



Postgraduate Medical Education
UNIVERSITY OF TORONTO

2023 Postgraduate Medical Education

GLOBAL HEALTH RESIDENT RESEARCH SHOWCASE

*An opportunity to share global health research during
postgraduate training*

THURSDAY, FEBRUARY 2, 2023

6:00 PM - 9:00 PM

VIA ZOOM



PROGRAM

- 6:15pm** *Opening comment by Dr. Barry Pakes, Global Health Academic Lead, PGME*
Moderated by Dr. Angela Dong, Internal Medicine PGY1
- 6:20pm** 1. Predicting the Clearance of Surgical Backlog for Plastic and Reconstructive Surgery Following the Onset of the COVID-19 Pandemic.
 Moaath Saggaf, Plastic and Reconstructive Surgery PGY4
- 6:30pm** 2. Engaging students to identify and address gender-associated challenges in medicine.
 Flora Jung, Internal Medicine PGY2
- 6:40pm** 3. Initial report on Collaborative Global Surgery Education Program utilizing mixed method of in-person and augmented reality technology.
 Kay Chua-Rivera, Pediatric Urology Fellow
- 6:50pm** 4. Young Infants Clinical Signs Study 8-sign algorithm for identification of sick infants adapted for routine home visits: Critical appraisal of its measurement properties.
 Alastair Fung, General Pediatric Fellow
- 7:00pm** BREAK
- 7:10pm** 5. Chronic Kidney Disease and COVID-19 infection.
 Sara Jdiaa, Glomerulonephritis, Nephrology Fellow
- 7:20pm** 6. Global Resource Needs in Paediatric Emergency and Critical Care: An International Survey.
 Tanya Haj-Hassan, Paediatric Critical Care Medicine Fellow
- 7:30pm** 7. The Implementation of Continuous Positive Airway Pressure for Neonates with Respiratory Distress in a Humanitarian Context: The Experience of Médecins Sans Frontières in Mosul, Iraq.
 Tanya Haj-Hassan, Paediatric Critical Care Medicine Fellow
- 7:40pm** 8. Exploring faculty attitudes and knowledge regarding curriculum implementation of Planetary Health at the Department of Family and Community Medicine (DFCM), University of Toronto.
 Rachel Adilman, Family Medicine PGY2
- 7:50pm** 9. Rural Health Quality Improvement Program: A Global Health Partnership Initiative.
 Jacqueline Holotka, Family Medicine PGY2
- 8:00pm** *Q&A, Discussion moderated by Dr. Angela Dong*
- 9:00pm** END
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ABSTRACTS

1. Engaging students to identify and address gender-associated challenges in medicine

Author 1. Lily Wang, ENT, PGY3

Author 2. Jennifer Tang, Urology, PGY2

Author 3. Sophia Wen, GIM, PGY2

Background. Female physicians remain disproportionately represented in leadership roles and face unique challenges in career development, while medical students lack curricular opportunities to address gender-associated social barriers.

Objectives: This study aimed to evaluate the Women in Medicine Summit (WiMS), a novel student-initiated conference designed to prepare medical trainees for gender-associated challenges in medicine.

Methods: The full day summit was organized by trainees at the University of Toronto and featured two keynote speakers, three panels, and three workshops.

Results and Conclusions: 106 medical trainees from five Ontario medical schools attended event on August 18, 2018. Following the event, attendees were invited to complete a post-program assessment. 55.8% of medical students (n=43) reported previously experiencing gender-associated discrimination in medicine, most frequently in the form microaggressions, where female medical trainees were mistaken as nurses or were counseled against surgical specialties. 16.3% and 72.1% of Ontario medical students reported feeling “very” prepared to address gender-associated challenges in medicine before and after attending WiMS, respectively. Attendees reported WiMS significantly improved their readiness to address microaggressions, to achieve work-life balance, and to adopt different leadership techniques. 97.7% of attendees reported learning something new at the summit. 100% reported WiMS would be valuable for other medical students. Our results highlight the lack of preparedness that Ontario medical trainees experience in addressing gender-associated challenges in the workplace and the capacity for a short-term intervention to significantly improve their skills and comfort. Based on the strong recommendation from the attendees, other medical schools across Canada may benefit from implementing similar initiatives.

2. Predicting the Clearance of Surgical Backlog for Plastic and Reconstructive Surgery Following the Onset of the COVID-19 Pandemic

Author 1. Moaath Saggaf, Plastic and Reconstructive Surgery, PGY4

Author 2. David Naimark, Plastic and Reconstructive Surgery, SSTP

Author 3. Dimitri Anastakis, Plastic and Reconstructive Surgery, PhD at IHPME

Purpose: The aim of this study was to simulate the clearance of the surgical backlog for Plastic and Reconstructive Surgery (PRS) that was incurred by the COVID-19 pandemic.

Methods: A parallel dynamic model with an open cohort and interaction was built for referrals for PRS in Ontario, Canada. The model allowed competition on limited operative resources. The model was informed by historical data and the most recent wait times. The time horizon for the model was two years, from April 2022 to Mar 2024. The model allowed for surgery-specific consultation and operative volumes. The model compared standard utilization to a 10% increase in operative resources and a 20% increase in operative resources. The volume of the surgical backlog was regressed over time, and the slope was reported for each strategy.

Results: The projected proportion of urgent cases seen within the provincial target wait time ranged from 69.1% to 70.3%. Standard utilization of health resources was projected to lead to an increase in the surgical backlog by 18 cases per day ($p < 0.0001$), while a 10% and a 20% increase in operative resources would lead to an increase in the surgical volume by 11 ($p < 0.0001$) and 5 ($p < 0.0001$) cases respectively. The largest percent change in surgical delay was projected for pediatric plastic surgery, lower extremity reconstruction and upper extremity reconstruction.

Conclusions: An increase in operative resources is warranted to address the surgical backlog from the earlier period of the pandemic. Healthcare policymakers can target specific surgeries to address the growing surgical backlog.

3. Initial report on Collaborative Global Surgery Education Program utilizing mixed method of in-person and augmented reality technology

Author 1. Michael Chua, Pediatric Urology, Staff Urologist, SickKids

Author 2. Kay Chua Rivera, Pediatric Urology, Fellow, SickKids

Author 3. Kate Luzelle Aba, Urology, PGY3, Philippines

Author 4. Manuel C. See IV, Urology, Staff Urologist, Philippines

Introduction: Global surgery aims to improve access to essential surgical care among low to middle-income countries (LMICs). With the advancement in augmented reality (AR), distant telementoring using wearable technology is being reported.

Objective: To report our initial global surgery education collaborative experience with the mixed in-person and AR technology with the prospectively collected registry that monitors the surgical outcomes of the cases performed and the evaluation of skill transfer perceived among mentees after each case.

Methodology: This is a prospective descriptive study conducted after the research ethics board approval (REB #1000079227). With the trial of Vuzix M400 AR smart glasses, a 1-week in-person Global Surgery for pediatric and adult reconstructive procedures was conducted in a tertiary referral medical center in the Philippines on December 2022. A registry was established to prospectively collect the case characteristics performed and the subsequent surgical outcomes. Additionally, the mentee's perceived pre- to post-procedural confidence and understanding of surgical knowledge/ skills were evaluated.

Results: A total of 9 procedures were performed. Procedures performed were laparoscopic procedures (orchidopexies and cystography), open reconstructive procedures (ileocystoplasty bladder augmentation, vesicovaginal fistula repair, penoplasty, buccal graft hypospadias repair, orchidopexy and redo-urethroplasty). No intraoperative and short-term complications were reported among the patients. The 6 local surgeon mentees reported significant improvement in surgical skill understanding and confidence after the procedures.

Conclusion: Our initial experience using the mixed approach of in-person and AR technology for telementoring showed feasibility and safe surgical outcomes. Long-term commitment and follow-up of procedure performed is mandatory to ensure long-term outcome.



4. Young Infants Clinical Signs Study 8-sign algorithm for identification of sick infants adapted for routine home visits: Critical appraisal of its measurement properties

Author 1. Alastair Fung, Academic General Paediatrics, Fellow

Author 2. Julie Farmer, Faculty of Dentistry, PhD Candidate

Author 3. Cornelia M. Borkhoff, Child Health Evaluative Sciences, Associate Professor

Background: Identification of potentially life-threatening illnesses among young infants by community health workers (CHWs) during home visits and subsequent referral to hospital are critical to reducing infant mortality in low- and middle-income countries (LMICs). The eight-sign algorithm adapted from the Young Infants Clinical Signs Study to identify sick infants during home visits (YICSS-home algorithm) is widely used in LMIC research studies. Before adopting a measurement tool in any study, it is important to critically appraise the quality of its development and evidence of its measurement properties for its intended use.

Objective: We aimed to critically appraise the development and evidence of measurement properties, including sensibility, reliability, and validity, of the YICSS-home algorithm. **Methods:** Relevant studies were identified through a targeted literature review.

Results: Of 6,155 citations identified, seven studies were included. The YICSS-home algorithm has good sensibility; it has good face validity and it is replicable, comprehensible and easy to use. The algorithm demonstrated at least moderate inter-rater reliability and sensitivity ranging from 69% to 80%. However, the algorithm was developed among sick infants brought for care to a health facility and not initially developed for use by CHWs during home visits. Some important variables, including maternal and birth history risk factors, were omitted at item generation. Inter-CHW reliability and construct validity have not been estimated.

Conclusion: A new algorithm to identify sick infants that addresses the limitations of the YICSS-home algorithm and uses repeated measurements of clinical features during home visits may lead to improved predictive accuracy.

5. Chronic Kidney Disease and COVID-19 infection

Author 1. Sara Jdiaa, clinical fellow, Glomerulonephritis, 1Division of nephrology, University of Toronto, Toronto, Ontario, Canada

Author 2. Archana Gautam, Department of Internal Medicine, Division of Nephrology and Hypertension, University of Kansas Medical Center, Kansas City, Kansas, USA

Author 3. Razan Mansour, Department of Internal Medicine, Division of Nephrology and Hypertension, University of Kansas Medical Center, Kansas City, Kansas, USA

Author 4. Reem A. Mustafa, Department of Internal Medicine, Division of Nephrology and Hypertension, University of Kansas Medical Center, Kansas City, Kansas, USA

Background: As of Jan 2023, there are 661 million COVID-19 confirmed cases and about 6.7 million deaths worldwide.

Objective: We conducted an umbrella review to assess the risk of hospitalization, mortality, infection severity and intensive care unit (ICU) admission in people with chronic kidney disease (CKD) and COVID-19 infection.

Methods: We updated our published review of reviews in the Journal of Nephrology. PROSPERO protocol registration number is CRD 42021227974. We searched OVID MEDLINE, Embase, Epistemonikos, Cochrane Database for Systematic Reviews and Cochrane Central Register of Controlled Trials between December 1st, 2020 to November 26, 2022. Six reviewers performed in duplicates title and abstracts screening, full text screening, data extraction and systematic review quality assessment using modified AMSTAR tool. Certainty of evidence was assessed using GRADE.

Results: Out of 1274 records, 57 systematic reviews met the inclusion criteria. Matthey-Mora et al. reported a higher risk of hospitalization in people with CKD and COVID-19 infection with OR 5.84 (95% CI 4.51 -7.56) compared to people without CKD (Moderate certainty). Dorjee et al. showed a higher risk of mortality with RR 2.52 (95% CI 2.11- 3.00) and increased risk of severe COVID-19 infection with RR of 1.56 (95% CI 1.31- 1.86) in people with CKD and COVID-19 infection compared to people without CKD (Moderate certainty). Bellou et al. reported a higher risk of needing ICU admission in people with COVID-19 infection who had CKD compared to people without CKD OR 1.56 (95% CI 1.20- 2.04) (Moderate certainty).

Conclusion: People with CKD are at higher risk of COVID-19 related adverse outcomes. Maximizing their protection against COVID-19 infection by vaccination is highly recommended.

6. Global Resource Needs in Paediatric Emergency and Critical Care: An International Survey

Author 1. Tanya Haj-Hassan, SickKids/Paediatric Critical Care Medicine/Fellow

Author 2. Daniel Martinez, Geneva University Hospitals/Paediatric Emergency Medicine

Author 3. Ad Bafa Ibrahim Ouattara, Centre Hospitalier Universitaire Sourou Sanou/Pédiatre

Author 4. Haifa Mtaweh, SickKids/Department of Critical Care Medicine/Staff

Background: Access to life-saving paediatric acute care resources is limited globally, particularly in regions with the highest burden of paediatric critical illness.

Objective: We aim to determine the essential paediatric emergency and critical care resources that critically ill children should have access to in resource limited settings (RLS) as determined by providers in those settings.

Methods: An international, two stage modified Delphi study will be conducted using guidance of the CREDES document. Core researchers established a list of hospital readiness requirements based on existing clinical guidelines and tools. These include 7 categories: Equipment, drugs, consumables, diagnostic laboratory tests, human resources, training, and infrastructure. Medical providers from RLS will answer the availability of these items in their settings and their perception of the need for them on a Likert scale. The list will be edited and supplemented based on survey responses over two Delphi rounds.

Respondents will be recruited via a broad, international sampling strategy using established relationships with global emergency and critical care societies, and via medical organisations with presence in RLS. The survey is provided in English, Arabic, French, and Spanish.

Results: We will generate a list of consensus statements regarding a minimum standard for resources, infrastructure, and staffing to meet the care requirements of critically ill children in RLS.

Conclusions: This global consensus survey will establish the paediatric acute care standards that critically ill children should have access to in settings where resources limit care. The resulting cohesive list could be used to inform effective emergency and critical care capacity-building in RLS.



7. The Implementation of Continuous Positive Airway Pressure for Neonates with Respiratory Distress in a Humanitarian Context: The Experience of Médecins Sans Frontières in Mosul, Iraq

Author 1. Tanya Haj-Hassan, SickKids/Paediatric Critical Care Medicine/Fellow

Author 2. Mohammad Amer, Médecins Sans Frontières/Nablus Hospital/Paediatrician

Author 3. Khalood Al-Jubori, Médecins Sans Frontières/Nablus Hospital/Nurse

Author 4. Juan Emmanuel Dewez, Médecins Sans Frontières, Operational Centre Geneva, Geneva, Switzerland

Background: Continuous Positive Airway Pressure (CPAP) is recommended for neonates with respiratory distress. CPAP is widely used in high-income countries, but less so in low- and middle-income settings.

Objective: We aimed to report our experience in a humanitarian setting.

Methods: MSF implemented two bubble CPAP machines in a basic neonatal unit in Mosul. Clinical data was recorded over 16 months. Descriptive statistics were used to assess the feasibility and outcomes of using CPAP.

Results: CPAP was well accepted by most healthcare workers and parents. 93 neonates were placed on CPAP. 98% of patients had a birthweight >1.5Kg. The main indications were respiratory distress syndrome, pneumonia, transient tachypnea, and meconium aspiration (46%, 22%, 16%, and 14% respectively). Average duration on CPAP was 53 hours. 63% of patients on CPAP recovered and were discharged home, 8% discharged against medical advice, 9% were referred, and 15% died.

Among patients who died at our facility or at the referral facility, 41% had a contraindication to CPAP, and the initiation of CPAP was delayed in 53% of patients. Complications included minor nasal lesions (17%), irritability (8%), and pneumothoraces (5%).

Conclusions: Using CPAP in a humanitarian setting is feasible. Most patients improved with CPAP and were discharged home. 5% of patients developed pneumothoraces, which is in keeping with other reports. However, among patients who did not improve, a significant proportion had contraindications to CPAP initiation and/or were placed on CPAP in extremis, highlighting the importance of clear indication criteria and training.

8. Exploring faculty attitudes and knowledge regarding curriculum implementation of Planetary Health at the Department of Family and Community Medicine (DFCM), University of Toronto

Author 1. Dr. KitShan Lee, Dr. Samantha Green (staff family physicians)

Author 2. Rachel Adilman (PGY-2 resident)

Author 3. Azzra Mangalji (PGY-2 resident)

Author 4. Elisabeth Abigail Ramdawar (research assistant)

BACKGROUND: Climate change is the greatest threat to human health of this century, yet no formal planetary health curriculum exists in postgraduate Family Medicine (FM) programs across Canada.^{1,2} As outlined by The College of Family Physician's Guides for Improvement of Family Medicine Training (GIFT) report, learners have illuminated the need for planetary health curriculum development, and provided recommendations and a framework for implementation.²

PURPOSE: This study aimed to determine University of Toronto DFCM faculty attitudes and knowledge regarding planetary health curriculum, to facilitate curriculum development and implementation. **METHODS:** This study sampled 12 DFCM faculty members (program directors, faculty development leads, and curriculum leads) through one-on-one semi-structured video interviews from May - October 2022. Grounded theory approaches were used to analyze data and identify themes.

RESULTS: Preliminary findings suggest that DFCM faculty perceive planetary health to be relevant to FM, as family physicians are often patients' first point of contact. However, some participants expressed concerns regarding: the priority of planetary health in a saturated curriculum, professional roles/boundaries, and difficulties engaging in curriculum change given competing priorities. Developing overarching themes include curriculum development, implementation, attitudes, and barriers.

CONCLUSIONS: As highlighted by the GIFT report, a need exists for planetary health education within the DFCM curriculum. Preliminary findings provide insight into factors that may aid in implementing a planetary health curriculum, including designating leads across all training sites to facilitate education, faculty education regarding health threats of climate change, and developing educational resources centered in Family Medicine to facilitate knowledge translation for faculty and trainees.



9. Rural Health Quality Improvement Program: A Global Health Partnership Initiative

Author 1. Jacqueline Holotka, Family Medicine PGY2

Author 2. Odoh Onuora, Family Physician and Clinical Instructor, University of British Columbia

Author 3. Solomon Chow, PharmD, Vancouver General Hospital

Author 4. Sean P. Harrigan, University of British Columbia Centre for Disease Control

Background: Nigeria is consistently the world's highest contributor of malaria-related deaths as outlined by the World Health Organization in 2022. In the rural community of Amechi Uwani, Nigeria, there is no government-operated healthcare facility, resulting in unfavourable health outcomes and negative socioeconomic impacts.

Objectives: The Rural Health Quality Improvement Program researched the feasibility and effectiveness of a local and international multidisciplinary partnership approach to improve malaria and primary care outcomes in low-resourced rural Nigerian communities through a community-focused public health program.

Methods: A rural community-focused innovative health improvement model was co-created by the Amechi Uwani community and Canadian partners. Health education, diagnostic testing, and three monthly malaria chemoprophylaxis doses were provided to participants. Program review metrics, community surveys, and cost-effectiveness were evaluated based on the implementation of the program.

Results: The survey demonstrated a 50% (n=1400) reduction in malaria incidence, reduced malaria-related care costs, and zero reported cases of severe malaria since the program's implementation. Approximately 100% of program participants reported improved health quality and malaria control knowledge. The program's scope has expanded to include chronic disease, ophthalmologic, dental, maternal, and paediatric care through the establishment of a comprehensive primary care centre. The services provided are free of cost and the program engages in outreach through healthcare provision within surrounding communities.

Conclusions: This program contextualises the strength of collaborative partnerships to build high-quality, affordable, and accessible healthcare within rural communities. The program has substantially improved public health outcomes and increased access to longitudinal comprehensive primary care in rural Nigerian communities.



Special Thanks to ...

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Dr. Armaan Malhotra, PGY4 Neurosurgery
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