



Post MD Education

UNIVERSITY OF TORONTO

2021 Postgraduate Medical Education

GLOBAL HEALTH RESEARCH SHOWCASE

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

THURSDAY, FEBRUARY 4, 2021

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. Hannah Niebulski, Fellow OBS/GYN,
Dr. Maria Romero, Fellow Medical Oncology*
- 6:20pm** 1. Virtual prenatal care during a pandemic- How satisfying is it to the caregivers and the patients? Momina Zulfeen, Obgyn/Advanced Obstetrics Fellow
- 6:30pm** 2. Brain tumours and COVID-19: the patient and caregiver experience.
Mathew Voisin, Neurosurgery PGY4
- 6:40pm** 3. Improving the Detection of Depressive Disorder in Sri Lanka.
Yezarni Wynn, Psychiatry PGY1
- 6:50pm** 4. Gynecologic oncology treatment modifications and delays in response to the COVID-19 pandemic in public versus private cancer centers in North America.
Sabrina Piedimonte, Gynecologic Oncology
- 7:00pm** BREAK
- 7:10pm** 5. Quantitative fit-testing of a locally produced, reusable, valved half-face respirator during COVID-19 pandemic. Arnaud Romeo Mbadjeu Hondjeu, Anaesthesiology
- 7:20pm** 6. The effects of non-pharmaceutical interventions on SARS-CoV-2 transmission in different socioeconomic populations in Kuwait: A modeling study.
Fatima Khadadah, Hematology, Leukemia PGY6
- 7:30pm** 7. The Impact of COVID-19 on the Surgical Wait Times for Plastic and Reconstructive Surgery in Ontario. Moaath Saggaf, Plastic and Reconstructive Surgery PGY4
- 7:40pm** 8. Impact of Free Maternity Services on Outcomes related to Hypertensive Disorders of Pregnancy at Moi Teaching and Referral Hospital in Kenya: a retrospective analysis.
Marie Buitendyk, OBS/GYN MFM PGY7
- 7:50pm** *Q&A, Discussion moderated by Dr. Hannah Niebulski, Dr. Maria Romero*
- 9:00pm** END
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ABSTRACTS

1. Virtual prenatal care during a pandemic- How satisfying is it to the caregivers and the patients?

Author 1. Momina Zulfeen, Obgyn/Advanced Obstetrics Fellow

Author 2. Nirmala Chandrasekaran, Obgyn/MFM Consultant

Background. During COVID-19 crisis, the provision of healthcare appears to be in the middle of an unavoidable digital revolution. Since most health care delivery systems are designed initially around an in-person or face-to-face model of care, the impact of telemedicine practices on both patients and physician is less known. Therefore, we aimed to conduct a survey to evaluate both patient and physician satisfaction with virtual-prenatal care

Methods. We conducted a survey involving both patients and physicians. Pre-validated questionnaires were used. Patient satisfaction survey included domains: "scheduling", "technology", "provider", "personal" and "general". Physician satisfaction survey included domains: Perceived ease of use (PEOU), Perceived Usefulness (PU), Behavioural Intention (BI), Actual use (ATU) and user satisfaction (SE). A total of 53 patient-satisfaction and 14 physician-satisfaction surveys were received, and data was analyzed. **RESULTS** Among the approached 163 women and 15 physicians, 53 patients and 14 physicians responded to the survey. Mean patient satisfaction scores were significantly higher with regular visits compared to virtual visits (4.56 vs 4.43, $p = 0.023$). Demographics such as age, ethnicity, distance to travel, working status did not seem to adversely effect the total satisfaction scores. However, women with previous poor obstetric outcome reported relatively lower satisfaction scores (4.4 vs 4.0). Physicians reported an overall satisfaction score of 65.5 (36-89) for a maximum of 100. However physicians with prior experience and 'frequent' use of telehealth services reported higher satisfaction scores. Due to a small sample size, the domains did not achieve significant correlations with each other, however 'PEOU' correlated the most with 'BI' ($r = 0.52$, $p = 0.09$).

Conclusions. Mothers were less satisfied with virtual prenatal care compared to traditional visits. Telehealth services, especially in vulnerable patient populations, are likely suboptimal in achieving patient satisfaction. Emphasis should be laid on the ease of scheduling visits and special considerations may be made for women with previous poor obstetric outcomes.

2. Brain tumours and COVID-19: the patient and caregiver experience

Author 1. Mathew Voisin / Neurosurgery / PGY4

Author 2. Kathy Oliver / IBTA

Author 3. Stuart Farrimond / IBTA

Author 4. Gelareh Zadeh / Neurosurgeon / Neuro-Oncology / Staff

Background. Since the beginning of the COVID-19 pandemic, thousands of medical procedures, tests, and clinic appointments have been cancelled or delayed. The long-term effects of these drastic measures directly on brain tumour patients and their caregivers is unknown.

Purpose. The purpose of this study is to better understand how COVID-19 has affected this vulnerable population on a global scale.

Methods. An online 79-question survey in seven languages was developed by the International Brain Tumour Alliance (IBTA) and the Society of Neuro-Oncology (SNO). The survey was sent to over 120 brain tumour charities and not-for-profits worldwide in April of 2020. All responses were collected and divided into a patient cohort and a caregiver cohort and subdivided by region.

Results. In total, 1989 participants completed the survey from 35 countries, including 1459 patients and 530 caregivers. Caregivers were significantly more anxious than patients concerning brain tumour management and fear of contracting COVID-19 ($p < 0.0001$). Patients from the Americas were more likely to have lost their jobs due to the pandemic, practiced self-isolation, and received telehealth services ($p < 0.005$ for all). Patients from Europe experienced more treatment delays ($p = 0.0031$), and those from Africa, Asia, and Oceania were more fearful about contracting COVID-19 ($p < 0.0001$).

Conclusion. In this stressful time, caregivers need more support to help them better cope with the added anxiety of COVID-19. Brain tumour patients need more resources and better communication from their healthcare providers and brain tumour charities in order to be better prepared.

3. Improving the Detection of Depressive Disorder in Sri Lanka

Author 1. Yezarni Wynn, Psychiatry, PGY1

Author 2. Urvashi Prasaud, Psychiatry, PGY2

Background. Primary care is often the first point of contact that patients with mental illness have with the healthcare system. Numerous tools have been developed for detecting depression in primary care. However, utilizing these tools within the time-limited primary care setting remains a challenge. Screening questionnaires that are just as effective as more comprehensive diagnostic tools may be beneficial in improving depression detection rates.

Objectives. This study aims to develop a culturally-adapted screening questionnaire and determine its sensitivity and specificity for diagnosing depression in a primary care clinic in Ragama, Sri Lanka.

Methods. This was a cross-sectional study involving three steps; 1) development of the 2-Question Questionnaire (2-QQ), 2) verbal administration of 2-QQ to patients via their primary care physician and 3) completion of the Perideniya Depression Scale (PDS), a validated diagnostic tool for depression, by the patient after their primary care consultation. Correlations between the 2-QQ and PDS were subsequently examined to determine sensitivity and specificity of the 2-QQ.

Results. A score of ≥ 1 on the 2-QQ was most sensitive but least specific; this threshold level correctly identifies depressed patients, but also inaccurately captures patients who are not depressed. A score of 6 was most specific but least sensitive; this threshold level correctly identifies patients without depression, but is not very effective at capturing patients with depression.

Conclusions. In the context of primary care, it may be worthwhile setting the 2-QQ at a lower threshold for positivity (such as ≥ 1) to ensure that depressed patients are well-accounted for.



4. Gynecologic oncology treatment modifications and delays in response to the COVID-19 pandemic in public versus private cancer centers in North America

Author 1. Sabrina Piedimonte, Gynecologic Oncology

Author 2. Sue Li, Gynecologic Oncology

Author 3. Michael Whorley Jr, Gynecologic Oncology

Author 4. Taymaa May, Gynecologic Oncology

Background. The major shift in health-care resource utilization during the COVID-19 pandemic to support patients requiring mechanical ventilation and intensive care monitoring has led to unprecedented cancellations of elective surgeries and reductions of ambulatory clinic visits worldwide.

Objectives. To compare the modifications and delays to the standard surgical treatment for gynecologic malignancies due to the COVID-19 pandemic between a tertiary, large-volume publicly funded Canadian cancer centers to a privately funded American cancer center.

Methods. This is a retrospective cohort study of all planned surgical gynecologic oncology cases at both United Health Network in Toronto, Ontario and Dana Farber Cancer Institute, Boston, MA, USA, between March 2 2020 and July 30 2020. We compared surgical delays to regional recommended times and modifications compared to standard of care treatment. Descriptive statistics and treatment times were analysed using STATA 16.0. Univariable and multivariable logistic regression was performed to adjust for confounders.

Results. A total of 450 surgical gynecologic oncology patients were included in this study; 215 patients treated at UHN and 235 patients treated at DFCI. The median age was 58 years (range 25-90) and 61 years (23-94) respectively. There was no significant difference in median time to first consultation in both cohorts. Median time from decision to treat to treatment was 23 days (1-146 days at UHN) and 15 (1-205) days at DFCI, which exceeded the respective recommended treatment times at both sites by 13 (0-120) and 10 (0-115) days. There was a significant difference in treatment delays (32.5% vs 18.3% $p<0.01$) and modifications (8.4% vs 0.4%, $p<0.01$) between UHN and DFCI respectively. On multivariable analysis adjusting for age, race, treatment site and surgical priority status, UHN was the only variable associated to modifications (OR = 19.23, $p<0.01$) while UHN (OR=1.96, $p=0.03$) and uterine disease (OR=2.43, $p=0.03$) were associated to treatment delays. In both cohorts, none of the surgical patients were COVID-19+.

Conclusions. During the COVID-19 pandemic, there were more treatment delays and modifications in a Canadian publicly funded hospital compared to an equal volume privately funded American center.

5. Quantitative fit-testing of a locally produced, reusable, valved half-face respirator during COVID-19 pandemic

Author 1. Arnaud Romeo Mbadjeu Hondjeu, MD
Author 2. William C. K. Ng, Md
Author 3. Vahid Anwari, BSc
Author 4. Kate Kazlovich, BSc
Author 5. Azad Mashari, MD

Introduction. The COVID-19 pandemic continues to stimulate demands for respiratory protective equipment, hence increased interest in developing reusable respirators (1). Validation of such devices is challenging. We present the development of a reusable, silicone, valved respirator combined with pleated-membrane filters (Duo). To validate its performance, we quantitatively fit-tested (QNFT) and compared Duo with disposable N95 respirators.

Methods. A multidisciplinary team used 3D-printing and silicone casting to develop the Duo. A prospective observational cohort study was then conducted on 41 healthcare workers (HCWs). Users were tested on Duo and disposables by QNFT according to industry standards. Lastly, volunteers scored the comfort and breathability of Duo.

Results. Duo was designed, modified, and produced locally using 3D printing and silicone molding techniques. Figure 1 depicts a fully assembled Duo respirator. HCW characteristics are detailed in Table 1. Table 2 depicts the distribution of participant demographics, anthropometric characteristics, and types of 3M N95 respirators. Passing rates in Duo and disposable N95 respirators by QNFT were 100% and 58.5%. Heat maps illustrating individual participant success rates across seven different maneuvers are depicted in Figures 2. Median QNFT overall scores were 2947 and 77.2 respectively. The median scores for stationary and dynamic maneuvers of the Duo were 3179 and 2794 and of the disposable respirator was 84 and 73 ($p < 0.0001$). Visualization of pairwise comparison of log10 adjusted overall fit-factors for 41 participants are shown in Figure 3. Average comfort and breathability scores of the Duo were 3.9/5 and 4.2/5. Estimated unit cost for a production run of 1000 are \$25-CAD in materials and 35 minutes of labor.

Conclusions. We present a locally-manufactured valved respirator that can match the filtration efficiency of commercial N95s and may be used in case of disruption of the supply chain. Effective protection and comfort may increase the compliance and safety of HCW during extended wear.



6. The effects of non-pharmaceutical interventions on SARS-CoV-2 transmission in different socioeconomic populations in Kuwait: A modeling study

Author 1. Fatima Khadadah, FRCPC (Hematology/ Leukemia/ PGY6)

Author 2. Abdullah A. Al-Shammari, DPhil

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Background. Aggressive non-pharmaceutical interventions (NPIs) may reduce transmission of SARS-CoV2. The extent to which these interventions are successful in stopping the spread has not been characterized in countries with distinct socioeconomic groups

Objectives. We compared the effects of a partial lockdown on disease transmission among Kuwaitis (P1) and non-Kuwaitis (P2) living in Kuwait.

Methods. We fit a modified SEIR transmission model to reported cases stratified by two groups to estimate the impact of a partial lockdown on the effective reproduction number (R_e). We estimated the basic reproduction number (R_0) for the transmission in each group and simulated the potential trajectories of an outbreak from the first recorded case of community transmission until 12 days after the partial lockdown. We estimated R_e values of both groups before and after the partial curfew and explored a range of cross-transmission scenarios.

Results. We estimate R_e at 1.08 (95% CI: 1.00-1.26) for P1 and 2.36 (2.03-2.71) for P2. On March 22nd, R_e for P1 and P2 are estimated at 1.19 (1.04-1.34) and 1.75 (1.26-2.11) respectively. After the partial curfew had taken effect, R_e for P1 dropped modestly to 1.05 (0.82-1.26) but almost doubled for P2 to 2.89 (2.30-3.70). Our simulated epidemic trajectories show that the partial curfew measure greatly reduced and delayed the height of the peak in P1, yet elevated and hastened the peak in P2.

Conclusion. Our results indicate and quantify how the same NPI can accentuate disease transmission in some subpopulations while potentially controlling it in others. Any such control may further become compromised in the presence of cross-transmission between subpopulations. Future policies need to be sensitive to socioeconomic and health disparities.



7. The Impact of COVID-19 on the Surgical Wait Times for Plastic and Reconstructive Surgery in Ontario

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

Author 2. Dimitri Anastakis, Plastic and Reconstructive Surgery/ Hand and Peripheral Nerve Surgery/
Toronto Western Hospital

Purpose. The aim of this study was to assess the impact of COVID-19 on surgical wait times in Ontario, Canada.

Methods. Ontario's wait time data include fourteen reporting categories for Plastic Surgery. For each category, the mean wait time for consultation and for surgery were reported. Each service was given a priority ranging from 1-4. Two periods, three-month and six-month, were selected and compared to the same calendar months of the previous year. Wait times, surgical volume and percent change to the provincial target were reported and compared to the baseline data per surgical priority.

Results. This study reviewed 9,563 consults and 15,000 operative cases. There was a 50% reduction in the volume of surgical consults during the study period compared to the baseline period ($P=0.004$). The reduction ranged from 46% to 75% based on the reporting category. The volume of surgical cases decreased by 43% during the study period compared to the baseline period ($P=0.005$). A statistically significant increase in the mean wait times for surgery was observed, involving priority 2-4 (overall mean=32 days, $P\leq 0.01$). There was a 15% decrease in the percentage of surgeries meeting the provincial target times ($P<0.0001$).

Conclusions. COVID-19 has caused a significant reduction in the volume of cases performed in the majority of Plastic Surgery categories with an overall increase in the wait times for consultation and for surgery. Recovery following COVID-19 will require strategies to address the growing volume of cases and wait times for surgery across all Plastic and Reconstructive Surgery categories.



8. Impact of Free Maternity Services on Outcomes related to Hypertensive Disorders of Pregnancy at Moi Teaching and Referral Hospital in Kenya: a retrospective analysis

Author 1. Marie Buitendyk, OB/Gyn, MFM, PGY7

Author 2. Wycliffe Kosgei, OB/Gyn

Author 3. Julie Thorne, OB/Gyn

Author 4. Heather Millar, OB/Gyn

Background. Preeclampsia is a major contributor to maternal and neonatal mortality worldwide. Ninety-nine percent of these deaths occur in resource limited settings. One of the greatest barriers to women seeking medical attention remains the cost of care. Kenya implemented a nation-wide policy change in 2013, offering free maternity services to all women to address this concern.

Objectives. Here, we explore the impact of this policy change on maternal and neonatal outcomes specific to the hypertensive disorders of pregnancy.

Methods. We conducted a retrospective cross-sectional chart review of women discharged or deceased with a diagnosis of gestational hypertension, preeclampsia, eclampsia or HELLP syndrome at a tertiary referral center in western Kenya one year before (June 1, 2012-May 31, 2013) and one year after (June 1, 2013-May 31, 2014) free maternity services were introduced at public facilities across the country. Demographic information, obstetric history, medical history, details of the current pregnancy, diagnosis on admission and at discharge, antepartum treatment, maternal outcomes, and neonatal outcomes were collected and compared.

Results. There were more in hospital deliveries after policy change was introduced. The proportion of women diagnosed with a hypertensive disorder of pregnancy was higher in the year before free maternity care although there was a statistically significant increase in the proportion of women diagnosed with gestational hypertension after policy change. Among those women diagnosed with hypertensive disorders, there was no difference in the proportion who developed obstetric or medical complications. Of concern, there was a statistically significant increase in the proportion of women dying as a result of their condition after policy change. There was a statistically significant increase in the use of magnesium sulfate for seizure prophylaxis. There was no overall difference in the use of anti-hypertensives between groups and no overall difference in the proportion of women who received dexamethasone for fetal lung maturity.

Conclusions. Free maternity services, however necessary, are insufficient to improve maternal and neonatal outcomes related to the hypertensive disorders of pregnancy at a tertiary referral center in western Kenya. Multiple complementary strategies acting in unison are urgently needed.



Special Thanks to ...

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PGME Community!



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