, changes to improve the coordination of the services between tertiary care and home care providers are needed. Next steps will include integrating data collected from children and parents.

**Barriers to Seeking Professional Mental Healthcare Faced by Medical Students**

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**Introduction**

Medical students commonly encounter psychological illness in both the classroom and in clinical settings. Unfortunately, medical students also face a variety of mental health issues themselves. Despite the availability of professional help on medical campuses, help-seeking continues to be a challenge for some students (Rotenstein et al., 2016). Our review aimed to identify barriers medical students face when seeking professional mental healthcare.

**Question**

What are the barriers to seeking professional mental healthcare faced by medical students?

**Methods**

A MeSH search was created for articles using the databases PubMed, Embase, and PsychINFO to identify articles specifically about medical students and their barriers to professional mental healthcare. 454 articles were identified and screened by title/abstract and then full text. Data was extracted from 40 articles using an independent framework. Barriers identified were compiled and reported.

**Results**

From a total of 40 articles, the most commonly identified barriers to seeking mental healthcare were fear of negative effect on residency/career opportunities (11 articles), fear of confidentiality breach (10 articles), stigma and fear of shaming from peers (10 articles), lack of perceived seriousness/normalization of symptoms (7 articles), lack of time (7 articles), and fear of documentation on academic record (6 articles). Students also preferred to seek care outside of their institution from fear of provider being an academic preceptor (4 articles).

**Discussion**

Many of the barriers to mental healthcare faced by medical students relate to a fear of academic/career reprisal and fear of confidentiality breach. It appears that despite recent efforts to decrease stigma surrounding mental illness, many medical students struggle to seek appropriate support. Access to mental health care can be improved by increasing transparency regarding what information will be displayed on academic records, dispelling common myths about mental healthcare and increasing awareness about available resources for medical students.

**Evaluating the impact of a rural medicine community experience day on pre-clerkship medical students’ intention to practice rural medicine**

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**Introduction**

Limited healthcare access in rural communities in an ongoing issue across Canada. One important factor contributing to limited healthcare access is the lack of physicians practicing in rural areas. Previous studies have shown 6 month - 1 year long rural medicine experiences increase student interest in rural practice. However, programs of this duration are not feasible at the pre-clerkship level. Thus, we aim to evaluate the effectiveness of a one-day rural medicine experience for increasing intention to practice rural medicine, or interest in pursuing longer rural medicine electives. The rural medicine community experience day (RMCED) is a one-day event in Lindsay, Ontario for pre-clerkship students in the University of Toronto MD program. Students attend a welcome session, hospital tour, and three hands-on workshops focusing on rural mental health, suturing, and intubation.

**Question**

Does a one-day rural medicine community experience increase pre-clerkship medical students’ understanding of rural medicine and intention to pursue rural medicine clinical electives or practice rurally?

**Methods**

Learning objectives were developed using survey responses from the Kawartha Lakes Healthcare Initiative Board of Directors, physicians who have participated in the RMCED in the past, and past RMCED student coordinators. Students attending the RMCED were asked to rate how well learning objectives were met using a 5-point Likert-scale after the event. Students were also invited to participate in surveys before and after the event to evaluate changes in their understanding of and attitude towards rural medicine using a 5-point Likert scale. Responses to each question will be expressed as a mean and compared using the Student’s t-test to assess change between pre- and post-RMCED survey responses. Focus groups were held immediately following the RMCED to identify concepts not explored in the surveys. Focus group transcripts will undergo thematic content analysis to identify key words and themes.

**Implications for Policy Changes: Qualitative Analysis of Accessing Mental Health Care and Maintaining Wellness in Ontario Medical Students**

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**Background**

High levels of burnout, anxiety, and depression among medical trainees are linked to reduced workplace productivity, empathy, and professionalism. Medical students frequently do not access mental health resources, citing limited time, and concerns regarding confidentiality, cost, and stigma. This study aims to identify perceived barriers and facilitators for accessing mental health resources by Ontario (ON) medical students.

**Methods**

Between May-Dec 2019, semi-structured telephone interviews were conducted with 16 medical students from ON medical programs. Students were purposively sampled for year of training, perceived stress levels, and experiences in accessing wellness resources. A descriptive thematic approach was used for quantitative analysis. Interview questions focused on identifying barriers and facilitators for maintaining wellness and on suggestions for wellness improvement.

**Results**

Three main themes were identified: barriers to accessing care; maintaining wellness; and navigating professionalism within the “hidden curriculum”. Students identified significant administrative and resource barriers, including inflexible leave of absence policies, remote locations, frequent travel, and time constraints. Stigma, confidentiality, and fear of career consequences were frequently cited as factors influencing access to care. Peer support and mentorship from attending physicians were instrumental in facilitating student access to mental health resources.

**Conclusion**

The identified wellness barriers and promoting factors will be further explored in future province-wide survey studies. Implications for policy changes in medical education and university health care to improve student wellness will be discussed.

**The Impact of Interprofessional Education on Health Care Professional Student Attitudes and Perceptions**

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**Background**

Interprofessional education (IPE) plays an important role in preparing healthcare professional (HCP) students for working in interdisciplinary teams in the healthcare field. As IPE has more recently become a required part of medical school curriculum, review and analysis of impact and Methods for improving IPE curriculum delivery must be studied.

**Hypothesis**

This study aimed to investigate the impact of an IPE session on HCP student attitudes towards interprofessional learning and perceptions towards their own and other professions.

**Methods**

Student groups were randomly assigned and balanced between pharmacy (n=7), social work (n=8), nursing (n=36) and medical (n=28) students to participate in a 5-hour IPE experience. This included a “stereotype” activity, followed by a case study with associated reflection questions. Attitudes towards collaboration, shared learning, and other HCP roles were examined prior to and after the IPE experience using the Interdisciplinary Education Perception Scale (IEPS) and the Readiness for Interprofessional Learning Scale (RIPLS). 79 students completed both pre- and post- questionnaires, which were de-identified but linked. Statistical significance was set at p<0.05 for all analyses and paired sample t-tests were run to examine mean and variance. A Bonferonni correction was used for assessing subscales. Qualitative data was collected using open-ended survey questions.

**Results**

Preliminary analyses demonstrate statistically significant increases from pre to post testing on the RIPLS subscales of Teamwork and Collaboration (p<0.001) and Positive Professional Identity (p=0.002), and the IEPS subscales Perceived Need for Cooperation (p<0.001) and Perception of Actual Cooperation (p<0.001). Qualitative Results are in progress.

**Discussion**

A single IPE experience can positively impact student attitudes towards interprofessional learning and perceptions towards cooperation with other professions. The findings from this study will be used for quality improvement initiatives to further develop and advocate for IPE curricula in HCP programs.

**MedComm – Medical Interpretation**

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Language barriers pose serious obstacles to patients and healthcare providers in the healthcare system in Montreal. The gold standard for medical interpretation is the use of professional interpreters. However, this service is scarce and not widely available throughout the McGill University Healthcare Centre (MUHC) network. Consequently, ad hoc interpreters, such as family members, friends, and laymen recruited via the hospital intercom system are commonly used. However, evidence shows that the use of untrained, ad hoc interpreters can significantly compromise healthcare interactions, leading to errors in medical decisions.
MedComm is a student-run initiative at the McGill University that aims to address the need of medical interpretation at MUHC. The project has two goals: (1) provide medical interpreter training to multilingual medical student volunteers; (2) develop an online interface and mobile application that facilitates healthcare professionals’ request for a medical student interpreter. Here, we provide evidence on the development of the interpretation training.
Medical interpretation certification includes a training on basic principles of interpretation, the specifics of the medical environment, as well as common medical terms. Since medical students are already trained in medical terminology, a supplemental training on the basics of interpretation would provide them with necessary qualifications. A number of medical schools in North America have introduced a variation of interpretation training for medical students, including: Brown University (Providence, RI), Loyola University (Chicago, IL), Mount Sinai (New York, NY), and Penn State College of Medicine (Hershey, PA).
MedComm has developed a pilot 2-hour training on medical interpretation with theoretical and practical components. First, students are introduced to the basic definitions of medical interpretation, rules and guiding principles, interpreter’s code of conduct, as well as potential issues with the use of medical students as interpreters. Then, trainees watch two videos of best and worst scenarios, followed by group discussions.

**Workplace Faculty Development Opportunities and Tools to Receive Feedback on Teaching Based on a Review of the DFCM Basics Program for New Faculty**

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**Background**

Clinical teachers face the challenging task handling multiple responsibilities of providing care while supervising medical learners, often without adequate training. As such, faculty development (FD) programs aiming to train clinical teachers are crucial. Basics for New Faculty is one such accredited program to support teachers of family medicine learners at the University of Toronto’s Department of Family and Community Medicine. FD activities have traditionally involved formal workshop-based Methods; however, recent studies suggest that informal learning Methods involving the clinical workplace have an important role in professional development.

**Objectives**

This study aimed to review the current Basics curriculum for potential modifications based on literature on workplace learning, and provide recommendations to further improve the experience and learning for program participants.

**Methods**

A literature search was conducted to identify Methods of incorporating workplace learning for FD programs for clinical teachers. Qualitative evaluations collected from participants of the 2018-19 Basics program and materials for the 2019-20 Basics curriculum were reviewed to identify areas where workplace learning activities could be included.

**Results**

Important elements to incorporate in the program were identified: 1. Learning from peers or mentors in the workplace, 2. Being observed by peers or mentors in the workplace (Peer Observation of Teaching), 3. Usage of the 360-degree/multi-source feedback model. Recommendations for activities were made based on these findings.

**Conclusion**

This study’s findings and recommendations will help inform the development of the Basics program and other FD programs, and promote the incorporation of workplace learning to enhance knowledge translation and mobilization for clinical teachers. Elements of workplace learning were integrated into the 2019-20 iteration of Basics for New Faculty Program.

**Value Exploration of a New Model of Medical Technology Education for Caregivers of Children Requiring Medical Technologies Transitioning from Hospital-to-Home**

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**Introduction/Background**

Hospital-to-home transition remains a challenge and source of caregiver anxiety. Historically, training was non-centralized and teaching content varied with clinician experience and expertise. The Connected Care Program provides centralized, standardized caregiver teaching for children being discharged home with new medical technology (e.g., enteral tube feeding, tracheostomy care, and suctioning). This abstract evaluates a new caregiver education program with a prospective descriptive survey.

**Hypothesis/Question**

To understand the perspectives of a new centralized education model for family caregivers being discharged from hospital-to-home with new medical technology.

**Methods**

Caregivers of children who received new medical technology were recruited from a large paediatric centre between February 2018-2019. Caregivers completed a Likert Scale survey to evaluate the centralized discharge education program.

**Results**

Caregivers(n=152/180, 84.4% response rate) were trained to use nasogastric tubes(n=54), gastrostomy/gastro-jejunostomy/jejunostomy tubes(n=55), enteral feeding(n=48), subcutaneous injections(n=15), central venous lines(n=18), oxygen saturation monitoring(n=6), tracheostomy care(n=7), and other technologies(n=5).

Majority of respondents strongly agreed on the following: 1) one-on-one teaching sessions were beneficial (96.1%, µ=4.88±0.65); 2) sessions provided opportunities to ask homecare-related questions (93.9%, µ=4.86±0.67); 3) sessions were an appropriate length of time (87.8%, µ=4.88±0.68). However, the following were highlighted as areas requiring improvement with a smaller proportion of respondents who strongly agreed: 1) practicing with mannequins and equipment was effective (85.3%, µ=4.76±0.74); 2) resources given were useful to learning (85.3%, µ=4.75±0.75); 3) the space provided distraction-free learning (79.5%, µ=4.76±0.76).

Written feedback was provided by 39 caregivers (25.7%). Consistent themes included: increasing room size (18%), more realistic environment (13%), and options to train with the patient rather than models (5%).

**Discussion/Conclusion**

Overall, caregivers valued one-on-one teaching and the opportunity to ask homecare-related questions. Further improvements included incorporating a distraction-free, spacious, and realistic learning environment. This informed a novel home-simulated education room for which future evaluations will follow.

**Community Physician Retention in South Western Ontario: Perceptions of Longstanding and Recently-Recruited Physicians**

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**Introduction**

Rural communities in Ontario are disproportionately underserved by physicians – 9% of practicing physicians in the province serve 21% of the population. While this disparity has been observed since 1996, successful efforts to increase physician recruitment to community sites have not been met with long term retention. Newly recruited rural physicians were most likely to leave their practice locations within the first 5 years of practice, whereas physicians practicing longer than 5 years tended to stay. Factors influencing physician retention in distributed sites are not well understood. This study aims to elucidate whether perspectives on physician recruitment and retention differ between recently recruited physicians and long-standing physicians in distributed sites.

**Hypothesis**

Long-standing physicians were predicted to be influenced by different motivators and barriers for recruitment and retention compared to newly recruited physicians.

**Methods**

Semi-structured telephone interviews were conducted with physicians practicing in distributed sites using a qualitative approach. Participants were categorized as recently recruited (0-4 years of practice) or long-standing (5+ years). Interviews were transcribed and coded using immersion and crystallization.
 **Results**

Six broad themes influencing retention and recruitment emerged from analysis: professional, personal, family, incentives and compensation, education, and community. Recently recruited physicians valued their educational experience and transition into practice as motivators for remaining long-term. Long-standing physicians valued integration within the community and flexibility in their practice as key motivators for retention.
 **Discussion**

Universal themes identified for both groups included; scope of practice, workplace collegiality, and family support as factors promoting recruitment and retention. Engaging medical students in community rotations is important to recruit physicians to community sites. Newly recruited physicians need to be supported with a breadth of resources during transition into practice. To retain physicians, communities should be equipped with support networks for both physicians and their family members to feel integrated.

**Does Digital Technology Enhance Compassion Education for Health Professionals? A Critical Narrative Synthesis**

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2. London Health Sciences Centre

**Introduction**

Promoting compassionate care in medical education has been demonstrated to improve patient and clinician outcomes. However, many barriers continue to impact the scale and spread of compassion education such as the lack of translation of compassionate care curricula into sustainable outcomes within clinical practice environments. It is thought that digital technology could be leveraged to address the problems facing compassion education for health professionals. Despite its promise, the intersection between digital technology and compassion education has not been thoroughly investigated.

**Question**

The objectives of this critical narrative synthesis were to identify existing uses of digital technology in compassion education, evaluate its effectiveness, and understand the impact of digital technology on compassion education. Our research questions were: (1) How does digital technology influence the effectiveness of compassion education? (2) How is the impact of compassion education delivered through digital technology assessed?

**Methods**

We searched PubMed, Scopus, CINAHL, ERIC, and PsycINFO databases and grey literature in January 2019 to identify relevant studies.

**Results**

Studies were qualitatively synthesized and categorized according to the type and role of digital technology in the curriculum, Methods of assessing learning outcomes, learning outcomes themselves, and whether there was a measured impact on compassionate care. We found that the majority of digital technology interventions were in the form of online modules. The function of digital technology in the curriculum was primarily replicative and supplementary, rather than transformative. Few studies demonstrated measured increases in compassionate care, and those that did used empathy scales rather than tools specifically designated for measuring compassionate care.

**Conclusions**

We hope that this research can serve as a future resource to change agents seeking to navigate the uncharted territory of digital knowledge translation and promote the delivery of compassion education directly to patients, caregivers and health service providers.

**Surgical Skills and Technology Elective Program (SSTEP): success of a student-run bootcamp of surgery foundations to facilitate the transition to clerkship**

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**Background**

The Surgical Skills and Technology Elective Program (SSTEP) is a student-conceived, student-run, week-long program offered to second-year medical students. SSTEP aims to enhance the core curriculum by facilitating learning of foundational surgical skills, prior to student transition to clerkship. Now in its seventh year, SSTEP has undergone multiple changes to continuously meet student needs and further enhance learning. Each year, SSTEP includes a research component that has independently contributed to medical education.

**Methods**

The student team consists of two directors, one finance lead, one research lead, and one first-year member, facilitating transition planning, continuity, and ongoing yearly improvement. Support from university faculty and Dean has permitted SSTEP to receive external funding through alumni donors. Educational research is an integral component, promoting SSTEP’s academic mission. Using pre and post surveys and tests, SSTEP analyzed participants confidence and surgical knowledge as it developed over the week. Further, we are currently following the class of 2021 cohort throughout clerkship to identify longitudinal benefits of the program.

**Results**

Through effective fundraising efforts, university support, and strategic planning, SSTEP has successfully run for six years. Test scores have shown a statistically significant improvement in surgical knowledge and confidence (P<0.05). SSTEP is now an academic enrichment program (AEP), allowing interested students to receive formal recognition on their Dean’s Letters. Further, the platform of SSTEP and its associated AEP have allowed for student initiatives in surgical research, including work on topics such as education of left-handed students and a recent publication on techniques for suturing teaching.

**Conclusion**

After six years, SSTEP is both an example of a successful bootcamp for surgical skills as well as a thriving case of a student-led initiative in medical education.

**Surgical resident work patterns: a time-motion analysis**

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**Background**

Residency training is transitioning to competency-based medical education (CBME model), but little attention has been paid to the effects on workflow in academic centers where residents perform a large volume of both educational and non-educational activities. In surgical specialties, the blurring of various types of activities is particularly pervasive. A nuanced understanding of residents’ work patterns is critical to anticipate challenges and inform strategies for CBME implementation in surgery.

**Research Question**

This exploratory study aims to characterize general surgery residents time utilization in the pre-CBME era.

**Methods**

Time-motion methodology was used to characterize the work patterns of surgical residents. The process consists of three steps: 1) observation and recording of tasks and time-on-task, 2) development of a task-list of all observed tasks through expert consensus and iterative revision, 3) retroactive coding of observed tasks. 19 surgical residents were tracked over 50 work periods using continuous, direct observation by three trained, nonparticipant observers. Data were collected until theoretical sufficiency was achieved.

**Results**

A total of 631 hours were recorded. The most common tasks performed by residents included: operating (134 hr), interacting with EMR (68 hr) and assessing patients (61 hr). While some of these tasks involve indirect educational activities, only 8% of time was allocated to dedicated educational activities, with less than one hour allocated to receiving feedback. Work patterns varied based on seniority level, service type and time in academic year. There was good inter-observer agreement (ICC=0.932).

**Discussion/Conclusions**

Time-motion methodology provides the details necessary to capture the complex, non-linear, and variable workload of surgical residents. Our Results demonstrate that the current work structure for residents might not properly align yet with the key principles of CBME. Organizational strategies to ensure protected time for educational activities without compromising patient care will need to be developed for successful CBME implementation.

**Differences in demographic profiles and financial characteristics of Canadian medical students interested in urban versus rural practice**

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**Background & Question**

There is a wide array of recognized pre-medical school and medical school factors that influence students’ choice of specialty and practice location. Using recent data from 2018, we compared the demographic and financial characteristics of Canadian medical students with preferences for urban versus rural-based practice.

**Methods**

We conducted a cross-sectional survey among medical students at fourteen English-speaking Canadian medical schools, which included questions related to their debt, career preferences and demographic characteristics. We used t-tests and x2 tests to compare the two groups categorized by practice location preference and will perform logistic regression to determine the variables associated with preference for rural practice.

**Results**

Overall, 1089 students (13.0%) completed the survey. On average, students entered medical school with $16,938 (SD=40,403) in debt and anticipated debt of $125,024 (SD=105,683) at graduation, with an average annual spending of $22,513 (SD=13,866) on non-tuition-related expenses. The proportion of respondents who selected university-affiliated practice, non-academic clinical practice and governmental agency as their preferred practice location were 63.6%, 32.1% and 2.5%, respectively. Those who preferred non-academic clinical practice (i.e. our proxy indicator for potential interest in rural medicine), as opposed to university-affiliated practice, were more likely to identify as female (69.7% vs 60.3%, p<0.01), white (80.3% vs 70.9%, p<0.01) and have grown up in a rural area (10.3% vs 5.6%, p<0.01). However, the higher amounts of debt upon entry ($17, 788 vs $16, 749) and anticipated debt at graduation ($133, 568 vs $122, 759) they reported were not statistically significant.

**Discussion**

Canadian medical students intending to pursue rural medicine have statistically significant differences in terms of their demographic characteristics, but experience similar financial burden. We predict that our Results will align with previous research on this subject and current admissions policies at certain schools specifically aiming to recruit students from rural communities.

**Bringing the Patient Voice to Professionalism in Medical Education**

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2. The Wilson Centre

**Background/Purpose**

Research has acknowledged the value of patients as an essential stakeholder group in education, yet medicine has made limited attempts to incorporate patients’ perspectives into a domain where patients surely have a vested interest: the assessment of professionalism of physicians. Our purpose was to explore patients' perceptions of professional behaviour in medical learners as a first step to considering patients' potential roles in assessing professionalism.

**Methods**

Using a constructivist grounded theory approach we interviewed 20 patients, recruited from one urban hospital. Each participant watched 5 video scenarios that depict common professionally challenging situations faced by medical students. After each video, participants were asked what they thought the student should (or shouldn't) do in the scenario, along with their rationale.

**Results**

Participants' responses largely echoed those of medical students and faculty. They referenced principles of professionalism, the students’ affect or internal factors, and potential implications of actions when discussing what they felt was correct behaviour. Patients conveyed an understanding of the multiple competing factors students must balance (e.g., providing optimal care while maximizing educational opportunities) and expressed empathy regarding some of the pressure students face. Participants also identified principles not previously raised by students or faculty, including the importance of respecting privacy and of not showing disagreement among professionals in front of a patient.

**Conclusion**

Knowing what patients perceive as important will allow educational and assessment efforts to be refined to reflect their values. Our work can inform emerging initiatives to include patients in the assessment of medical learners.

**Identifying Gaps in Critical Appraisal Skills development in Undergraduate Medical Education: A Needs Assessment Survey**

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**Introduction/Background**

Given the plethora of published medical literature alongside rapidly evolving clinical knowledge and practice, physicians must be competent in critically appraising medical literature to ensure the delivery of safe, timely, and cost-effective evidence-based care, in accordance with their patient’s preferences. However, many Canadian medical schools struggle to provide education and training to adequately prepare their students to appraise medical literature competently and with confidence. Given the overcrowded undergraduate medical curriculum, teaching this skill must be efficient, effective and durable. To successfully nurture acquisition of this skill, the learning needs of medical students must be better understood.

**Objective**

Administer a survey to students enrolled in the undergraduate medical program at the University of Ottawa to:
Determine and describe their current medical literature critical appraisal skill.
Determine medical students’ education needs to help establish a foundation for acquisition of this skill.

**Methods**

We are currently administering an online survey (using Google forms) to medical students at the University of Ottawa over a 4-week period. The survey consists of 12 short answer & multiple-choice questions. The survey captures Background & demographic information, as well as educational experiences, learning preferences, and opinions about medical literature critical appraisal. Students are being recruited through email and targeted social media group messages. All survey data are collected electronically.

**Results**

Preliminary Results show that the majority of respondents believe that they lack competency and confidence with respect to medical literature critical appraisal. While the majority of respondents believe that developing medical literature critical appraisal skills will be beneficial to their clinical practice, very few respondents have independently sought out learning experiences to develop these skills.

**Discussion/Conclusions**

Further data

**Professionalism in Medical Education – identifiable themes in postgraduate family medicine trainees' assessments**

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**Introduction/Background**

The CanMEDS physician competency framework has been used in medical education since the 1990’s. CanMEDS roles are important as they represent the idea of the "competent physician". Although collectively synergistic, each role is unique in laying the foundations of physician training and the patient care experience. Apart from critical patient safety incidents, the Professional role remains one of the most difficult roles to define and asses in medical education literature. Our study examines the use of low-stakes ‘formative’ written feedback in the family medicine postgraduate training environment – ‘field notes’. Specifically, we sought to identify specific themes pertaining to the professional role through examining resident ‘field notes’ authored by their preceptors.

**Hypothesis/Question**

There are identifiable themes in the written feedback provided to postgraduate family medicine trainees in field notes (FN) for the intrinsic CanMEDS role – Professional.

**Methods**

Data was collected in the form of encounter-based FN written by clinical educators from 14 training sites at the University of Toronto Department of Family and Community Medicine from Oct. 2015-Oct. 2017. Taking the full data set, we filtered the data to examine only FN written for the ‘professional’ role. We then further filtered to view only FN that had a performance score of ‘below expectation’. Then, inductive codes were derived from free text and applied to all relevant comments. These codes were amalgamated into subthemes and code frequencies were measured. Finally, subthemes were mapped into overarching themes.

**Results**

We analyzed a total of 70 FN. Three main themes emerged from the analysis: Lack of collegiality (48.6%), Failure to adhere to standards of care/legal guidelines (24.3%) and Lack of reflection/self learning (11.4%). Other themes identified are Failure to maintain boundaries (7.1%), Impact to patient care (4.2%), Failure to maintain patient confidentiality (2.9%) and Failure to self care (1.4%).

**Discussion/Conclusions**

In progress.

**Delivering a novel use-centred design educational intervention to undergraduate medical students**

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**Introduction/Background**

User-centred design has emerged as a novel problem-solving methodology centred around empathy, ideation, and experimentation. Physicians are increasingly called upon to take administrative and leadership roles in healthcare settings, so it is crucial to expose the newest generation of trainees to the necessary skills to effect change. Patient-centred care is frequently mentioned as a goal for healthcare practitioners but little guidance is given on how to apply this concept to systems-level changes or interventions.

**Hypothesis/Question**

How should user-centred design be taught to Canadian medical trainees within a formal curriculum? What insights can be drawn from this intervention to inform future user-design education?

**Methods**

In this study, we conducted an educational intervention teaching 250 second-year medical students at the University of Toronto the basics of user-centred design. The intervention consisted of a 1-hour didactic lecture on design methodology, a patient interview discussing pain points in their healthcare journey, and a 2-hour small group workshop led by 15 healthcare professionals trained as facilitators. Evaluation of the session, including post session questionnaires from students and facilitators, informal discussions, and debriefing with the research team yielded important considerations to expand and improve this initiative for future iterations.

**Results**

Many students appreciated the opportunity to practice creative problem-solving, and tutors enjoyed the change to teach design to students and found it valuable and effective. However, some students had difficulty understanding the objectives of the workshop or felt that the patient story did not directly connect to design objectives.

**Conclusion**

This study provides insight into the effectiveness of teaching user-centred design to promote creativity, innovative thinking, and patient-centred care. The feedback from this pilot can be used to inform future creative-thinking focused workshops.

**Exploring How Adaptive Expert Clinicians Recognize, Interpret and Navigate Shifts in Understanding Client and Family Stories**

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**Introduction**

Family-centered care requires flexible and adaptive approaches to elicit, recognize, and integrate client and family perspectives into care. At times, families’ perspectives may differ from those of the physician, necessitating physicians to shift their approach to best suit the needs of the family. Despite the importance of these shifts in providing family-centered care, we know little about how physicians identify these shifts during clinical encounters and use them to navigate interactions with clients and families.

**Aim**

Studying how client and family-centered care is delivered will better inform the instructional Methods we use to train future generations of health care professionals.

**Methods**

We conducted a constructivist grounded theory study in 2019-20 using 100 hours of participant observation and semi-structured interviews as the data sources and purposeful sampling of ten expert physicians from the Division of Developmental Paediatrics at the University of Toronto. Data collection and analysis occurred iteratively, and themes were identified through constant comparative analysis by a team of researchers.
 **Results**

Physicians navigated shifts by allowing clients and families to guide the conversation based on their own needs and perspectives. Physicians included feedback from team members, clients, and families, even when it did not align with their approach. Using verbal and non-verbal cues, physicians embraced the discomfort when novel or unexpected conversations arose. Expert physicians relinquished some of their decision-making control to develop a care plan best suited to each unique family.

**Conclusions**

Despite the importance of recognizing shifts in perspective in order to provide family-centred care, physicians do not explicitly teach trainees to recognize and respond to shifts when teaching medical trainees but do so implicitly through modeling. This method of teaching may prevent opportunities for dialogue around shifts and limit the development of this skill in medical trainees.

**Exercise Classes to Review Musculoskeletal Anatomy for Medical Students (working title)**

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Medical students often do not meet the recommended levels of physical activity, with lack of time and study schedules cited as contributing factors. There is substantial evidence implicating decreased exercise in burnout and depression among this population and the benefits of physical activity to psychological wellbeing and memory improvement are well known. The objective of this innovation is to develop an exercise program to review concepts presented in musculoskeletal anatomy at the Schulich School of Medicine and Dentistry.

Three group fitness classes will be run during which various resistance exercises will be performed targeting different muscle groups. Key concepts will be highlighted during the execution of each exercise (i.e. muscles being utilized, origin, insertion, action and innervation) and students will be prompted to recall this information at various points during the session.

The exercise classes are scheduled to be conducted on January 29th, February 5th and February 12th, 2020. A full outline of exercises performed, and concepts discussed will be provided following completion of the project.

It is anticipated that the exercise classes will augment learning and facilitate retention of major concepts in musculoskeletal anatomy. In addition, we hope these sessions will increase the confidence of students regarding their anatomical knowledge and assist in the improvement of stress management and overall wellbeing. We hope that this intervention will inspire other schools to develop educational activities that also promote fitness and wellbeing.

**Emergency Airway Management: Practice Makes Perfect (Automatic)**

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**Background**

Emergency airway management (EAM) requires competency in technical and non-technical skills for use in a complex and time-sensitive clinical setting. EAM teaching often relies on part-task training in one-off seminars, combined with practice in the controlled setting of the operating room. This approach does not necessarily prepare residents for the complexity and high cognitive load inherent to EAM.

The four-component instructional design (4C/ID) model is a proven approach to teaching complex cognitive skills with varying real-world contexts and settings. The 4C/ID model asserts that four interrelated components are essential for complex learning: learning tasks, supportive information, just-in-time information, and part-task practice.

**Hypothesis**

It was hypothesized that participants in a simulation-based curriculum designed using the 4C/ID model would achieve proficiency and automation of skills and experience decreased cognitive load during complex clinical tasks.

**Methods**

10 members of the CFPC-Emergency Medicine program at Queen’s University participated in a curriculum designed using the 4C/ID model. Phase I of the curriculum included 3 teaching modules which incorporated advance learning of supportive theoretical information, followed by high volume part-task practice where residents received just-in-time feedback for increasingly complex airway problems. Only when the required level of performance for a particular task class had been reached did the learner proceed, thus encouraging automation prior to advancing to subsequent tasks.

**Results**

100% of participants reached the Objective Structured Assessment of Technical Skills milestones for intubation prep, direct and video laryngoscopy, supraglottic device use and surgical cricothyrotomy with 100% accuracy, and achieving at least 4/5 (superior) rating on the Global Assessment Scale. Residents also reported a reduction in cognitive load when approaching EAM tasks in the clinical setting, despite minimal actual clinical experience to influence this.

**Conclusions**

Preliminary evidence suggests that a 4C/ID-based EAM curriculum may reduce the cognitive load experienced by residents during complex clinical tasks.

**Dementia Education Training: Informing a Memory Care Model**

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3. University of Toronto Faculty of Medicine
4. University of Toronto Bloomberg Faculty of Nursing

**Background**

The proportion of long-term care residents with dementia in Canada has grown steadily since 2010, with nearly 64% now affected. WHO recognizes dementia as a global public health challenge and has called on governments to provide good quality dementia care. Dementia care training programs are essential to improve the quality of life for patients with dementia and for frontline workers. However, training programs vary between institutions and are rarely evidence-based

**Objective**

The goal of this literature review is to report on the efficacy of dementia education training programs worldwide in order to inform the design of a memory care program unique to Baycrest that will facilitate improvements in staff knowledge and confidence, improve client care, reduce healthcare worker burnout, and support a more person-centred approach.

**Method**

A literature search was performed using the MEDLINE database for studies published from January 2009 to April 2019. Titles and abstracts of 115 articles were identified and reviewed. After applying inclusion criteria and consulting grey literature, 19 relevant articles were included. Descriptive Methods were used to summarize and synthesize key themes.

**Results**

Literature suggests that effective training should be tailored to learners, delivered by an experienced facilitator, and embedded within a supportive organisational culture. Interactive learning activities, including discussion of cases, were particularly useful in helping staff apply learning to practice. However, evaluating the efficacy of dementia care models was limited by a lack of robust evidence. Several barriers to effective training were identified, including low staff attendance, lack of organizational support, and financial limitations.

**Conclusion**

Themes such as communication skills, person-centered care, worker empowerment, and leadership within professions are most essential when developing a dementia training program for staff in the long-term care setting. More high-quality studies are needed to determine features of effective dementia care models.

**Quality Improvement Implementation Model in Care Gap Analysis and Development of Care Pathway to Optimize Management of Early Pregnancy Complications**

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**Background**

Quality improvement (QI) implementation is essential in health care centres to provide care along best practice guidelines. In order to conduct a critical quality assurance project, researchers must; define the quality standards of care, determine if care gaps are present and develop a Clinical-Care Pathway Model (CPM). This model for QI implementation is best described by analyzing CPM development for Early Pregnancy Complications (EPC) at The Ottawa Hospital (TOH)

**Methods**

Quality standards in EPC were updated In 2019 by Health Quality Ontario (HQO). A retrospective chart review was performed on ED EPC encounters at TOH. 504 encounters were included for data analysis. Following data analysis, a CPM was developed by a team of nursing educators, social workers, patient advocates, emergency physicians and obstetrician/gynecologists. The development process used focus group interviews with patient advocacy representatives and written summaries from patient complaints. Nursing directives and physician ordering recommendations were revised to reflect best practices.

**Results**

22 (4%) patients received initial pain management. One (< 1%) patient received screening for sexually transmitted infections or intimate partner violence. 420 (83%) patients received an appropriate medical work up. Psychosocial support referrals were not offered for ectopic pregnancies. Preliminary analysis highlights care gaps between HQO Quality Standards and TOH ED EPC care. The development process of CPM addressed these quality gaps. Nursing triage directives and CPM were devised. An education booklet was revised to reflect the inter-professional nature of the CPM.

**Conclusions**

Our study at TOH highlights an effective methodology for a QI implementation project using a multidisciplinary approach. All medical learners would benefit from learning QI implementation procedures as this process is essential for actively identify care gaps at our health centres and to further encourage the use of evidence-based medicine in daily practice.

**Scoping review of research training in medical school: Is there an optimal framework?**

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**Background**

Fostering an interest in research is increasingly important for medical schools. The optimal model for research training in undergraduate medicine is unknown. The purpose of this systematic review was to examine the breadth of current curricular structures and outcomes.

**Methods**

A literature search was undertaken using Pubmed (159) and Embase (10). Sixty–four papers were retrieved for full text review. Additional specific targeted websites (38) and journals were hand-searched, and reference lists were screened. Included articles were English language, described a research training curriculum, and identified medical students as target learners. Articles meeting inclusion criteria were reviewed with relevant data abstracted. Descriptive statistics and narrative thematic summaries were compiled.

**Results**

112 articles were reviewed in full and 48 were excluded, leaving 62 papers. Forty-two (68%) were descriptions of US programs, and 37 (60%) programs were mandatory for enrolled students. Timing was variable: 8 (13%) were offered during preclinical years, 9 (14%) clinical, 2 (3%) pre-graduation, 8 (18%) student choice, and 32 (52%) embedded longitudinal threads.
Programs were variably evaluated: 16 (26%) used academic productivity, 14 (23%) student feedback, and 1 (2%) faculty survey. Eleven (18%) used two or more of these. Twenty (32%) published a curricular description without evaluation or were unclear in their method of evaluation. Reported benefits across publications include enhanced knowledge, improved research and writing skills, clarity around career plans and valued mentoring relationships. Optimal timing is unclear – too early and students reported mismatch between evolving interests and research topics, while later training limited opportunities for career exploration. Academic productivity increased with longer duration, however students struggled with time management during longitudinal embedded threads.

**Conclusions**

There are many curricular structures for undergraduate research training, but no high-quality evidence to support any one design. Students receiving this training report many benefits beyond an enhanced skill set.

**Rehabilitation professionals and leadership competencies: A literature review**

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**Introduction/Background**

The purpose of this literature review is to examine past, present, and future research on rehabilitation leadership, identify gaps and dissect the opportunity to further incorporate leadership as a competency within the profile of Rehabilitation professionals.

**Hypothesis/Question**

The objective is to build a stronger platform of the leadership elements within the scope of practice of rehabilitation professionals. This will generate a discussion for future research, education and conceptual model development surrounding the role of leadership.

**Methods**

A literature search was conducted on leadership within the rehabilitation literature. Articles that met the key inclusion criteria were examined. Peer reviewed and grey literature dedicated to leadership within the rehabilitation professions were included.

**Results**

Incorporating leadership qualities of rehabilitation professions may be necessary for progress beyond healthcare and to further strengthen the profile of practice. Leadership within rehabilitation professions has been reported to be a crucial part of research, practice and education. Adaptation of existing models, practice frameworks and interprofessional education have contributed to the development of leadership in rehabilitation programs.

**Discussion/Conclusions**

This study will contribute to exploring enablement of leadership qualities in interprofessional teams and also provide opportunities to advocate for the importance of utilizing rehabilitation professionals in novel roles beyond the traditional practice setting. These modifications to the existing profile of Rehabilitation professionals will contribute to the leadership scope of this holistic healthcare sector. This research study will provide insights into leadership in rehabilitation professions where there is a potential to analyze and incorporate creative tools in the scope of practice.

**Postoperative pain management education during the surgery core rotation at McMaster University, Waterloo Regional Campus**

N. Patro 1, G. Campbell 2

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**Background**

Opioid over-prescription continues to be a challenge in the postoperative setting for management of acute pain. Initiatives have been developed to standardize postoperative opioid prescribing with an emphasis on multimodal pain management, including Health Quality Ontario’s “Cut the Count” campaign. However, there is a concern medical education has not remained current on this topic, with few studies exploring gaps in pain management curricula at Ontario medical schools.

**Question**

This study primarily set out to determine whether teaching is being provided on multimodal postoperative pain management and opioid reduction strategies in alignment with guidelines during the surgery core rotation at the regional site of an Ontario medical school. Secondary points of interest included whether students find this teaching effective and if it is provided during other points in clerkship or pre-clerkship.

**Methods**

A 13-item survey was developed to determine effectiveness of teaching around postoperative pain management during the surgery core and its alignment with current guidelines. The survey was disseminated to final-year medical students at the regional site.

**Results**

Seven of nine respondents indicated that this teaching was provided during the surgery core. All respondents receiving this teaching also indicated learning about a multimodal pain control approach consistent with guidelines. Only three of seven respondents received teaching on providing patient and caregiver education around the pain management plan, despite a strong recommendation in guidelines in favour of this practice.

**Conclusions**

Most students seem to receive teaching on multimodal postoperative pain management during the surgery core at the regional site. Opportunities to strengthen the teaching include addressing the role of patient and caregiver education in the pain management plan. Exploring postoperative pain management teaching across other Ontario medical schools can help identify opportunities to address provincial concerns of responsible opioid prescribing from a medical education standpoint.

**The state of health advocacy training in postgraduate medical education: Review & Recommendations**

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**Context**

Health advocacy is an essential component of postgraduate medical education and is part of many physician competency frameworks such as the CanMEDS roles. There is little consensus about how advocacy should be taught and assessed in the postgraduate context. There are no consolidated guides to assist in the design and implementation of postgraduate health advocacy curricula.

**Objectives**

This scoping review aims to identify and analyse existing literature pertaining to health advocacy education and assessment in postgraduate medicine. We summarise themes from the literature that may be useful to medical educators to inform further health advocacy curriculum interventions.

**Methods**

MEDLINE, Embase and ERIC were searched using MeSH and non‐MeSH search terms. Additional articles were found using forward snowballing. The grey literature search included Google and relevant stakeholder websites, regulatory bodies, physician associations, government agencies and academic institutions. We followed a stepwise scoping review methodology, followed by thematic analysis using an inductive approach.

**Results**

Of the 123 documents reviewed in full, five major themes emerged: (i) conceptions of health advocacy have evolved towards advocating with rather than for patients, communities and populations; (ii) longitudinal curricula were less common but appeared the most promising, often linked to scholarly or policy objectives; (iii) hands‐on, immersive opportunities build competence and confidence; (iv) community‐identified needs and partnerships are increasingly considered in designing curriculum, and (v) resident‐led and motivated programmes appear to engage residents and allow for achievement of stated outcomes. There remain significant challenges to assessment of health advocacy competencies, and assessment tools for macro‐level health advocacy were notably absent.

**Conclusions**

There is considerable heterogeneity in the way health advocacy is taught, assessed and incorporated into postgraduate curricula across programmes and disciplines. We consolidated recommendations from the literature to inform further health advocacy curriculum design, implementation and assessment.

**Pilot Project: A Peer-Led BLS Training Program for UBC Medical Students**

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**Introduction/Background**

Canadian medical students are required to be trained in Basic Life Support (BLS). Students obtain certifications through private organizations, providing challenges with course cost and availability. Peer-led BLS training has been piloted in medical schools outside Canada, showing benefits in effectiveness, accessibility, cost, knowledge retention, and student engagement, while providing teaching opportunities, a core physician competency.
 **Hypothesis/Question**

We hypothesized that a peer-led BLS program could be implemented for UBC medical students that substantially reduced costs, while increasing levels of engagement, relevance, and exposure to simulation labs.
 **Methods**

Two second-year UBC medical students completed a two-day Heart and Stroke Foundation (HSF) BLS Instructor Course. The peer-instructors volunteered to organize and teach full-length and renewal BLS courses to medical students. The course cost $10 per student, covering HSF registration and instructor fees. Courses were taught at university-affiliated simulation centres with high-fidelity manikins and common medical equipment students use during clinical rotations. A ‘Code Blue’ team-based simulation was incorporated to add relevance. A post-course survey was delivered for quality improvement.

**Results**

Since July 2019, 8 courses were taught, training 41 students total. The first-time pass-rate was 100%. Students paid about 88% below professional-led courses. 37% of students completed the post-course survey. Compared to professional-led courses, students reported that peer-instructors increased engagement levels and the use of high-fidelity mannequins in a simulation room improved practicality. 100% of students agreed the program should continue.
 **Discussion/Conclusions**

Peer-led BLS certification for medical students is a cost-effective program that students find relevant and valuable. Barriers to creating a sustainable program include costs to train new instructors and purchase equipment. Stability of the program is provided by a faculty academic physician to oversee the program long-term. Future research should focus on the benefit to peer-instructors and the practicality of BLS-courses to increase exposure to simulations in the curriculum.

**Do “Teddy Bear Hospital Project School Visits” improve pre-clerkship students’ comfort explaining medical concepts to children?**

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**Introduction**

The Teddy Bear Hospital Project (TBHP) is an international initiative aimed at reducing children’s fears associated with healthcare visits by modeling these interactions using teddy bears. uOttawa’s program has outlined an additional objective: increasing pre-clerkship medical students’ comfort communicating medical topics to children.

**Objective**

Although a previous analysis found that the majority of pre-clerkship volunteers agreed that the program met this objective, this study aimed to assess for a significant change in comfort communicating medical concepts to children using a pre- and post- visit survey.

**Methods**

25 pre-clerkship volunteers participated in 10 kindergarten/grade one classroom visits during Fall 2019. Each visit consisted of four stations (Handwashing/Immunizations; X-ray/MRI; Well-Child; and Casting/Bone Health). Likert scale data from pre- and post-visit surveys were analyzed using paired t-tests.

**Results**

80.0% (20/25) of volunteers participated in the study, of which 6 were excluded for not completing the surveys sequentially. Overall, there was no significant difference in volunteers’ pre- and post-visit rating of their comfort interacting with children in a clinical setting (p=0.0851) or in their comfort communicating medical topics to children (p=0.1205). However, 12/14 (85.7%) of volunteers agreed or strongly agreed that the TBHP improved their ability to communicate medical knowledge to a young child.

**Discussion**

Although we found no significant difference in volunteers’ pre- and post-survey scores, the majority of participants reported a positive change in their comfort levels. Small sample size, ceiling effect and possible participant over reporting of pre-TBHP comfort levels, may have affected the Results and will be addressed in subsequent data collection. Additionally, in the future, we aim to explore whether returning volunteers show a significant improvement in their comfort levels between their first and last visit.