



Postgraduate Medical Education
UNIVERSITY OF TORONTO

2024 Postgraduate Medical Education

GLOBAL HEALTH RESIDENT RESEARCH SHOWCASE

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

THURSDAY, FEBRUARY 1, 2024

6:00 PM - 9PM via ZOOM



PROGRAM

- 6:15pm** *Opening comment by Dr. Barry Pakes, Global Health Academic Lead, Postgraduate Medical Education
Moderated by Dr. Aisling Glynn, Fellow, Radiation Oncology*
- 6:20pm** 1. Assessment of a Brazilian Public Hospital Trauma System and Related Enhancement Suggestions:
Low Cost and Feasible Improvements for the Care of Patients.
Marc-Antoine Fortin, Trauma and Acute Care Surgery, Fellow, University of Toronto, Toronto
- 6:30pm** 2. Assessment of Knowledge and Perception about Telehealth among the Rural and low socioeconomic
populations of Punjab Province of Pakistan
Khadija Haris, General Surgery, PGY1, University of Toronto, Toronto
- 6:40pm** 3. Improving access to paediatric symptom management: Engaging and educating health care practitioners
to improve lives for children with serious illness in Bangladesh.
Fyeza Hasan, Paediatric Haematology/Oncology, PGY6, SickKids, Toronto
- 6:50pm** 4. Reflecting on the University of Toronto Hematology Toronto Addis Ababa Academic Collaboration
(TAAAC) experience: A global health education initiative.
Danyal Ladha, Internal Medicine, PGY5, University of Toronto, Toronto
- 7:00pm** BREAK
- 7:10pm** 5. Adopting the Hammersmith Infant Neurologic Examination (HINE) Tool for Early Detection of Young
Children with High Probability of Cerebral Palsy (CP) in Ethiopia: A Knowledge Implementation Project.
Selamenesh Tsige Legas, Developmental Pediatrics, Fellow, University of Toronto, Toronto
- 7:20pm** 6. The Efficacy and Safety of Nafamostat Mesylate in the Treatment of COVID-19: A Meta-Analysis.
Toni Li, Emergency Medicine, PGY1, University of Toronto, Toronto
- 7:30pm** 7. Surgeon perspectives on the approach to breast surgical oncology in Northern Province, Sri Lanka: A qualitative
analysis (SPABSO).
Gayathri Naganathan, Department of Surgery, Fellow, University of Toronto, Toronto
- 7:40pm** 8. Exposure to Ambient NO₂ and Low Birth Weight: A Spatial Epidemiological Study
Domenica Tambasco, Clinical Environmental Health, Fellow, Women's College Hospital, Toronto
- 7:50pm** *Q&A, Discussion moderated by Dr. Aisling Glynn, Fellow, Radiation Oncology*
- 9:00pm** END
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ABSTRACTS

1. Assessment of a Brazilian Public Hospital Trauma System and Related Enhancement Suggestions: Low Cost and Feasible Improvements for the Care of Patients

Author 1. Marc-Antoine Fortin, Trauma and Acute Care Surgery, Fellow, University of Toronto, Toronto
Author 2. Lucas Favero, General Surgery and Trauma Surgery, Hospital do Trabalhador, Curitiba, Brazil
Author 3. Fabio Carvalho, General Surgery and Trauma Surgery, Hospital do Trabalhador, Curitiba, Brazil

Background: Trauma is a major health problem in low- and middle-income countries, including Brazil. Improvement in trauma system can save lives and reduce health expense. Most of this can be achieved with low cost and feasible organizational measures.

Objectives/Purpose: Provision of a complete assessment of the hospital trauma system in a Brazilian public and academic center could help identify modifiable organizational factors and provide support for relevant changes in similar context.

Methods: One hospital located in Curitiba (Paraná) was evaluated with world recognized guidelines in trauma care (World Health Organization and American College of surgeons), direct observation and discussion with staff. Domains evaluated included : administrative structure, governance, available resources, patient care, data surveillance, performance enhancement, education and research. Related cost effective and attainable improvements were then defined.

Results: It was found that actual resources are present and probably sufficient to provide essential care. However, lack of organization results in missed opportunities for ameliorations, challenge patient care and bring financial burden. Initiatives in training, clinical protocols, trauma registry and quality improvement programs could palliate these deficits.

Conclusions/Findings: An action plan was discussed with hospital administrators to develop those initiatives in accordance with the specificity of the health care system, associated restrictions and socio-cultural aspects. Monitorization of changes is essential in the process. At the end, the observed benefits could result in enhanced patient care, hospital process, cost reduction, training and research capabilities as well as showing context specific trauma leadership at a state, national and Latin American level.

2. Assessment of Knowledge and Perception about Telehealth among the Rural and low socioeconomic populations of Punjab Province of Pakistan

Author 1. Khadija Haris, General Surgery, PGY1, University of Toronto, Toronto

Author 2. Aeisha D.Y. Khan, Neurology, PGY2, Western University, London

Author 3. Abdul Rehman, Psychiatry, PGY2, Greater Manchester Mental Health Foundation, National Health Service Trust, Manchester, United Kingdom

Author 4: Ammad Saeed, Cardiology Medical Officer, Rehmatul-lil-Alameen Institute of Cardiology, Lahore, Pakistan

Author 5: Naila Khanum, Family Medicine, Dr. Naila Family Care Clinic, Karachi, Pakistan

Introduction: The implementation of Telemedicine as a care delivery model in rural areas of developing countries is faced with many challenges for the general public. There is a need to understand the beliefs, and hurdles faced by the people of rural communities to bridge the information gap.

Objectives: To evaluate the perception and obstacles of telemedicine delivery among people living in rural areas of Punjab, Pakistan. **Methods:** Our research team offered patients coming to Abdul Rahim Medical Center to participate in this prospective cohort study. The questionnaire consisted of 8 questions; geographical location, the general perception, and the likes and dislikes of this medium of medical care.

Results: A total of 540 individuals were interviewed belonging to over 50 rural and remote communities of Punjab Province. 66.1% had never heard of telemedicine. Having educated them, 67.6% liked the idea and 29.8% disliked it. 75.1% of the individuals were willing to try this service and 24.9% wanted to avoid trying it. 70.1% revealed that the lack of human touch would be the biggest obstacle. About 50% of the participants expressed concerns about the cost of the service and availability of internet providers in rural areas.

Conclusions: Although telemedicine is a convenient way of providing healthcare services, many tangential factors come into play while delivering these services to rural communities. There is a need for collaborative efforts between medical administration, technological infrastructure, and government agencies to be able to make the customized use of telemedicine services for the welfare of rural populations.

3. Improving access to paediatric symptom management: Engaging and educating health care practitioners to improve lives for children with serious illness in Bangladesh

Author 1. Stephanie de Young, Centre for Global Child Health, SickKids, Toronto

Author 2. Kim Widger, Faculty of Nursing, University of Toronto, Toronto

Author 3. Shaidur Rahman, Paediatrics, Dhaka Medical College Hospital, Bangladesh

Author 4. Spandana Rayala, Paediatric Palliative Care, Sunflower Children's Network,
Two Worlds Cancer Collaboration, North Vancouver, British Columbia

Author 5. Megan Doherty, Paediatric Palliative Care, Sunflower Children's Network,
Two Worlds Cancer Collaboration, North Vancouver, British Columbia

Background: Annually, over 220,000 Bangladeshi children experience significant serious health-related suffering. Paediatric palliative care (PPC) is a holistic approach to address this suffering. Our team has been instrumental in establishing PPC in Bangladesh. However, services are centralized in the capital city, Dhaka, and available to less than 10% of children needing them.

Objectives: Our capacity-building project begins to address this, by developing a PPC leadership and education network across Bangladesh.

Methods: We will collaborate with a Dhaka hospital which will act as a PPC center of excellence, and 3 shared-care centers across the country. Using a train-the-trainer approach and innovative online and in-person training, we will work with the Dhaka hospital, local and regional experts to teach, mentor and support health professionals (HCPs) in the shared-care centers. This will give these HCPs the skills needed to provide PPC, share skills with colleagues, and begin to establish services in their centers. Using pre-developed, locally-adapted, validated qualitative and quantitative tools, we will continuously monitor and evaluate our impact on HCPs' knowledge, attitudes, and clinical skills. Our monitoring will include interviews, focus groups, surveys, and clinical assessments.

Results: We aim to train 36 HCPs, and to impact the practice of a further 1600 HCPs. We anticipate that this will improve the care of over 2000 children per year.

Conclusions: By creating a Bangladeshi palliative care education and leadership network, and connecting this network with local and regional experts, we will facilitate the ongoing development of urgently needed paediatric palliative care services.

Funding: We gratefully acknowledge Catalyst Grant funding from the SickKids Centre for Global Child Health.



4. Reflecting on the University of Toronto Hematology Toronto Addis Ababa Academic Collaborative (TAAAC) experience: A global health education initiative.

Author 1. Danyal Ladha, Hematology PGY5, University Health Network, Toronto

Author 2. Michael Scott, Hematology, St. Michael's Hospital, Unity Health, Toronto

Author 3. Eric Tseng, Hematology, St. Michael's Hospital, Unity Health, Toronto

Author 4. Abdulaziz Sherif, Internal Medicine, Addis Ababa University, Addis Ababa, Ethiopia

Author 5. Nazik Hammad, Hematology, St. Michael's Hospital, Unity Health, Toronto

Background: The Toronto Addis Ababa Academic Collaborative (TAAAC), founded in 2008, expanded the Toronto Addis Ababa Psychiatry Program (TAAPP), started in 2003, to currently involving multiple (>30) departments and divisions across the Temerty Faculty of Medicine at the University of Toronto (UofT) and Addis Ababa University (AAU). Under the leadership of previous director Dr. Eugenia Piliotis, the Hematology TAAAC stands out as a particularly successful and enduring partnership, resulting in the creation of a successful hematology residency training program at AAU. Previously, bidirectional exchanges of learners between AAU and UofT were the keystone of this collaboration. However, the COVID-19 pandemic put a halt to these, prompting innovative solutions to maintain the exchange.

Objectives: This study aims to understand the bidirectional exchange of knowledge and meaningful training experiences for both AAU and Toronto hematology trainees and educational and hematology clinical capacity at AAU; while identifying challenges because of the COVID pandemic. Methods, This study will describe the use and pedagogical impact of virtual experience and tools to continue bidirectional hematology education involving hematology trainees at UofT and AAU and transition to re-initiative in-person exchanges.

Results and Conclusions: Research methods for this study in progress, will include interviews with and surveys of hematology learners and faculty from University of Toronto and Addis Ababa University and evaluation of learning objectives met and/or not sustained during the COVID-19 pandemic and implementation of virtual education tools. The study results will guide the process for advancing the TAAAC – Hematology academic, clinical and research partnership.



5. Adopting the Hammersmith Infant Neurologic Examination (HINE) Tool for Early Detection of Young Children with High Probability of Cerebral Palsy (CP) in Ethiopia: A Knowledge Implementation Project

Author 1. Selamenesh Tsige Legas, Developmental Pediatrics, Fellow, University of Toronto, Toronto

Author 2. Darcy Fehlings, Developmental Pediatrics, University of Toronto, Toronto

Author 3. Amber Makino, Developmental Pediatrics, University of Toronto, Toronto

Author 4. Atsede Teklehaimanot, Addis Ababa University, Ethiopia

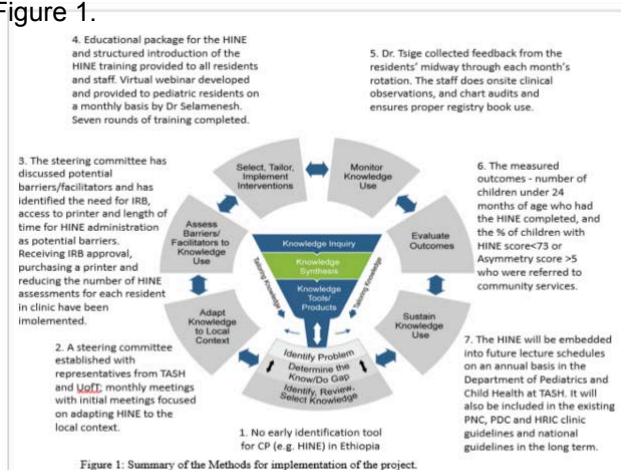
Background: The HINE is a crucial tool for early detection of CP in clinical practice guidelines used worldwide, especially in low to middle-income settings. A previous study conducted at Tikur Anbessa Specialized Hospital (TASH) in Ethiopia found that the average age for CP diagnosis was 5.6+/- 3.6 years. Therefore, it is important to incorporate tools like HINE in the clinical care setting to assist in the early detection of CP in Ethiopia.

Objective: To integrate the HINE tool for early detection of young children with CP in TASH, Addis Ababa, Ethiopia.

Methods: This project utilizes the Knowledge-to-Action (KTA) implementation science framework, developed by Dr. Ian Graham, to provide support for the training of pediatric staff who led the Pediatric Neurology Clinic (PNC), High-Risk Infantile Clinic (HRIC), and Pediatric Developmental Clinic (PDC) at TASH, along with their pediatric residents. Implementation strategies are identified at each phase of the KTA framework (Figure 1).

Results: 54 residents received seven rounds of training and 117 infants were assessed using HINE. 40% had an optimal score, 16% needed further monitoring, and 44% had a high probability of CP based on the HINE score and associated risk factor assessment. 98 children showed identified risk factors such as hypoxic-ischemic encephalopathy, preterm delivery, and meningitis. With proper clinical evaluation in addition to HINE, 25 children were diagnosed with CP. All high-risk children were referred to rehab centers with a mean age of referral at 9 months (SD 6, range 2-24). Great feedback collected from residents (Figure 1.).

Figure 1.



Residents' Feedback:

"The training was targeted, purposeful and applicable. It enabled us to know and practice this important tool. It will change our management practices to a better one. I want to express my respect and appreciation for your good effort."

"Thank you so much for the training it was very informative and you addressed very important concerns from many residents the question of "we are not doing anything for CP patient?" and the feeling of "worthlessness"

"What I observe is when we do HINE, the family are usually very happy they feel the patient is evaluated thoroughly...we are getting a good compliment from the parents 😊"

6. The Efficacy and Safety of Nafamostat Mesylate in the Treatment of COVID-19: A Meta-Analysis

Author 1. Toni Li, Emergency Medicine, PGY1, University of Toronto, Toronto
Author 2. Yushu Wang, Cardiology, Chengdu First People's Hospital, Chengdu, China
Author 3. Carolyn Tran, CC4, Schulich School of Medicine & Dentistry, London, Canada
Author 4. Guangyu Ao, Nephrology, Chengdu First People's Hospital, Chengdu, China

Background/Introduction: The COVID-19 pandemic continues to exhibit the emergence of new variants with a disproportionate burden on under-resourced healthcare systems and marginalized populations, highlighting an ongoing need for innovative and accessible treatment modalities. Nafamostat mesylate, a synthetic serine protease inhibitor, has demonstrated early antiviral activity against SARS-CoV-2 and anticoagulant properties that may be beneficial in COVID-19.

Objectives/Purpose: While numerous case reports describe the mortality and morbidity benefits of nafamostat mesylate in the treatment of COVID-19, there has been no meta-analysis exploring its therapeutic potential. We present here the first meta-analysis in the literature that evaluates the efficacy and safety of nafamostat mesylate in the treatment of COVID-19.

Methods: A systematic search of PubMed, Embase, Cochrane Library, Scopus, Web of Science, medRxiv and bioRxiv was performed up to July 2023 for studies comparing outcomes between nafamostat mesylate treatment and no nafamostat mesylate treatment in COVID-19 patients. Mortality, disease progression and adverse events were extracted for meta-analysis. Six studies involving 16,195 patients were included. A P value of <0.05 was considered statistically significant.

Results: There was no significant difference in mortality (OR=0.88, 95%CI: 0.20-3.75, P=0.86) or disease progression (OR=2.76, 95%CI: 0.31-24.68, P=0.36) between groups. However, nafamostat mesylate was associated with increased hyperkalemia risk (OR=7.15, 95%CI: 2.66 to 19.24, P<0.0001).

Conclusions/Findings: Nafamostat mesylate does not improve mortality or morbidity in hospitalized COVID-19 patients compared to no nafamostat mesylate treatment. The significant hyperkalemia risk is a serious concern requiring monitoring and preventative measures. Further research is needed in different COVID-19 populations.

**7. Surgeon perspectives on the approach to breast surgical oncology in Northern Province, Sri Lanka:
A qualitative analysis (SPABSO)**

Author 1. Gayathri Naganathan, Department of Surgery, Fellow, University of Toronto, Toronto

Author 2. Chrishanthi Rajasooriyar, Oncology, Jaffna Teaching Hospital, Sri Lanka

Author 3. Sreekanthan Gobishankar, General Surgery, Jaffna Teaching Hospital, Sri Lanka

Author 4. Mithusha Ganesalingam, University of Waterloo, Waterloo, Canada

Author 5: Mayurisaa Sasitharan, Ontario Tech University, Oshawa, Canada

Author 6: Anna Dare, Surgical Oncology, University of Toronto, Toronto

Principal Investigator: Andrea Covelli, Surgical Oncology, University of Toronto, Toronto

Background: Breast cancer is the leading cancer diagnosis in women in Sri Lanka (incidence of 25.7% in 2020). Cancer care delivery within the public healthcare system in the Northern Province has important limitations.

Objectives: This qualitative study aims to understand the experiences of surgeons in the Northern Province who provide breast cancer care and identify the key factors in surgeon decision-making regarding modified radical mastectomy versus breast-conserving surgery (BCS).

Methods: Surgeons who provide breast cancer surgical care in the Northern Province were recruited using purposive sampling. Individual semi-structured interviews were conducted via video conferencing. Transcripts were anonymized and coded using NVivo software using Thematic Analysis informed constant comparative analysis.

Results: Fifteen surgeons were interviewed. Major themes included the following: resource limitations included finances, personnel and infrastructure, and lack of reliable imaging and timely histopathology; training gaps highlighted low in-country exposure to breast surgical oncology; patient factors included late presentation, Ayurvedic medicine use, financial strain, and perceived low interest in cosmesis; systemic factors included economic constraints and stakeholder buy-in.

Conclusions: Breast surgical decision-making in LMICs is multifactorial. Recent data from South India demonstrates an uptrend in BCS. However, surgeons in the Northern Province perceived low patient interest for BCS. This study has identified important barriers to BCS adoption in the Northern Province, Sri Lanka, and important differences in the way BCS is perceived and prioritized by surgeons. Further studies probing patient, stakeholder, and system factors are needed to understand whether BCS can be better adopted in Northern Province, Sri Lanka.

8. Exposure to Ambient NO₂ and Low Birth Weight: A Spatial Epidemiological Study

Author 1. Domenica Tambasco, Clinical Environmental Health, Fellow, Women's College Hospital, Toronto

Introduction: While several studies have found associations between ambient air pollution and birth outcomes, the impact of exposure to Nitrogen Dioxide (NO₂) on Low Birth Weight (LBW) remains unclear.

Purpose: The purpose of our study was to assess the correlation between the level of NO₂ concentrations and low birth weights in Toronto neighborhoods in 2009-2011.

Methods: We obtained aggregate data on births from Toronto Public Health Open Data and calculated average birth weights per Toronto neighborhood for the period of 2009-2011. Using data collected from the CANUE data portal, average and maximum NO₂ concentrations were calculated for each of Toronto's 140 neighborhoods during the study period. Socio-economic deprivation scores and ethnicity index were obtained from DMTI, Toronto Open data portal. We assessed the associations between NO₂ and LBW at the neighborhood level using a Poisson regression model with Bayesian conditional autoregressive priors to account for spatial autocorrelation. The Odds Ratios were presented with 95% confidence intervals (or p-value < 0.05).

Results: The mean concentration of NO₂ during the 2009-11 period in Toronto neighborhoods was 19 ppb (SD 1.76 ppb) and ranged from 12 to 23 ppb, with extreme observations reaching 52 ppb. During the same study period, LBW ranged between 3.4 and 11% of total births in the 140 neighborhoods, with a mean of 7.35% of total births (SD 1.44%). Deprivation scores ranged from -0.78 to 3.03 and Ethnicity index from -0.32 to 3.44. After adjusting for autocorrelation, our model showed a small (OR 1.01, CI 1.00-1.01) increase of LBW for every unit (ppb) increase of NO₂. Similarly, for every unit increase in deprivation score, there was a 5% increase of LBW (OR 1.05, CI 0.98-1.13).

Conclusion: Our study showed a small increased risk of low birth weight associated with NO₂ and socio-economic deprivation in Toronto neighborhoods.



Thanks to.....

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