



# MSERG



## 2019 RECIPIENTS

### Medical Student Education Research Grant

The Ontario Medical Students Association (OMSA) is pleased to recognize the recipients of the 2019 Medical Student Education Research Grant (MSERG). A total of nine MSERG awards valued at \$5,000 each were granted to Ontario medical students to conduct research projects. Six of the awards were granted to students to perform research on humane and compassionate care; three were granted in the Open Stream to perform research with a focus on medical education. Following is a summary of each winning MSERG project.

### Compassionate Care MSERG Award Recipients

**PROJECT: Evaluation of the Current Indigenous Health Curriculum in Medical Schools: Does the Current Education Curriculum Make Medical Students Feel Confident in Providing Culturally Safe Care to Indigenous Communities?**

*By Muskaan Sachdeva  
University of Toronto, Med Class 2022*

Many media reports and national studies have labelled Indigenous health as “Canada’s biggest health problem” because of

the disproportionately increased risk for various health conditions in the Indigenous population. Growing health disparities between Indigenous and non-Indigenous Canadians may stem from the inadequate training of medical professionals in Indigenous topics.

I am extremely passionate about embedding cultural competency in physicians which requires a sustained focus on knowledge, awareness, skills and attitudes at an early stage of medical school studies. With this goal in mind, I became involved in analyzing the state of Indigenous Health (IH) curricula in Canadian medical schools through evaluating the curriculum changes based on recommendations and the perception of students and Indigenous peoples.

Our team conducted a literature search using OVID database, Google Scholar, news media outlets, medical school websites, and seeking resources on IH in medical education. Publications were classified into four themes: The Current State of Canadian Medical Schools, Perception of Medical Students, Recommendations for Medical Schools, and Indigenous Voices. In response to the AFMC-IPAC recommendations from 2008, medical schools have made IH additions to their curriculum in three main aspects: increased participation of medical students in Indigenous health-related activities, increasing Indigenous medical student enrolment, and bolstering cultural diversity training. However, a lack of standardization was found in adhering to the recommendations in medical schools across Canada. Moreover, many medical students still report inadequate preparation for the provision of health care in the Indigenous community. Additionally, Indigenous communities report discrimination and a lack of opportunities to provide curriculum input as barriers to improving the current Indigenous health system. Based on the perceptions of medical students and Indigenous communities, existing and additional recommendations must be considered to drive towards improvement.

We are hoping to publish our results in a scientific journal to advocate for a more thorough Indigenous Health curriculum that is reflective of the needs of the population. I'm truly honoured to have worked on this project, which would not have been possible without the constant guidance from Dr. Lisa Richardson, Dr. Cynthia Whitehead and Dr. Robert Paul, and funding from the 2019 Ontario Medical Student Association (OMSA) Medical Student Education Research Grant.

### **PROJECT: Raising Awareness of Weight-Based Biases in Health Care Through Lived Experience Education Podcasts: A Continuing Professional Development Pilot Study**

*By Ran Huo*

*University of Toronto, Med Class 2021*

People come in all different shape and sizes, yet many individuals with obesity face discrimination and prejudice as a consequence of weight bias, including in health care settings. Our research group aimed to create, implement, and evaluate a novel approach: podcasts to educate health care professionals about weight-based discrimination that fosters self-reflection related to weight bias.

We are in the process of creating several podcasts in collaboration with individuals with obesity who are happy to share their experiences. We hope that our initiative will provide a safe, reflective space for professionals to explore their own attitudes and practices related to weight and health, and to provide strategies for enacting these learnings in practice. This pilot project explores the feasibility and effectiveness of the curriculum.

The OMSA Medical Student Education Research Grant provided me the opportunity to explore the intersection of clinical obesity and medical education, a highly interlinked yet rarely discussed combination. As a complement to my medical education, this research project helped me reflect on my own inherent

biases, and ways to recognize and mitigate them during my professional interactions. Through the qualitative research process, I appreciated the lasting impact of compassionate patient-centred care for all individuals, especially those who are more vulnerable to unconscious bias. I hope to carry forward these reflections and advocacy efforts into my clinical practice, creating a comfortable environment for my colleagues and patients alike.

### **PROJECT: Bringing Artificial Intelligence to Medical School Education**

*By Gali Katznelson*

*Western University, Med Class 2022*

Artificial intelligence (AI) is transforming health care for the better, but also brings with it new ethical dilemmas. There are numerous issues to consider, such as what information patients should know about health artificial intelligence systems (AIs), and how transparent an algorithm should be in order to be used clinically. Medical students will have to work alongside health AIs, as well as have a stake in the ways in which they are implemented into our health care system. However, at present, medical schools do not educate students about the health AI challenges that they might face in the future.

I had the privilege of working with Sara Gerke, Research Fellow in Medicine, Artificial Intelligence, and Law, at the Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics, at Harvard Law School, to develop a health AI ethics medical school education curriculum. Our case-based curriculum provides an overview of health AIs and addresses the ethical issues of informed consent, bias and disparities, transparency and trust, as well as data privacy. So far, we have submitted an abstract to the Canadian Conference for Medical Education and are working on a publication. This grant has enabled me to think critically about health AI ethics, and inspired me to continue working in this fascinating field to address and develop solutions to these issues.

### **PROJECT: Exploring How Gender Influences Self-Assessment in Undergraduate Medical Education: A Qualitative Study**

*By Kevin Chien*

*University of Ottawa, Med Class 2020*

My involvement with this project started after speaking with a colleague about self-assessment, and how gender influences it. Although we know people, in general, are poor at self-assessment,<sup>1</sup> women tend to underestimate their performance more than men do.<sup>2,3,4</sup> These inaccuracies may impede learning for trainees by decreasing the efficacy of feedback. Inaccurate self-assessment has also been shown to negatively affect clinical performance, patient safety, and career advancement.<sup>5,6,7</sup> Despite these implications, our understanding about the factors influencing gender-based differences in self-assessment remains limited. Thus, our study aimed to understand how gender impacts the perceptions and standards that drive medical students' perceptions of competence.

Eleven medical students (7 of 11 were female, and 10 of 11 were non-Caucasian) from first year to third year participated in semi-structured interviews to discuss how they self-assess and set performance standards. Constructivist-grounded theory guided the iterative data collection and analytic process.

Although we initially aimed to understand how gender influences self-assessment, we gained valuable insights regarding how medical students set standards and gauge their own performance in general. Preliminary results suggest that they use perceived external expectations, peer comparison, and their personal values to set performance standards in the absence of clear expectations and useful feedback. Students seemed to gauge their success based on their performance as clinicians rather than learners. Furthermore, some participants described structural biases, including gender, as a prominent factor that exacerbated pressures to excel. We have submitted an abstract to the Canadian Conference on Medical Education and hope to present these findings in 2020.

Through this project, I have had the opportunity to learn more about qualitative methodology and how it can be used to better understand the complexities of individuals' opinions, experiences, and behaviours surrounding a specific topic. I look forward to applying this to future medical education projects.

#### References

1. Eva KW, Regehr G. "I'll never play professional football" and other fallacies of self-assessment. *J Contin Educ Health Prof.* 2008 Winter;28(1):14-9.
2. Blanch DC, Hall JA, Roter DL, Frankel RM. Medical student gender and issues of confidence. *Patient Educ Couns.* 2008 Sep;72(3):374-81.
3. Colbert-Getz JM, Fleishman C, Jung J, Shilkofski N. How do gender and anxiety affect students' self-assessment and actual performance on a high-stakes clinical skills examination? *Acad Med.* 2013 Jan;88(1):44-8.
4. Madrazo L, Lee CB, McConnell M, Khamisa K. Self-assessment differences between genders in a low-stakes objective structured clinical examination (OSCE). *BMC Res Notes.* 2018 Jun 15;11(1):393. Available from: <https://bmcreresnotes.biomedcentral.com/articles/10.1186/s13104-018-3494-3>. Accessed: 2019 Oct 9.
5. LaDonna KA, Ginsburg S, Watling C. "Rising to the level of your incompetence": what physicians' self-assessment of their performance reveals about the imposter syndrome in medicine. *Acad Med.* 2018 May;93(5):763-768.
6. Bakken LL, Sheridan J, Carnes M. Gender differences among physician-scientists in self-assessed abilities to perform clinical research. *Acad Med.* 2003 Dec;78(12):1281-6.
7. Edmunds LD, Ovseiko PV, Shepperd S, Greenhalgh T, Frith P, Roberts NW, Pololi LH, Buchan AM. Why do women choose or reject careers in academic medicine? A narrative review of empirical evidence. *Lancet.* 2016 Dec 10;388(10062):2948-2958. Open MSERG Award Recipients

### PROJECT: Understanding the Experiences of Refugee Claimants in Our City's Emergency Departments: A Qualitative Analysis

By Sampreeth Rao

University of Toronto, Med Class 2021

In recent years, economic, political, and social instability on a global scale has led to increasing rates of emergent migration.

In Canada, this trend has had a profound impact on the health care system, which is seeing greater numbers of refugee claimants and non-insured patients. For many of these vulnerable populations, the emergency department often becomes the first point of contact, serving as a safety net and starting point for future care.

With this in mind, our research aims to understand the experiences of refugee claimants and non-insured individuals in emergency departments across Toronto. To this end, we are currently conducting interviews with refugee claimants, and non-insured individuals, as well as a range of health care providers. Most importantly, we are using a community-based participatory research (CBPR) approach, utilizing the expertise of community partners to ensure ethical study design.

Of all the lessons I have learned during this process, being involved in the development and implementation of a CBPR project has been the most valuable learning experience. Given the multiple parties involved, the process of gathering community input and piloting interview questions has admittedly been difficult. However, the expertise and resources provided by our community partners has taught me that collaborating with non-academic organizations is vital in this line of research.

Overall, my summer work has made me recognize the importance of advocacy in our profession. As health care providers, it can become easy to passively accept the deficiencies in our health care system. However, this project has been a breath of fresh air, allowing me to have candid one-to-one conversations while also informing policy change on a larger scale. It has made me realize that providing equitable and compassionate care is just as much about advocacy outside the confines of the hospital as it is about providing adequate medical care.

### PROJECT: Best Practices and Unique Considerations for Health Care Delivery to Inner-City Populations in a Geographically Remote Community

By April Kindrat

Northern Ontario School of Medicine, Med Class 2019

This project stemmed from a previous review of literature on delivery of primary health care to inner-city populations. This original literature review noted an absence of literature on Indigenous homeless populations.

In Sudbury, Ontario, more than 40% of the homeless population is Indigenous and there are plans to establish an inner-city clinic to meet their needs.

Concern over the absence of literature on this topic was raised after the original literature review. For this reason, a systematic review that examined evidence on primary health care delivery to Indigenous homeless populations in Canada was designed. Thirty-two terms that reflected possible homelessness were used; 15 specifically looking at the dimensions of Indigenous homelessness. Eleven terms were used

to reflect primary care; and 143 terms (traditional and colonial) referenced the variety of Indigenous Nations throughout Canada.<sup>1,2</sup>

Five databases were selected for the literature search: MEDLINE, EMBASE, PsychINFO, Web of Science, and CINHALL. No restrictions were set for date or language of publication. After deduplication, 5,234 articles have been selected for title and abstract screening.

As the primary researcher, I have transitioned this project from my undergraduate medical degree at the Northern Ontario School of Medicine to my family medicine residency at Queen's University with the full support of my new faculty. Personally, this project has challenged me as a scholar, a project manager, and a team leader. The results of this re-

search will inform further programming for Sudbury's Inner-City clinic and hopefully beyond. Without the support of the Associated Medical Service, this valuable project would not be possible.

#### References

1. Parrott Z. Indigenous peoples in Canada. In: Canadian encyclopedia [Internet]. Toronto, ON: Historica Canada; 2007 Mar 13 [updated: 2019 Aug 7]. Available from: <https://www.thecanadianencyclopedia.ca/en/article/aboriginal-people>. Accessed: 2019 Dec 17.
2. Thistle JA. Definition of Indigenous homelessness in Canada [Internet]. Toronto, ON: Canadian Observatory on Homelessness; 2017. Available from: <https://homelesshub.ca/sites/default/files/COHIndigenousHomelessnessDefinition.pdf>. Accessed: 2019 Dec 17.

## Open MSERG Award Recipients

### PROJECT: Assessment of the Learning Object Rating Instrument (LORI) Tool on Medical Education Content

By Rishi Sharma and Ashley Eom

McMaster University, Med Class 2020

With the expansion of medical education resources online, systematic and methodical evaluation of learning resources must become an important part of medical education. Within the broader field of education, the Learning Object Rating Instrument (LORI) Tool was developed to allow users to parse through the many learning objects now freely available through online repositories.

Our project serves to evaluate the effectiveness of the LORI tool. We first conducted a literature review of the available resources available to evaluate educational content, particularly in the field of medicine. We are currently in the process of completing a needs assessment and feasibility study of the implementation of such a tool.

Next steps of this project include recruiting medical education content experts nationwide to utilize the LORI tool in assessing online content and modules. Following this we will compare the effectiveness and reliability of utilizing the LORI tool to assess content. Our goal is to determine whether or not the LORI tool can be used reliably for the assessment of online medical education content so that it can be amplified to be used for assessment of all medical education content.

We would like to thank OMSA for providing this opportunity to us. Additionally, we would like to thank Dr. Deepak Dath, Dr. Savannah Silva and medical student Daniel Lu for their continued support and dedication towards this project. We hope that in the following year we can make an impact on the way educational content delivered online can be effectively evaluated. Our hope is that with the results of this project we can implement a standardized tool for assessing content and allowing learners to differentiate between the quality of online content.

### PROJECT: Impact of Augmented Reality on Procedural Skills Acquisition in a Simulation-Based Training Curriculum for Polypectomy: A Randomized Controlled Trial

By Michael Scaffidi

Queen's University, Med Class 2022

Polyps are potentially pre-malignant colonic lesions which are resected during colonoscopy through polypectomy. To improve polypectomy technique among novices, it may be possible to use augmented reality (AR)<sup>1,2</sup> within a simulation-based training (SBT) curriculum. We aimed to determine the impact of an SBT curriculum using AR on performance of simulated polypectomy among novice endoscopists.

We conducted a randomized controlled trial with novice endoscopists from the adult gastroenterology and general surgery residency programs at the University of Toronto. Participants were randomized to either: the Control curriculum, which used expert-assisted instruction on a virtual reality (VR) simulator; or, the AR curriculum, which used the same training as the Control curriculum, with the addition of an AR program on an iPad<sup>®</sup> that played an instructional video on polypectomy technique when a polyp was detected on the simulator.<sup>3</sup>

The primary outcome was the difference between the two groups in terms of polypectomy-specific performance on a mechanical simulator, as assessed by expert endoscopists using the Direct Observation of Polypectomy Skills (DOPyS).<sup>4</sup> Twenty-one participants completed the study, wherein 11 and 10 were randomized to the control and AR groups, respectively. We did not find a significant difference between the two groups for polypectomy-specific performance. One limitation of the current analysis of our pilot study data is the small sample size, wherein our analysis was likely underpowered to detect a significant difference. A future iteration of this study is planned with a larger sample.

I found this entire experience extremely rewarding, as it was



exciting to integrate a new technology, AR, into the educational setting. I presented our findings as a poster at the Queen's Medicine "Medical Student Research Showcase." I want to sincerely thank my supervisor Dr. Samir Grover, his research team, and the MSERG funders for facilitating this fantastic research experience.

#### References

1. Byrne MF, Shahidi N, Rex DK. Will computer-aided detection and diagnosis revolutionize colonoscopy? *Gastroenterology*. 2017 Dec;153(6):1460-1464.e.1.
2. Bhushan S, Anandasabapathy S, Shukla R. Use of augmented reality and virtual reality technologies in endoscopic training. *Clin Gastroenterol Hepatol*. 2018 Nov;16(11):1688-1691.
3. Desai S, Schneider B, Ho SB, Gupta S. MINDful polypectomy: a quality improvement initiative to improve complete resection of colorectal polyps. *Endoscopy*. 2015;47 Suppl 1 UCTN:E503.
4. Gupta S, Anderson J, Bhandari P, McKaig B, Rupert P, Rembacken B, Riley S, Rutter M, Valori R, Vance M, van der Vleuten CP, Saunders BP, Thomas-Gibson S. Development and validation of a novel method for assessing competency in polypectomy: direct observation of polypectomy skills. *Gastrointest Endosc*. 2011 Jun;73(6):1232-9.e2.

## PROJECT: Developing Validity Evidence for a Clerkship Competency-Based Written Communication Skills Rubric Pilot

By Avri Lynn Ding

Queen's University, Med Class 2021

Despite the value placed on clinical documentation and volume of written work required from medical students, there is limited research on methods to assess medical students' written communication skills.<sup>1,2,3</sup> The lack of a valid, reliable assessment tool prevents schools from providing appropriate assessment and feedback to students, a necessity for competency-based medical education.<sup>3,4</sup>

The aim of this qualitative study is to establish validity evidence for the use of a pilot written communication assignment rubric to support assessment of written communication skills in clerkship. Fourth-year medical students who completed the assignment, and faculty who used the rubric, will participate in a focus group and semi-structured interviews respectively. Three components of Stobart's framework were selected as areas to evaluate the rubric in purpose, construct validity, and impact.<sup>5</sup>

I conducted a literature search of current tools developed to assess clinical documentation or written communication in clerkship. In collaboration with faculty and a medical education consultant, I refined student focus group and faculty interview questions. Inclusion/exclusion criteria, and a recruitment strategy for students and faculty preceptors were developed. Recruitment began in August 2019, and to accommodate a time when all final-year students will be back at Queen's University, the student focus group was conducted in November 2019. Results from the focus group will inform discussions during semi-structured interviews with faculty. All interviews will be audio-recorded and transcribed verbatim, then coded line-by-line to identify theme.

The study will aid in developing improvements to future use of the rubric and contribute to the medical education literature on written communication assessment tools. Current published rubrics are designed for specific disciplines or clinical settings, and do not demonstrate whether a student achieved targeted competency in a skill.<sup>6,7,8,9,10</sup> This study takes the first step in establishing validity evidence for a rubric that can serve as a model or tool for other Canadian medical schools to use for assessing students' written communication skills when implementing competency-based clerkship curricula.

#### References

1. College of Physicians and Surgeons of Ontario. Medical records [Policy statement #4-12]. [Internet]. Toronto, ON: College of Physicians and Surgeons of Ontario; 2012 May. Available from: <https://www.cpso.on.ca/admin/CPSCO/media/Documents/physician/policies-and-guidance/policies/medical-records.pdf>. Accessed: 2019 Dec 17.
2. Canadian Medical Protective Association. Why good documentation matters [Internet]. Ottawa, ON: Canadian Medical Protective Association; 2016 Oct. Available from: <https://www.cmpa-acpm.ca/en/advice-publications/browse-articles/2011/why-good-documentation-matters>. Accessed: 2019 Dec 17.
3. Ratcliffe TA, Hanson JL, Hemmer PA, Hauer KE, Papp KK, Denton GD. The required written history and physical is alive, but not entirely well, in internal medicine clerkships. *Teach Learn Med*. 2013;25(1):10-4.
4. Association of Faculties of Medicine of Canada. EPA Working Group. AFMC entrustable professional activities for the transition from medical school to residency. Ottawa, ON: Association of Faculties of Medicine of Canada; 2016 Sep. Available from: [https://afmc.ca/sites/default/files/pdf/AFMC\\_Entrustable\\_Professional\\_Activities\\_EN.pdf](https://afmc.ca/sites/default/files/pdf/AFMC_Entrustable_Professional_Activities_EN.pdf). Accessed: 2019 Dec 17.
5. Stobart G. Determining validity in national curriculum assessments. *J Educ Res*. 2009;41(2):161-79.
6. King MA, Phillipi CA, Buchanan PM, Lewin LO. Developing validity evidence for the written pediatric history and physical exam evaluation rubric. *Acad Pediatr*. 2017 Jan - Feb;17(1):68-73.
7. Bierman JA, Hufmeyer KK, Liss DT, Weaver AC, Heiman HL. Promoting responsible electronic documentation: validity evidence for a checklist to assess progress notes in the electronic health record. *Teach Learn Med*. 2017 Oct-Dec;29(4):420-432.
8. Park YS, Hyderi A, Bordage G, Xing K, Yudkowsky R. Inter-rater reliability and generalizability of patient note scores using a scoring rubric based on the USMLE Step-2 CS format. *Adv Health Sci Educ Theory Pract*. 2016 Oct;21(4):761-73.
9. Baker EA, Ledford CH, Fogg L, Way DP, Park YS. The IDEA assessment tool: assessing the reporting, diagnostic reasoning, and decision-making skills demonstrated in medical students' hospital admission notes. *Teach Learn Med*. 2015;27(2):163-73.
10. Melvin L, Connolly K, Pitre L, Dore KL, Wasi P. Improving medical students' written communication skills: design and evaluation of an educational curriculum. *Postgrad Med J*. 2015 Jun;91(1076):303-8. Available from: <https://pmj.bmj.com/content/postgradmedj/91/1076/303.full.pdf>. Accessed: 2019 Dec 17. **SI**

The OMSA would like to thank Associated Medical Services (AMS), OMA Insurance, MD Financial Management (MD) and Canadian Medical Association for their generous funding and support of this program.