2021 Virtual Conference

CSEB 2021: MEETING THE DEMANDS OF A RAPIDLY CHANGING WORLD

June 1 - 3, 2021

Canadian Society for Epidemiology and Biostatistics
CSEB-SCEB
Société Canadienne d'Épidémiologie et de Biostatistique

Oral Presentations

BOOK OF ABSTRACTS

CSEB 2021

A1.1

Outcomes reported in randomized clinical trials of depression in geriatric patients: a methodological review

Myanca Rodrigues, McMaster University; Lehana Thabane, McMaster University; Alessia D'Elia, McMaster University; Sameer Parpia, McMaster University; Stephanie Sanger, McMaster University; Zainab Samaan, McMaster University

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: The effectiveness and safety of interventions used to treat major depressive disorder (MDD or depression) is often assessed through randomized controlled trials (RCTs). However, heterogeneity in the selection, measurement, and reporting of outcomes in RCTs creates challenges for the comparison and interpretation of results, and limits their utility in clinical decision-making. Core outcome sets (COS), a minimum set of outcomes that must be measured and reported in trials, have been proposed as a viable solution to address the heterogeneity of outcome selection in RCTs. There is presently no COS for use in RCTs that evaluate interventions for geriatric populations with MDD. We will conduct a methodological review of the literature to synthesize the definitions and measurement of outcomes reported in geriatric depression trials.

Methods: RCTs evaluating pharmacotherapy, psychotherapy, or any other intervention for older adults with depression that have been published in the last 10 years will be located using electronic database searches (MEDLINE, EMBASE, PsycINFO, and CINAHL). Reviewers will conduct title and abstract screening, full-text screening, and data extraction of trials eligible for inclusion independently and in duplicate. Outcomes will be synthesized and mapped to a core-outcome domain framework comprising five areas: physiological/clinical, life impact, resource use, adverse events, and death. We will also summarize characteristics associated with studies (e.g., the number of single-arm, parallel, and multi-arm trials) and outcomes (e.g., number of trials with single primary outcomes).

Results or Preliminary Results: Preliminary findings reveal inconsistency in the definition and measurement of outcomes across RCTs, and infrequent specification of a single, discernable primary outcome for individual trials.

Conclusion or Next Steps: We will complete synthesis of outcome domains from trials identified in our methodological review, with the initial aim of reducing variability in outcome selection, measurement, and reporting in trials, and the eventually contribute towards the development of a COS for geriatric MDD.

A1.2

Functional Social Isolation Mediates the Association Between Depressive Symptoms and Executive Function in the Canadian Longitudinal Study on Aging

Anita Iacono, University of Waterloo; Mark Oremus, University of Waterloo; Colleen Maxwell, University of Waterloo; Suzanne Tyas, University of Waterloo

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Depression is a risk factor for declines in executive function, which is the cognitive domain responsible for self-control, perspective-taking, planning, and working memory. Less is known about the modifiable factors that may underlie the association between depression and adverse effects on executive function. Functional social isolation, defined as lack of perceived social support, may be a modifiable risk factor that acts to mediate the association between depression and executive function. The objectives of this study are to investigate whether the relationship between depressive symptoms and executive function is mediated by functional social isolation, and how the mediating effect may vary according to age and sex.

Methods: Analyses were based on 27,765 adults aged 45 to 85 from the Canadian Longitudinal Study on Aging Comprehensive Cohort, followed over three years. Depressive symptoms were measured using the Center for Epidemiological Studies-Depression Scale (CES-D10). Functional social isolation was measured by reverse coding the MOS-Social Support Survey. Executive function was a composite measure of five tests, and was standardized based on language of administration. Conditional process analysis was used to assess the mediating (i.e., indirect) effects of functional social isolation at follow-up (T2) on the relation between baseline (T1) depressive symptoms and executive function at T2. Age and sex were assessed as moderators of the mediating effect.

Results or Preliminary Results: Functional social isolation was a significant mediator of the association between depressive symptoms and executive function only among women aged 75+, after controlling for T1 dependent variables (functional social isolation, executive function) and other covariates (sociodemographics, physical health, health behaviours). In these women, higher levels of depressive symptoms predicted higher functional social isolation over time, and higher functional social isolation predicted lower executive function.

Conclusion or Next Steps: Clinically meaningful metrics of the indirect effect size and analyses using clinical diagnosis of depression as an alternate measure of depression will be conducted.

A1.3

What makes people live long and age well?: Characterizing older adults' perspectives on healthy aging in the Canadian Longitudinal Study on Aging

Susan Kirkland, Dalhousie University; Kirstie Smith, Dalhousie University; Dijana Kosmajac, Dalhousie University; Yoko Ishigami-Doyle, Dalhousie University; Lindsay Kobayashi, University of Michigan; Matko Bosnjak, UCL; Tomislav Smuc, RBI; Samuel Stewart, Dalhousie University; Ashley-Ann Marcotte, Dalhousie University; Rachel Warren, Dalhousie University; Theodore Cosco, Simon Fraser University

---

Primary Area of Focus: Machine Learning & Artificial Intelligence Methods (Neural Networks, Deep Learning, Natural Language Processing, Unstructured Data)

Objectives: Traditional biomedical conceptualisations of 'healthy aging' fail to capture and incorporate personal experience and context of aging, potentially leading to misrepresentations of 'healthy aging' and how it should be supported. The aim of the present study is to identify what older Canadians across diverse social identities value for 'healthy aging' by synthesizing and quantifying the large-volume qualitative data on lay perspectives of 'healthy aging' in the Canadian Longitudinal Study on Aging (CLSA).

Methods: Innovative text mining approaches were used to capture the breadth of lay perspectives of 'healthy aging' in the CLSA. Over 50,000 men and women aged 45-85 responded to an open-ended question that was collected at baseline, between 2011-2015. Graph-based representation of text was used for keyphrase retrieval, and pre-trained fastText was used to cluster similar phrases in English and French into topics. Percent agreement between multiple raters and Cohen's kappa tests were used to identify the set of topics with the most coherent themes, and topic themes represented by a key word or phrase were identified for each topic as agreed upon by content experts.

Results or Preliminary Results: A total of 19 topics that Canadians value for 'healthy aging' were identified. The average number of topics mentioned per response was 2.9 (SD=1.8) for females and 2.6 (SD=1.8) for males. For females, the 5 most common topic themes were "physical exercise", "nutritious food choices", "mentally and physically active", "positive outlook" and "faith, spirituality, happiness and joy". For males, the 5 most common topic themes were "physical exercise", "mentally and physically active", "nutritious food choices", "balanced and varied diet" and "sleep quality and stress management".

Conclusion or Next Steps: The present study contributes to the growing body of literature that suggests that healthy aging is multidimensional, and in addition to biomedical conceptualisations, psychosocial and extrinsic factors are also important to older Canadians.

A1.4

The Association Between Diabetes Type, Age of Onset, and Age at Natural Menopause: A Retrospective cohort study using the Canadian Longitudinal Study on Aging

Vrati Mehra, University of Toronto; Hugh McCague, York University; Michael Riddell, York University; Hala Tamim, York University; Christy Costanian, University of Ottawa

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: With growing incidence of type 1 (T1D), type 2 (T2D) and gestational (GD) diabetes, more women are expected to spend a larger proportion of their reproductive years with diabetes. It is important to understand the long-term implications of premenopausal diabetes on women's reproductive health including their age at natural menopause (ANM).

Methods: Baseline data from the Comprehensive Cohort of the Canadian Longitudinal Study on Aging (CLSA) was used for this analysis. Premenopausal diagnosis of diabetes, the presence and age of onset of T1D, T2D and GD were the main exposure variables, whereas ANM was the main outcome. Kaplan-Meier cumulative survivorship estimates were used to calculate the median ANM by different diabetes types. Multivariable Cox regression models were used to assess the association between different types of diabetes and ANM while adjusting for various socio-demographic, lifestyle and premenopausal clinical factors.

Results or Preliminary Results: The sample analyzed comprised 11,436 participants, weighted to represent 1,474,412 Canadian females aged 45 to 85 years. Participants had a median ANM of 52 years. After adjusting for ethnicity, education, smoking, and premenopausal conditions including hypertension among other covariates, early age of diagnosis of both T1D (<30 years) and T2D (30-39 years) were associated with earlier menopause (T1D<30: HR = 1.53, 95% CI 1.03-2.27 and T2D 30-39: HR= 1.77, 95% CI 1.09-2.88) as compared with non-diabetics. Additionally, later age at diagnosis of T2D diabetes (>50 years) was associated with later age at natural menopause (T2D: HR= 0.39, 95% CI 0.27-0.55). No significant association between GD and ANM was noted.

Conclusion or Next Steps: Our results point to accelerated ovarian aging and early menopause among young women living with a diabetes diagnosis. These findings should allow for more focused research geared towards understanding the long-term health implications of diabetes on women's reproductive health and aging.

A1.5

Early life adversity and obesity in older adulthood: A longitudinal study using the Canadian Longitudinal Study on Aging (CLSA)

Vanessa De Rubeis, McMaster University; Laura N Anderson, McMaster University; Lauren Griffith, McMaster University; Andrea Gonzalez, McMaster University; Jean-Eric Tarride, Centre for Health Economics and Policy Analysis

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: Early life adversity is a risk factor for several chronic diseases during later adulthood, however the association with obesity is not well understood. The objective of this study was to evaluate the association between early life adversity and obesity from age 46 to 90.

Methods: A longitudinal study was conducted using participants (n=30,158) from the Canadian Longitudinal Study on Aging (CLSA). Participants were asked to recall experiences of physical abuse, sexual abuse, emotional abuse, neglect, intimate partner violence, death of a parent, parental divorce, or if a family member had a mental health problem before the age of 16. A cumulative Adverse Childhood Experience (ACE) score was created based on number of experiences and grouped into the following categories: 0, 1-3, 4-6, and 7-8. Participants were classified as normal weight, overweight or obese based on body mass index (BMI) and waist circumference cut-points. Multinomial logistic regression was used to calculate odds ratios (ORs) and 95% confidence intervals (CIs). Models were adjusted for age, sex, ethnicity, education, household income, smoking status and alcohol intake.

Results or Preliminary Results: A total of 63% of adults experienced one or more ACE, with the greatest proportion experiencing emotional abuse (32%) and physical abuse (27%). Presence of any ACEs was associated with increased BMI and the odds of obesity, but not overweight, increased in a dose-response manner with increasing number of ACEs. Adults with an ACE score of 7-8 compared to 0 had substantially greater odds of obesity, defined both by BMI (OR: 1.92; 95% CI: 1.14-3.25) and waist circumference (OR: 1.60; 95% CI: 0.99-2.56). All associations were stronger in males than females.

Conclusion or Next Steps: Adversity experienced in early life is strongly associated with obesity among Canadian adults. Understanding the mechanism for this association may inform public health obesity prevention strategies.

A2.1

Propensity score analysis for a semi-continuous exposure variable: a study of gestational alcohol exposure and childhood cognition

Tugba Akkaya-Hocagil, University of Waterloo; Richard Cook, University of Waterloo; Louise Ryan, University of Technology Sydney; Sandra Jacobson, Wayne State University; Joseph Jacobson, Wayne State University

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Propensity score methodology has become increasingly popular in recent years as a tool for estimating causal effects in observational studies. Much of the related research has been directed at settings with binary or discrete exposure variables with more recent work involving continuous exposure variables. In environmental epidemiology, a substantial proportion of individuals are often completely unexposed while others may experience heavy exposure leading to an exposure distribution with a point mass at zero and a heavy right tail.

Methods: We suggest a new approach to handle this type of exposure data by constructing a propensity score based on a two-part model and show how this model can be used to more reliably adjust for covariates of a semi-continuous exposure variable. We suggest a new approach to handle this type of exposure data by constructing a propensity score based on a two-part model and show how this model can be used to more reliably adjust for covariates of a semi-continuous exposure variable.

Results or Preliminary Results: We show that the potential bias gets smaller as the estimated propensity score gets closer to the true expectation of the exposure variable given a set of observed covariates. While this result pertains to a more general setting, we use it to evaluate the potential bias in settings in which the true exposure has a semi-continuous structure. We also evaluate and compare the performance of our proposed method through simulation studies relative to a simpler linear regression-based propensity score for a continuous exposure variable as well as through direct covariate adjustment.

Conclusion or Next Steps: Overall, we find that using a propensity score constructed via a two-part model significantly improves the regression estimate when the exposure variable is semi-continuous in nature. Specifically, when the proportion of non-exposed subjects is high and the effects of covariates on exposure and outcome are strong, the proposed two-part propensity score method outperforms the more standard competing methods. We illustrate our method using data from the Detroit Longitudinal Cohort Study in which the exposure variable reflects gestational alcohol exposure featuring zero values and a long tail.

A2.2

The Proportion of Preterm Birth Attributable to Modifiable Risk Factors: A Retrospective Cohort Study in Nova Scotia, 2005-2019

Adelaide von Kursell, Dalhousie University; Christy Woolcott, Dalhousie University; Stefan Kuhle, Dalhousie University; Victoria Allen, Dalhousie University

Primary Area of Focus: Maternal & Child Health (Perinatal & Neonatal, Maternal Health, Child Health)

Objectives: Objectives: Preterm birth (PTB), occurring at <37 weeks' gestation, is a leading cause of child morbidity and mortality. A study conducted in multiple countries estimated that 35% of PTB can be attributed to known risk factors, but no estimates have been made locally. Our objective was to estimate the population attributable risk percent (PAR%) and population impact fraction (PIF%) of risk factors for PTB in Nova Scotia.

Methods: Methods: A population-based retrospective cohort of mothers and singleton infants delivered from 2005 to 2019 was conducted using the Nova Scotia Atlee Perinatal Database. Theoretically modifiable risk factors included: maternal age, pre-pregnancy body mass index (BMI), smoking, and gestational diabetes. Poisson regression models were used to estimate the probability of PTB (p0) in the population under scenarios where risk factors were removed; the PAR% was calculated as 100*(pobs-p0)/pobs. The PIF% was similarly derived to estimate the reduction in PTB under scenarios where the level of continuous risk factors was reduced.

Results or Preliminary Results: Results: 6.5% of births were preterm. The estimated proportion of PTB attributable to maternal age outside of 25-29 years was 3.7% (95% CI: 2.0, 5.4); pre-pregnancy BMI outside of 18.5-<25 kg/m2 was 0.7% (95% CI: -0.8, 2.2); smoking in pregnancy was 7.0% (95% CI: 5.5, 8.5); and gestational diabetes was 3.4% (95% CI: 2.6, 4.1). The proportion of PTB estimated to be preventable with a 10% change in weight (increase when BMI<18.5 kg/m2 and decrease when BMI ≥25 kg/m2) was 0.5% (95% CI: -0.2, 1.2); and with a 50% reduction in the amount smoked was 1.5% (95% CI: 0.9, 2.0).

Conclusion or Next Steps: Conclusion: Only a small proportion of PTB was estimated to be attributable to the four risk factors studied. These findings can be used to inform which risk factors might be targeted to reduce PTB in Nova Scotia.

A2.3

Gestational diabetes and later childhood cancer

Sophie Marcoux, INSPQ; Gabriel Côté-Corriveau, Université de Montréal; Jessica Profitôs-Healy, INSPQ; Nathalie Auger, INSPQ

Primary Area of Focus: Maternal & Child Health (Perinatal & Neonatal, Maternal Health, Child Health)

Objectives: The relationship between in utero exposure to hyperglycemia and risk of later childhood cancer is conflicting. We determined if prenatal exposure to gestational diabetes was associated with a greater risk of early childhood cancer.

Methods: In this retrospective cohort study, we analyzed data from 1.1 million infants in Québec, Canada between 2006 and 2020. We collected data from registry-based hospital discharge summaries. The exposure was gestational diabetes. The outcome was hematopoietic or solid tumours with onset before 14 years of age. We estimated hazard ratios (HR) for the association between gestational diabetes and childhood cancer using Cox proportional regression models. We used propensity score weights to adjust for confounders at birth (maternal age, parity, birthweight, preeclampsia and other morbidity, congenital anomalies and socioeconomic deprivation).

Results or Preliminary Results: The proportion of infants exposed to gestational diabetes was 8.2%. A total of 1,689 children were hospitalized for cancer during follow-up. Gestational diabetes was associated with increased rates of any cancer (HR 1.20, 95% CI 1.04-1.38), blood cancer (HR 1.28, 95% CI 1.01-1.62) and solid cancer (HR 1.17, 95% CI 0.98-1.40). Gestational diabetes was most strongly associated with cancer before 2 years of age (HR 1.42, 95% CI 1.15-1.76). Gestational diabetes was also strongly associated with non-acute lymphoblastic and myeloid leukemias (HR 1.79, 95% CI 1.13-2.82).

Conclusion or Next Steps: Our findings suggest that exposure to gestational diabetes may be a risk factor for early onset childhood cancer, especially non-acute lymphoblastic and myeloid leukemias. These results emphasize the need to optimize diabetes management in pregnant women.

A2.4

Examining the Association Between Early Maternal Menarche and Preterm Birth: A Prospective Cohort Study

Asvini Keethakumar, Employment and Social Development Canada; Hala Tamim, York University; Brad Meisner, York University; Kellie Murphy, Sinai Health System, University of Toronto; John Snelgrove, Sinai Health System, University of Toronto

---

Primary Area of Focus: Maternal & Child Health (Perinatal & Neonatal, Maternal Health, Child Health)

Objectives: The main objective of this study was to determine if early age at menarche is associated with preterm birth, in a cohort of women who have delivered in Toronto.

Methods: Secondary data analysis was conducted on the Ontario Birth Study, a prospective cohort study housed at Mount Sinai Hospital, in Toronto, Canada. The main outcome, preterm birth, was defined as neonatal delivery at 20 weeks' gestation up to and including 36 weeks and 6 days at gestation. The main exposure, age at menarche, assessed by the following question from the questionnaire "How old were you when you had your first menstrual period?" A list of covariates, categorized in the following groups: maternal, health factors, and clinical pregnancy factors, were adjusted for. Summary statistics, bivariable associations, and a nested multilevel multivariable logistic regression was conducted to assess the effect of early menarche on the risk of PTB, adjusting sequentially for all covariates.

Results or Preliminary Results: The prevalence of early menarche in the OBS was 17% and the overall risk of PTB was 4.2%. Overall, 7.0% of the women who had early menarche went on to experience a PTB in their current pregnancy, compared to 3.7% of women who experienced a later age at menarche. The crude association between early menarche and PTB was statistically significant (OR: 1.98, 95% CI: 1.11-3.54); however, after adjusting for all covariates, the relationship was no longer significant (OR: 1.68, 95% CI: 0.84-3.36). Significant predictors of a PTB included women who experienced any hypertensive disorders and those who had fetal or placental complications prior to delivery. Women in the highest income group were significantly at a decreased risk of a PTB compared to the rest of the population.

Conclusion or Next Steps: Results can be used as a baseline in investigating the intricacies between early reproductive factors and later life pregnancy outcomes, which may be important to the future of maternal and perinatal health.

A2.5

Adverse childhood experiences and incidence of migraine in adolescence: a prospective analysis using the National Longitudinal Survey of Children and Youth

Nicole G. Hammond, University of Ottawa; Ian Colman, University of Ottawa; Serena L. Orr, University of Calgary, Alberta Children's Hospital

---

Primary Area of Focus: Public Health / Population Health (Disease Prevention, Population Health, Population Health Interventions)

Objectives: To examine direct associations between adverse childhood experiences (ACEs) and incident migraine and prevalence of frequent headache in adolescence, and indirect associations through symptoms of depression and anxiety.

Methods: We used data from the National Longitudinal Survey of Children and Youth, a prospective Canadian cohort study which followed children aged 0/1 at baseline, and the person most knowledgeable about them (PMK), until the child reached adolescence. The PMK reported on 14 ACEs (e.g., parental death) when the child was 4/5 and 6/7 years, and symptoms of depression and anxiety in late childhood (aged 8/9), using a validated tool. Migraine was health-professional diagnosed and frequent headache (>1 time per week) was self-reported by the youth, both measured at ages 14/15. We used logistic regression and a path analysis macro to estimate direct and indirect associations, through symptoms of depression and anxiety (mediator), on the log-odds scale. Models were adjusted for sex, parental migraine, and economic deprivation.

Results or Preliminary Results: There were direct associations between experiencing 1 ACE (OR=1.71, 95%CI: 1.01-2.87) and ≥2 ACEs (OR=2.33, 95%CI: 1.13-4.80) and migraine. There were no associations between ACEs and frequent headache (1 ACE: OR=1.03, 95%CI: 0.74-1.42, ≥2 ACEs: OR=1.25, 95%CI: 0.77-2.02), and no indirect relationships through symptoms of depression and anxiety for migraine (1 ACE: OR=1.06, 95%CI: 0.99-1.13, ≥2 ACEs: OR=1.11, 95%CI: 0.98-1.28) or frequent headache (1 ACE: OR=0.99, 95%CI: 0.95-1.03, ≥2 ACEs: OR=0.98, 95%CI: 0.90-1.07).

Conclusion or Next Steps: ACEs are associated with an increased likelihood of incident migraine in adolescence. The relationship was not mediated by symptoms of depression and anxiety, suggesting a possible alternate causal explanation.

A3.1

Trends in the Incidence of Cancer among Adolescent and Young Adults in Alberta, 1988 to 2017

Andrew S. Harper, MSc; Ruth L. Diaz, MSc; Bethany Kaposhi, MPH; Khalid Amin, MSc; Jingyu Bu MSc; Miranda M. Fidler-Benaoudia, PhD

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: To examine adolescent and young adults (AYA) cancer incidence trends in Alberta, Canada over a 30 year period.

Methods: All first primary incident cancers, excluding non-melanoma skin cancer, diagnosed in Alberta at ages 15-39 years during the period of 1988-2017 were obtained from the Alberta Cancer Registry. Cancers were classified according to Barr's AYA classification system. Truncated age-standardized incidence rates were calculated and the average annual percentage change (AAPC) in incidence rates was assessed.

Results or Preliminary Results: In total, 20,951 incident cases of AYA cancer were diagnosed in Alberta from 1988-2017. Approximately 60% of the cancers occurred in females. The most common cancer types among males were testicular cancer (24.5%), malignant melanoma (9.3%) and Hodgkin lymphoma (8.8%). For females, the most common cancer types were breast cancer (23.3%), thyroid cancer (17.4%) and cervical cancer (10.9%). Statistically significant increases in incidence were observed for nine cancer sites/types: leukemias other than acute lymphoblastic leukemia, acute myeloid leukemia and chronic myeloid leukemia (AAPC: 6.1; 95%CI: 3.8,8.4); colon (AAPC: 4.4; 95%CI: 3.2,5.6); thyroid (AAPC: 4.0; 95%CI: 3.4,4.7); rectal (AAPC: 3.9; 95%CI: 2.9,5.0); gastrointestinal other than colon, rectal and stomach (AAPC: 2.7, 95%CI: 1.2,4.3); uterine (AAPC: 2.4; 95%CI: 0.8,4.1); kidney (AAPC: 2.1; 95%CI: 0.8,3.4); testicular (AAPC:1.5; 95%CI: 0.9,2.1); and non-Hodgkin lymphoma (AAPC: 0.8, 95%CI: 0.1,1.6). When stratified by sex, these increases were observed for both sexes, though acute myeloid leukemia (AAPC: 2.2%, 95%CI: 0.5,4.0) and sarcomas (AAPC: 1.5, 95%CI: 0.2,2.8) were additionally significantly increasing among females. Conversely, decreases in incidence were observed for eight cancer sites, with the largest decreases observed for non-kidney carcinomas of the urinary tract (AAPC: -5.3; 95%CI: -8.2,-2.3) and ovarian cancer (AAPC: -4.6; 95%CI: -6.3,-2.9).

Conclusion or Next Steps: These results highlight a growing burden of cancer among AYAs in Alberta and the need to understand the risk factors associated with these increases.

A3.2

Predicted impact of the COVID-19 pandemic on cancer care and long-term mortality in Quebec

Talía Malagón, McGill University; Eduardo Franco, McGill University Department of Oncology; Wilson H. Miller Jr., McGill University

Primary Area of Focus: COVID-19 (Health Impacts, Surveillance, Policy)

Objectives: The COVID-19 pandemic has dramatically impacted cancer care worldwide. We developed a stochastic microsimulation model of cancer epidemiology in Quebec, Canada, to estimate the long-term impacts of the pandemic on cancer incidence and mortality.

Methods: The model assumes that diagnostic delays lead to shifts in cancer stage and that delays in treatment lead to an increased rate of death. The model was parameterized using incidence and net survival data from the Canadian Cancer Registry. Based on data from the Quebec Ministère de la Santé et des Services Sociaux, we modeled a 30% decline in cancer pathology reports, radiotherapy, and surgeries during the pandemic era. We examined the impact of increasing cancer treatment capacity by 0 to 40% in order to resorb backlogs in 2021. Due to uncertainty regarding the impact of delays on cancer mortality, we varied the mortality hazard ratios from 1.06 to 2.0 per 4-week treatment delay. Results are the median [range] predictions of 10 simulations.

Results or Preliminary Results: The model predicts that, without the pandemic, around 58,709 [58,169-58,902] incident cancers and 25,093 [24,729-25,206] cancer deaths were expected in Quebec in 2020. Due to diagnostic delays, we predict that cancer incidence will be 11.5% [10.9-12.3%] lower than expected in 2020; subsequently, cancer incidence should increase by 9.1% [8.9-9.5%] in 2021. If treatment delays increase the relative hazard of death by 1.06 per 4-week delay and treatment capacity is not increased in 2021, then the model predicts 9,095 [8,214-9,913] excess cancer deaths between 2020-2025 caused by pandemic-related diagnostic and treatment delays. Larger hazard ratios increased excess cancer deaths, while increasing treatment capacity decreased excess cancer deaths.

Conclusion or Next Steps: The ultimate impact of the COVID-19 pandemic on cancer mortality will strongly depend on increasing surgical and treatment capacity in the post-pandemic era to address the backlog of diagnostic and treatment procedures.

A3.3

Central Nervous System (CNS) tumour incidence rates (2013-2017) by age and sex in the Canadian population

Farzana Yasmin, School of Public Health, University of Alberta; Emily Walker, School of Public Health, University of Alberta; Yan Yuan, University of Alberta; Faith Davis, School of Public Health, University of Alberta

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: The BTRC Surveillance Research Collaboration (BSRC) Group presents a comprehensive report on all primary CNS tumours for various age-groups and sex in Canada (excluding Quebec). This report includes CNS tumours diagnosed in Canada between 2013 and 2017 which is the most recent available data.

Methods: Data on all primary CNS tumours were obtained from the Canadian Cancer Registry (CCR), collaborating with the Public Health Agency of Canada (PHAC) Analytical Support Team. International Classification of Diseases for Oncology (3rd edition) site/histology codes were grouped into histological categories according to the schema developed by the Central Brain Tumor Registry of the United States (U.S). Age-standardized incidence rates (ASIR) were calculated per 100,000 person-years, using direct standardization with the 2011 Canadian population standards. ASIR and 95%CI are presented by histology, behaviour, age-group, sex, and geographic region.

Results or Preliminary Results: The average annual ASIR for all primary CNS tumour was 21.05 (95%CI:20.81-21.29). The ASIR for all primary CNS tumours was similar across sexes (male: 20.73, 95%CI:20.38-21.07 and (female: 21.40, 95%CI:21.07-21.74). However, they differed by histology. Males had higher rates of neuroepithelial tumours, and females had higher rates of tumours of the meninges. The ASIR for all CNS tumours increased with age: age 0-19 years 5.12, (95%CI: 4.87-5.38); age 20-34 years 8.24, (95%CI:7.91-8.58); age 35-44 years 15.03, (95%CI:14.47-15.60); age 45-54 years 22.67, (95%CI: 22.02-23.33); age 55-64 years 33.22 (95%CI:32.39-34.07); and age 65+ years 57.66 (95%CI:56.65-58.69). The most common histology in age 65+ was the unclassified tumour (ASIR: 15.95, 95%CI:15.42-16.50), and in age 55-64 years was meningioma (ASIR:9.04; 95%CI: 8.61-9.48).

Conclusion or Next Steps: The high rate of unclassified tumour in the age 65+ group suggests a data quality issue in the Cancer Registry. Our report represents one of the most comprehensive statistics on CNS tumours in Canada while highlighting areas for data quality improvement.

A3.4

The Alberta Moving Beyond Breast Cancer (AMBER) Cohort Study: Baseline Description of the Complete Cohort of 1,528 Breast Cancer Patients

Christine Friedenreich, Alberta Health Services; Jeff Vallance, Athabascau University; Margaret McNeely, University of Alberta; Nicole Culos-Reed, University of Calgary; Charles Matthews, National Cancer Institute; Gordon Bell, University of Alberta; Andria Morielli, Alberta Health Services; Leanne Dickau, Alberta Health Services; Diane Cook, University of Alberta; Charlotte Ryder-Burbidge, Alberta Health Services; John MacKey, University of Alberta; Qinggang Wang, Alberta Health Services; Kerry Courneya, University of Alberta; Stephanie Voaklander, University of Alberta

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: The AMBER Study is an on-going prospective cohort study examining the role of physical activity (PA), sedentary behaviour (SB) and health-related fitness (HRF) in breast cancer survivorship. Here we describe the baseline participant characteristics of the complete AMBER cohort recruited between 2012-19 in Edmonton and Calgary.

Methods: 1,528 newly diagnosed stage I (≥T1c) to IIIc breast cancer survivors provided baseline objective measurements within 90 days of surgery. These measurements included a blood draw, cardiorespiratory and musculoskeletal fitness, body composition, lymphedema assessments, and PA and SB using self-report and accelerometers. In addition, questionnaires were administered to collect participant demographics, dietary intake, patient-reported outcomes and facilitators/barriers to PA. Participants are reassessed at one, three- and five-year follow-ups post-diagnosis.

Results or Preliminary Results: At baseline, the cohort had a mean age of, 55 years (SD=11), 69 % were married, 87% were White, 78% had some post-secondary education, 48% had an annual family income of ≥$100,000, 59% were postmenopausal, 62% were overweight/obese, and 22% had hypertension. More participants were diagnosed with stage II or III (56%) vs. Stage I (44%) disease. All but one participant had either a lumpectomy or mastectomy, 58% received chemotherapy and 74% had radiation. Self-reported recreational PA and SB were, on average, 6.5 (SD=5.5) hours/week and 41.8 (SD=19.3) hours/week, respectively. Of those participants who reached VO2peak on a cardiopulmonary treadmill test, 69% had poor aerobic fitness based on age- and sex-specific norms. Results from the short-form 36 indicated that, compared to population norms, participants reported a lower quality of mental health, but not physical health.

Conclusion or Next Steps: Baseline characteristics indicate that the cohort was proportionately overweight with poor cardiorespiratory fitness levels however self-reported data indicated that participants were meeting the recommended PA guidelines at baseline. Future analyses will allow for a detailed examination of associations and mechanisms linking PA, SB and HRF with breast cancer outcomes.

A3.5

Occupational solar ultraviolet radiation and breast cancer risk in Canada

Sareena McDonald, Queen's University; Darren R Brenner, . Department of Cancer Epidemiology and Prevention Research, Alberta Health Services, Calgary, AB, Canada; Department of Oncology, University of Calgary, Calgary, AB, Canada; Cheryl E Peters, Department of Cancer Epidemiology and Prevention Research, Alberta Health Services, Calgary, AB, Canada; Will D. King, Queen's University; Dylan E O'Sullivan, Department of Oncology, University of Calgary, Calgary, AB, Canada

Primary Area of Focus: Environmental & Occupational (Environmental Health, Occupational Health, Risk Assessment, Climate Change)

Objectives: Solar ultraviolet radiation (UVR) has potential protective, and confirmed detrimental effects on cancer risk. Several studies have examined recreational sun exposure in relation to breast cancer risk, and a recent meta-analysis found that moderate sun exposure (1 to <2 hours/day) was associated with a decreased risk of breast cancer. Only one previous study in Canada has investigated sun exposure and breast cancer risk in an occupational setting.

The objectives of the current project are to investigate the relationship between occupational patterns of solar UVR and breast cancer risk in Canada, and to inform on the dose-response relationship at the high end of the solar UVR spectrum. A sub-analysis will examine relationships separately for pre- and post-menopausal breast cancers.

Methods: This study will utilise data from the Canadian Partnership for Tomorrow's Health (CanPath), a national cohort using questionnaire data. Questionnaires were completed at baseline to obtain information on sun exposure, longest job held, and breast cancer risk factors. Cancer outcomes have been ascertained via linkage with provincial cancer registries.

A case-cohort approach was employed to facilitate job coding. Jobs codes were linked to a job exposure matrix (SUNJEM) to assign exposure. Breast cancer risk estimates (hazard ratios [HR]) and 95% confidence intervals will be estimated using a weighted Cox proportional hazard's regression with Prentice weights, controlling for potential confounders.

Results or Preliminary Results: Approximately 1,400 breast cancer cases met eligibility criteria from the underlying cohort and a random sample of 2,000 women were selected for the sub-cohort. Prevalence of occupational exposure (<2 hours/day) to solar UVR was less than 5% in the sub-cohort.

Conclusion or Next Steps: Previous research has focused on recreational sun exposure. This study will be the second to examine the relationship between occupational sun exposure and breast cancer in Canada, and the first to examine the dose-response relationship. Methods used may benefit future occupational research.

A4.1

Active vs. passive imputation of missing maternal pre-pregnancy body mass index values among Nova Scotian women

Maggie Brown, Dalhousie University; Christy Woolcott, Dalhousie University; Jennifer Payne, Dalhousie University; Stefan Kuhle, Dalhousie University; Victoria Allen, Dalhousie University; Bruce Smith, Dalhousie University

---

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Maternal body mass index (BMI) is an important determinant of maternal and child health outcomes. Unfortunately, pre-pregnancy weight or height information is often incompletely captured in perinatal registries, thus causing problems when tracking or studying the effects of maternal obesity. Multiple imputation (MI) may be applied, but whether missing values should be imputed directly (actively) or calculated from imputed values of height and weight (passively) is unclear. The objective of this study was to compare active versus passive imputation of maternal BMI.

Methods: We simulated missing at random (MAR) and missing not at random (MNAR) scenarios in 1000 datasets, each containing one randomly selected pregnancy from 5000 women with complete data from the Nova Scotia Atlee Perinatal Database. Under both scenarios, missingness in height was simulated to be missing completely at random, and missingness in weight depended on either observed covariates only (MAR) or also PPW (MNAR) values. BMI was imputed actively and passively using predictive mean matching, a nonparametric technique useful for skewed variables. Estimates for the association between BMI and birth weight z-score and large for gestational age (LGA), adjusted for confounding variables, were obtained with the multiply imputed data and complete-case data. Bias was estimated relative to the original dataset.

Results or Preliminary Results: For birth weight z-score, active and passive imputation resulted in minimal bias under both MAR (0.6% and 0.5%) and MNAR (0.9% and 1.0%). For LGA, estimates were slightly more biased under MAR (1.1% and 1.4%) and MNAR (1.2% and 1.8%). Complete-case analyses resulted in greater bias for both outcomes (2.9 – 3.2% under MAR and 3.1 – 3.2% under MNAR).

Conclusion or Next Steps: The results indicate negligible differences between active and passive imputation of maternal BMI under both MAR and MNAR. Active imputation was slightly superior to passive imputation when the outcome was dichotomous.

A4.2

Risk of Major Osteoporotic Fracture: A Comparison between Multi-State and Cox Proportional Hazard Models

Shamsia Sobhan, University of Manitoba; Shuman Yang, University of Manitoba; Lin Yan, University of Manitoba; William Leslie, University of Manitoba; Lisa Lix, University of Manitoba

---

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Multi-state (MS) models are a flexible tool for analyzing complex health conditions, such as osteoporosis, where individuals can move between a finite numbers of health states. They are an extension of survival models, usually implemented with Cox proportional hazards (PH) regression, with a shared frailty term to capture individual-specific heterogeneity for the dependence between health states. Our purpose was to compare risk estimates from a PH and illness-death MS model for major osteoporotic fracture (MOF).

Methods: Our study cohort included 61,393 individuals aged 50+ years from the Manitoba Bone Mineral Density Database. We identified MOF (hip, wrist, humerus, spine) from diagnosis codes in linked administrative data. Death information was extracted from population registry data. Univariate PH and MS models were used to produce risk estimates for demographic, comorbid, and clinical characteristics of the cohort. Proportionality and Markov assumptions were assessed for the PH and MS models, respectively. Hazard ratios (HR) and 95% confidence intervals (CIs) were computed.

Results or Preliminary Results: Overall, 9.6% of the cohort experienced a MOF; 2.5% subsequently died. Another 12.4% of the cohort died without MOF. HRs for most risk factors were similar for PH and MS models. However, there were substantial differences for age (ref : <70 years; 70-79 years: HRCox 2.04 [95% CI 1.93, 2.16], HRMS 1.59 [95% CI 1.51, 1.68]; 80+ years: HRCox 3.68 [95% CI 3.43, 3.94], HRMS 2.81 [95% CI 2.63, 2.99]), although the frailty variance was small. Estimates from the MS model for the effect of age on death after fracture were also produced (70-79 year: HRMS 1.37 [95% CI 1.24, 1.52]; 80+ year: HRMS 3.61 [95% CI 3.25, 4.01]).

Conclusion or Next Steps: The MS model has potential benefits over the PH model to account for person-specific heterogeneity on risk estimates. Future research will focus on prognostic MS model with time-varying covariates.

A4.3

Does group-based trajectory modeling estimate spurious trajectories?

Miceline Mesidor, CHUM Research Center, University of Montreal; Marie-Claude Rousseau, Institut National de la Recherche Scientifique (INRS) - Institut Armand-Frappier; Marie-Pierre Sylvestre, CHUM Research Center, University of Montreal

---

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Group-based trajectory modelling (GBTM) is increasingly used to identify subgroups of individuals with similar patterns of outcome over time. The objective of this study is to investigate the propensity of GBTM to generate spurious findings using simulated data and whether conventional model adequacy criteria can identify these spurious findings.

Methods: Six plausible scenarios, two of which mimicked published analyses, were simulated. Models with 1 to 10 trajectory subgroups were estimated through PROC TRAJ and the model that minimized the Bayes criteria was selected. For each scenario, we assessed if the method identified the correct number of trajectories, the correct shape, and the relative size in each trajectory subgroup. The performance of the average posterior probabilities, relative entropy, and mismatch criteria to assess classification adequacy were compared.

Results or Preliminary Results: The correct number of trajectories was identified in two of the six scenarios, the correct shape in four scenarios and the relative number of subjects per trajectory in only one scenario. There was agreement among the three criteria for classification adequacy for three of the six scenarios. In the remaining three scenarios, both the relative entropy and the mismatch criteria correctly suggested poor classification, while the average posterior probability only identified it one scenario.

Conclusion or Next Steps: Researchers should be aware that GBTM can generate spurious findings, especially when the average posterior probability is used as the sole criterion to evaluate the modeling fit. Several model adequacy criteria should be used to assess classification adequacy.

A4.4

Analysis of Misclassified Categorical Response via Incomplete Surrogate Variables and Likelihood Method

ZHENG YU, University of Calgary

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Misclassification of a dependent categorical variable often occurs in observational studies due to imperfect measuring procedures, and it may result in potential threats to the validity of the analytic results. We develop a robust algorithm utilizing the surrogate variables to enable the estimation of the covariate effects in regression models under the framework of latent variable models in the absence of validation data. The resulting estimates are utilized in the estimation of the average treatment effect (ATE).

Methods: We demonstrate the application of complete-case analysis, naive methods, ad hoc methods, and the proposed EM algorithm in parameter estimation when some surrogates are incomplete. The estimation methods of ATE examined include outcome regression, G-computation, propensity score (PS) stratification, inverse probability weighting (IPW), and augmented inverse probability weighting (AIPW). Variance estimation of ATE is obtained through the bootstrap method.

Results or Preliminary Results: Simulation studies represent various scenarios are conducted to assess the performances of the proposed methods with a binary latent response variable. Based on the simulation studies, we show that the proposed method outperforms other approaches and corrects for both problems of misclassification and missingness simultaneously for a binary response variable, and produces unbiased estimates of ATE.

Conclusion or Next Steps: We will consider a situation in which both the categorical response variable and covariate are subject to misclassification in the absence of validation data while some of the surrogates are incomplete, and develop an efficient estimation procedure to correct for both issues of misclassification and missingness in response and covariate and ensure valid statistical inferences.

A4.5

A Joint modeling approach for binary repeated measurement of depression and time-to-dementia in a population-based study

Md Rasel Kabir, University of Saskatchewan; Hyun Ja Lim, University of Saskatchewan; Prosanta Mondal, University of Saskatchewan; Yanzhao Cheng, University of Saskatchewan

Primary Area of Focus: Biostatistics (Statistical Methods, Modeling, Data Systems & Computer Software)

Objectives: Research on determining the relationship between depression and dementia has yielded inconsistent results, and till now, the details of this association are not fully clarified. Limitations of the past studies include baseline or single measurement of depression, shorter follow-up and failure to capture the courses of depression during the observation time. Thus, we propose a joint modeling technique for determining the association between the binary repeated measurement of depression and time-to-dementia.

Methods: We applied joint modeling technique to the Korean Health Panel Study. This statistical method jointly modeled the longitudinal and survival processes for each individual based on a shared random effect, where a generalized linear mixed model was used to characterize the binary repeated measurements of depression and a piecewise constant hazard model was employed for time-to-dementia. A total of 3,611 individuals aged 65 years or older were eligible for this study between 2008 and 2015. The diagnosis code identified depression and dementia in medical data.

Results or Preliminary Results: In this study, 215 (6%) were diagnosed with dementia during the 8-year follow-up period. The mean age at entry was 72.2 (±5.7) years. The overall median follow-up time was 5.8 years; 3.6 years for people living with dementia compared to 5.9 years for people without dementia. We found that the risk of developing dementia was 2.4 times (Adjusted hazard ratio=2.40, 95% CI: 1.30-4.50, p-value = 0.005) higher among depressed people than non-depressed people after adjusting baseline covariates and comorbidity.

Conclusion or Next Steps: We concluded that the single and baseline measurement of depression was not associated with the incidence of dementia, however, time-varying depression in the older population is significantly associated with the development of dementia

A5.1

Do urban tree canopy-cover characteristics modify the association between temperature and mortality?

Beau Ahrens, Dalhousie University; Éric Lavigne, Health Canada; Daniel Rainham, dalhousie university; Christopher Greene, Dalhousie University; Matilda Van Den Bosch, Barcelona Institute for Global Health; Audrey Smargiassi, Université de Montreal; Céline Plante, Université de Montréal

---

Primary Area of Focus: Spatial Epidemiology, Mapping & GIS (Geographical Epidemiology, Surveillance Systems, Methods)

Objectives: 1. To investigate the association between daily temperature and mortality in Montreal, Canada. 2. To determine whether urban vegetation and tree canopy cover modify the association between temperature exposure and mortality.

Methods: 1. Records of cardiovascular and respiratory related mortality between 2001 and 2015 for Montreal (73,270 total deaths) were linked to a daily temperature dataset. A conditional logistic regression within a case-crossover design was employed to estimate the odds of death from exposure to temperature by individual (age, sex) and the natural environment (tree canopy and NDVI). 2. Perform a meta-analysis between odds of death from exposure with LiDAR derived tree canopy characteristics to identify protective effects of trees on heat related mortality.

Results or Preliminary Results:

Conclusion or Next Steps:

A5.2

Comparing approaches to estimating area-based prevalence and classification of child mental disorder and service contacts: administrative health data versus survey data

Laura Duncan, Offord Centre for Child Studies, McMaster University; Kathy Georgiades, McMaster University; Jinette Comeau, King's University College at Western University; Michael Boyle, Offord Centre for Child Studies McMaster University; Li Wang, Offord Centre for Child Studies, McMaster University; Jordan Edwards, McMaster University

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: To compare individual and group-level estimates of child mental disorder and service use for emotional and behavioural disorders based on administrative health data versus provincially representative survey data. This includes: 1) levels of concordance between individual classifications; and 2) group-level differences in overall prevalence and by subgroups defined by key social determinants of health.

Methods: We use the 2014 Ontario Child Health Study (OCHS) data linked at the individual child-level to Ontario Ministry of Health administrative data (DADS, NACRS and OHIP billings). In the OCHS, disorder classifications are derived from standardized diagnostic interview and service use is based on parent/caregiver self-report. In the administrative data, diagnostic classifications are identified using selected diagnostic codes and service contacts are identified for any type of mental health disorder.

Results or Preliminary Results: Preliminary results indicate differences between estimates based on administrative health data versus survey data. Behavioural disorders cannot be easily derived from administrative data due to limitations in diagnostic coding. Overall prevalence differs for all disorders except mood disorders. Individual-level concordance for all disorders is low. Preliminary service use results suggest that estimates are higher when using survey data compared with administrative data. Analyses examining group-level results and relative group differences are ongoing.

Conclusion or Next Steps: Health administrative data is often used for the purposes of population monitoring and surveillance, although it is not collected for this purpose. As a convenient source of data it is important to determine the extent to which diagnoses and service contacts are accurately identified and which purposes administrative data, surveys or a combination are appropriate for.

A5.3

Machine learning methods for predicting postpartum depression: A scoping review

Kiran Saqib, University of Waterloo; Zahid Ahmad Butt, University of Waterloo; Amber Fozia Khan, University of Waterloo

---

Primary Area of Focus: Maternal & Child Health (Perinatal & Neonatal, Maternal Health, Child Health)

Objectives: Machine learning (ML) offers vigorous statistical and probabilistic techniques that can successfully predict certain clinical conditions using large volumes of data. This paper aims to synthesize the literature on machine learning (ML) and big data analytics for maternal mental health, particularly the prediction of postpartum depression (PPD).

Methods: A scoping review methodology using the Arksey and O'Malley framework was employed to rapidly map the research activity in the field of ML for predicting PPD. A literature search was conducted through health and IT research databases, including PsycInfo, PubMed, IEEE Xplore and the ACM Digital Library from Sep 2020 till Jan 2021. Data were extracted on the article's ML model, data type, and study results.

Results or Preliminary Results: A total of fourteen (14) studies were identified. All studies reported the use of supervised learning techniques to predict PPD. Support vector machine (SVM) and random forests (RF) were the most commonly employed algorithms in addition to naïve Bayes, regression, artificial neural network, decision trees and extreme gradient boosting. There was considerable heterogeneity in the best performing ML algorithm across selected studies.The area under the receiver-operating-characteristic curve (AUC) values reported for different algorithms were; SVM (Range: 0.78-0.86); RF method (0.88); extreme gradient boosting (0.80); logistic regression (0.93); and extreme gradient boosting (0.71) respectively.

Conclusion or Next Steps: ML algorithms are capable of analyzing larger datasets and performing more advanced computations, that can significantly improve the detection of PPD at an early stage. Further clinical-research collaborations are required to fine-tune ML algorithms for prediction and treatments. ML might become part of evidence-based practice, in addition to clinical knowledge and existing research evidence.

A5.4

What can we learn from missing data? Examining nonreporting patterns of height, weight, and BMI among Canadian youth

Amanda Doggett, University of Waterloo; Ashok Chaurasia, University of Waterloo; Jean-Philippe Chaput, CHEO Research Institute; Scott T. Leatherdale, University of Waterloo

---

Primary Area of Focus: Epidemiologic Methods (Study Designs, Ethics, Data Quality, Record Linkage, Cohort Studies)

Objectives: Youth body mass index (BMI) derived from self-reported height and weight tends to suffer greatly from non-reporting. However, missing data examinations are rare in this domain, and mishandling or ignoring missingness can bias research results and conclusions. The objective of this study is to examine the characteristics and predictors of missing data in youth overweight and obesity research.

Methods: This study examined the characteristics of missing height, weight, and BMI data among 74,501 Canadian secondary school students who participated in the COMPASS study in 2018/19. Descriptive statistics were used to understand the degree and characteristics of missingness. Sex-stratified generalized linear mixed models were used examine predictors of missing data while controlling for school-level clustering. Models were selected using an adapted pseudo-likelihood model selection framework.

Results or Preliminary Results: In this sample, 31% of BMI data were missing. Females were more likely to leave their weight unreported, whereas males were more likely to leave their height unreported. Preliminary models indicate a variety of diet, exercise, mental health, and substance use variables are associated with missingness. Perceiving oneself as overweight as well as having weight loss intentions were positively associated with BMI missingness among females. For males, self-perception as underweight as well as reporting weight gain intentions were additionally positively associated with BMI missingness.

Conclusion or Next Steps: The findings of this research suggest that missingness in youth BMI is unlikely to be missing at random, highlighting the importance of using appropriate missing data methodology to limit potential bias in research which utilizes youth BMI. The predictors of missingness identified in this study can be used as the foundation for future research to identify auxiliary variables for maximum likelihood or multiple imputation approaches. Moreover, the patterns and predictors of missingness identified can be used to plan study designs which mitigate the risk of missing self-report height and weight measures.

A5.6

Validity of an Algorithm to Identify Cardiovascular Deaths from Administrative Health Records: A Multi-Database Population-Based Cohort Study

Lisa Lix, University of Manitoba; Shamsia Sobhan, University of Manitoba; Audray St-Jean, Center for Clinical Epidemiology, Lady Davis Institute, Jewish General Hospital; Jean-Marc Daigle, Institut national d'excellence en santé et en services sociaux; Anat Fisher, University of British Columbia; Oriana H. Y. Yu, McGill University; Sophie Dell'Aniello, Center for Clinical Epidemiology, Lady Davis Institute, Jewish General Hospital; Nianping Hu, Saskatchewan Health Quality Council; Shawn Bugden, Memorial University of Newfoundland; Baiju R Shah, ICES & University of Toronto; Paul Ronksley, University of Calgary; Silvia Alessi-Severini, University of Manitoba; Antonios Douros, McGill University; Pierre Ernst, Center for Clinical Epidemiology, Lady Davis Institute, Jewish General Hospital & McGill University; Kristian B Filion, Center for Clinical Epidemiology, Lady Davis Institute, Jewish General Hospital & McGill University

---

Primary Area of Focus: Epidemiologic Methods (Study Designs, Ethics, Data Quality, Record Linkage, Cohort Studies)

Objectives: Cardiovascular death is a common outcome in population-based studies about new healthcare interventions or treatments, such as new prescription medications. Vital statistics registration systems are the preferred source of information about cause-specific mortality because they capture verified information about the deceased, but they may not always be accessible for linkage with other sources of population-based data. We assessed the validity of an algorithm applied to administrative health records for ascertaining cardiovascular deaths in population-based data.

Methods: Administrative records were from an existing Canadian Network for Observational Drug Effect Studies (CNODES) multi-database cohort study about sodium-glucose cotransporter-2 (SGLT2) inhibitors, a new class of antidiabetic medications. Data were from 2013 to 2018 for five Canadian provinces (Alberta, British Columbia, Manitoba, Ontario, Quebec) and the United Kingdom (UK) Clinical Practice Research Datalink (CPRD). The cardiovascular mortality algorithm was based on in-hospital cardiovascular deaths ascertained from diagnosis codes and select out-of-hospital deaths. Validity was assessed against cardiovascular deaths from vital statistics registrations. Sensitivity, specificity, and positive and negative predictive values (PPV, NPV) were calculated. Overall and stratified estimates and 95% confidence intervals (CIs) were computed; the latter were produced by site, sex, and age.

Results or Preliminary Results: The cohort included 20,609 individuals (58.3% male; 77.2% ≥70 years). The cardiovascular mortality algorithm had overall sensitivity of 68.6% (95% CI 67.5, 69.7); site-specific estimates ranged from 54.8% to 87.3%. Overall specificity was 70.3% (95% CI 69.5, 71.0) and overall PPV was 51.7% (95% CI 50.7, 52.8), while site-specific PPV ranged from 33.9% to 72.8%. Estimates were similar by sex and age.

Conclusion or Next Steps: A cardiovascular mortality algorithm from administrative health records had moderate validity when compared to vital statistics data. Substantial variation existed across study sites representing different geographic locations and two healthcare systems. These variations may reflect different diagnostic coding practices and healthcare utilization patterns.

A6.1

Is Hodgkin lymphoma associated with hepatitis B and C viruses? A systematic review and meta-analysis

Callum Mullen, Division of Cancer Epidemiology, McGill University; Karena Volesky, McGill University; Zoë Greenwald, Dalla Lana School of Public Health, University of Toronto; Mariam El-Zein, Division of Cancer Epidemiology, McGill University; Eduardo Franco, McGill University Department of Oncology

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: Given that hepatitis B virus (HBV) and hepatitis C virus (HCV) can exert effects on lympho-hematopoietic cells, we systematically reviewed and meta-analyzed the evidence on the effects of infections with these viruses on the risk of developing Hodgkin lymphoma (HL).

Methods: We searched MEDLINE, EMBASE, and Web of Science databases until November 2020 for observational studies reporting a measure of effect for HBV and/or HCV and HL. Two reviewers independently screened records and assessed study quality with the Newcastle-Ottawa Scale. We pooled odds ratios and relative risks (RR) and their 95% confidence intervals (CIs). If the I2 was >25%, a random effect model was used. We performed sub-group analyses by region, study design, hepatitis detection method, source of controls, and quality score.

Results or Preliminary Results: Of 2,712 records screened, 33 studies were included in the review and 25 were meta-analyzed. The pooled RR of the association between HBV infection and HL was 1.17 (CI: 0.90–1.52, I2= 0%, 13 studies), and for HCV infection and HL it was 1.39 (CI: 0.96–2.00, I2=39%, 16 studies). Restricting to gold standard methods for detecting chronic infection, the pooled RR for studies using hepatitis B surface antigen test (HBsAg) was 1.38 (CI: 0.94–2.01, I2= 0%, 9 studies). For studies using anti-HCV with nucleic acid testing (NAT) to confirm chronic HCV infection, the summary RR was 2.14 (CI: 1.01–4.57, I2= 55%, 9 studies). None of the studies provided a measure of effect stratified by age or for those positive for Epstein-Barr virus – a major viral cause of HL.

Conclusion or Next Steps: There was no evidence of an association between HBV and HL. Our results are suggestive of chronic HCV being associated with HL when restricting to studies testing for anti-HCV using NAT.

A6.2

Spatiotemporal trends and socioecological factors associated with Lyme disease incidence in eastern Ontario, Canada, 2010-2017.

Andreea Slatculescu, University of Ottawa

Primary Area of Focus: Spatial Epidemiology, Mapping & GIS (Geographical Epidemiology, Surveillance Systems, Methods)

Objectives: The eastern blacklegged tick, Ixodes scapularis, is the main vector for Lyme disease (LD), with established tick populations now found in many regions of Ontario. Knowledge gaps between the ecological risk of ticks in the environment and human exposure still remain. Our aims are to 1) more accurately identify tick exposure at a fine geographic scale, 2) identify socioecological factors associated with LD incidence, and 3) identify clusters of LD cases and tick exposure hotspots to better understand temporal spread and local LD risk.

Methods: We extracted 1,204 human LD cases from the Integrated Public Health Information System and 9,659 publicly submitted ticks from the Public Health Ontario database for eastern Ontario health units from 2010-2017. We assigned tick exposure locations to the smallest census unit (DA; dissemination area) and used a negative binomial regression model to identify socioecological predictors of LD. We used the Kulldorff spatial scan with Poisson and Bernoulli models to identify spatiotemporal clusters of LD cases and ticks, respectively.

Results or Preliminary Results: We found that 81.5% of LD cases were exposed to ticks in Ontario, of which 81% and 19% represented exposures within and outside the health unit of residence, respectively. Cottages (33%), camping/recreational activities (7.6%), and local travel (7.7%) were listed as the most common exposures. LD case counts were significantly associated with total number of I. scapularis ticks submitted, total number of Borrelia burgdorferi-positive ticks, proportion of treed land, and walkability score. Spatiotemporal clusters of LD cases and ticks were found within similar regions, particularly northeast from Kingston to Gananoque.

Conclusion or Next Steps: Our study provides a fine-scale analysis of patterns and determinants of LD at the smallest census unit. Our results support evidence that increased tick encounter is a key determinant of LD as well as the local environmental characteristics and neighbourhood structure.

A6.3

Determinants of Arbovirus Vector Density as a Measure of Transmission Risk in Regions of Recent Zika Virus Introduction in the Americas

Benoit Talbot, University of Ottawa

Primary Area of Focus: Global Health (International Perspectives on Health, Low & Middle Income Country Health Research)

Objectives: The global impact of Zika virus in Latin America and the Caribbean has drawn attention to circulating mosquito-borne viruses in this region, such as dengue and chikungunya viruses. Our objective was to assess socioecological factors associated with Aedes vector density as a measure of arboviral transmission risk in three regions of recent Zika virus introduction: Ibagué, Colombia; Manta, Ecuador; and Posadas, Argentina, in order to inform disease mitigation strategies.

Methods: We monitored Aedes mosquito populations over 12 months starting in 2018 in a total of 1086 randomly selected households using three types of mosquito traps and one type of aspirator. For each sampled household, we collected socio-economic and microenvironmental data using structured questionnaires.

Results or Preliminary Results: Mean female Aedes mosquito density per household was 1.71. We modeled the interaction between neighborhood and household wealth profiles, and found significant difference in female Aedes mosquito density between poorest and least poor households. We used mixed-effects Poisson regression analyses to identify predictors of female Aedes mosquito density, with month, neighborhood, and country as random-effects variables. Across study sites, the number of household occupants (IRR = 1.08), presence of entry points into the household for mosquitoes (IRR = 1.51) and presence of decorative vegetation (IRR = 1.52) were associated with higher numbers of female Aedes mosquitoes per household, while the least poor tertile of household wealth (Incidence rate ratio, IRR = 0.78), knowledge of how arboviruses are transmitted (IRR = 0.94) and regular emptying of water containers by occupants (IRR = 0.79) were associated with lower female Aedes mosquito density.

Conclusion or Next Steps: Our study addresses the complexities of arbovirus vectors of global significance at the interface between society and the environment. Our results point to several determinants of household Aedes mosquito vector density in the Latin America and Caribbean region, and could help us identify targets of practical intervention to control.

A6.4

Transmission Reduction And Prevention with HPV vaccination (TRAP-HPV) study: preliminary analysis of HPV incidence and transmission

Aaron MacCosham, McGill Univerisity; Mariam El-Zein, Division of Cancer Epidemiology, McGill University; Eduardo Franco, McGill University Department of Oncology; Ann Burchell, St. Michael's Hospital; Pierre-Paul Tellier, McGill University; François Coutlée, Centre Hospitalier de l'Université de Montréal

---

Primary Area of Focus: Public Health / Population Health (Disease Prevention, Population Health, Population Health Interventions)

Objectives: Although there is sufficient evidence to indicate that HPV vaccination protects individuals receiving the vaccine, it remains unknown whether vaccinating one sexual partner in a couple against HPV would benefit the other partner. Our objective was to evaluate protection against vaccine-preventable HPV types conferred by vaccination to individuals and their partners.

Methods: Participants living in Montreal, Canada, aged 18-45 years, and in a heterosexual relationship no longer than 6 months were randomly assigned to receive the intervention HPV vaccine, Gardasil 9, or the active control, Avaxim, a Hepatitis A vaccine. Couples attended a maximum of 6 clinic visits (baseline, and at 2, 4, 6, 9, and 12 months) and provided genital samples for detection of 36 HPV genotypes. Participants were vaccinated at baseline and at 2 and 6 months. We collapsed study arms to analyze this trial as an observational cohort investigation. We used Cox proportional hazards regression models to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for associations between the administered vaccine and infections at the HPV episode level.

Results or Preliminary Results: We restricted analyses to 273 participants (intervention: n=141, active control: n=132) who had at least 2 visits with valid HPV data. The HR of becoming positive for a given vaccine-preventable HPV type in the intervention group compared with the active control was 0.47 (CI:0.23-0.97). Comparing individuals with HPV-vaccinated versus active control-vaccinated partners, there was no evidence of association for the risk of becoming positive for a given vaccine-preventable HPV type among those who received at least one dose (HR:1.46; CI:0:73-2.94), and those who received at least two doses (HR:0.78; CI:0:31-1.96).

Conclusion or Next Steps: Our study provides inconclusive evidence that individuals whose partner recently received an HPV vaccine are protected from vaccine-preventable types, but demonstrates that vaccinated individuals are at lower risk of incident infections.

A6.5

Male circumcision and the prevalence, incidence, and clearance of human papillomavirus infections in males and females: preliminary results from a systematic review and meta-analysis

Samantha Shapiro, Division of Cancer Epidemiology, McGill; Cassandra Laurie, Division of Cancer Epidemiology, McGill; Eduardo Franco, McGill University Department of Oncology

---

Primary Area of Focus: Infectious Diseases & Immunization (STD, HIV/AIDS, Eco-health/One Health, Veterinary Epidemiology, Vaccine Hesitancy

Objectives: To determine the association between male circumcision and the prevalence, incidence, and clearance of human papillomavirus (HPV) infections in males and their female sexual partners. To date, no systematic review has examined multiple HPV infection outcomes in both males and females.

Methods: We conducted a systematic review according to the Preferred Reporting for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. We searched MEDLINE, Embase, Scopus, Cochrane, LILACS, and ProQuest Dissertations and Theses Global using a combination of the MeSH headings and keywords "Circumcision, Male"; "circumcision"; "Papillomavirus Infections"; "Papillomaviridae"; "papillomavirus"; "alphapapillomavirus"; and "HPV" to find records published in any language up to October 6th, 2020. We de-duplicated the records, conducted a primary screen by title and abstract followed by conflict resolution, then conducted a secondary full-text screen and conflict resolution. For both primary and secondary screening, SS and CL screened all records and resolved disagreements by consensus. Data from each record related to study characteristics and outcomes of interest will be extracted by one author and validated by another. The risk of bias in each study will be evaluated using the Cochrane risk of bias tool and the Newcastle-Ottawa scale. All included records will be summarized in a qualitative synthesis and eligible records will be included in a quantitative meta-analysis.

Results or Preliminary Results: In total, we identified 1321 records; 583 unique records remained after de-duplication. 103 articles remained after title and abstract screening, and 44 records were selected for inclusion after full-text screening. We piloted a data extraction sheet and data extraction is currently underway.

Conclusion or Next Steps: Following data extraction, we will summarize each study's characteristics and assess heterogeneity in order to conduct a meta-analysis using a random-effects model for each sex and outcome.

B1.1

COVID-19 leads to higher mortality regardless of other risk factors: a population-based retrospective cohort study

Anna Kone Pefoyo, Lakehead University; Helen Gabriel, Lakehead University; Idevania Costa, Lakehead University; Deborah Scharf, Lakehead University - Psychology Department; Lynn Martin, Lakehead University; Walter Wodchis, University of Toronto

---

Primary Area of Focus: COVID-19 (Health Impacts, Surveillance, Policy)

Objectives: Despite an increase in mortality since the beginning of COVID-19 pandemic, researchers have questioned whether COVID-19 infection is to blame, wondering whether patients die with the disease or because of it. In this study, we assessed the impact of COVID-19 on mortality and how it interacted with other individual risk factors such as age, sex and multimorbidity.

Methods: We conducted a retrospective cohort study using linked health administrative data. The data set included all COVID-19-tested individuals in Ontario between January and September 2020, with 3 to 11 months of follow-up to identify death. The main exposure was a positive COVID-19 test result. Other factors included sociodemographic characteristics and multimorbidity level based on 18 possible preexisting chronic conditions. We used logistic regression modelling to describe the impact of COVID-19 on death and evaluate interactions with multimorbidity. We also adjusted the model for age, sex, rurality, area-level ethnicity, neighborhood income, and specific conditions.

Results or Preliminary Results: Mortality was 2.3 times higher (CI=1.19-1.34) with COVID-19. Mortality also increased with multimorbidity, male sex, increasing age, and lower neighborhood income. The risk of death associated with risk factors, however, increased with a COVID-19 positive test. For example, the risk of death associated with multimorbidity increased with a COVID-19 positive test from 2.1 to 4.1 (2 conditions) and from 3.4 to 8.0 times (5+ conditions). Thus, within each multimorbidity level, COVID-19 resulted in an incremental risk of death whereby about 57% of mortality among people tested could be uniquely attributable to COVID-19.

Conclusion or Next Steps: While impact of known risk factors on mortality is undeniable, mortality appears to be worse with COVID-19, and the impact of COVID-19 on mortality persists regardless of these factors.

B1.2

What factors influence the intention to use COVID-19 vaccine: a scoping review

Bara' AlShurman, University of Waterloo; Amber Fozia Khan, University of Waterloo; Christina Mac, University of Waterloo; Meerab Majeed, McMaster University; Zahid Ahmad Butt, University of Waterloo

---

Primary Area of Focus: Infectious Diseases & Immunization (STD, HIV/AIDS, Eco-health/One Health, Veterinary Epidemiology, Vaccine Hesitancy

Objectives: This scoping review was performed to determine the prevalence of intention to use COVID-19 vaccine among adults aged 18-60 and to identify the demographic, social, and contextual factors that influence the intention to use COVID-19 vaccines.

Methods: This scoping review was conducted by using the methodological framework for scoping review outlined by Arksey and O'Malley. A comprehensive search strategy was carried out in four electronic databases: PubMed, Scopus, CINAHL, and PsychInfo. The search strategy included extensive keywords and MeSH terms to cover all the articles related to COVID-19 intention to use. All peer-reviewed articles published between November 2019 and December 2020 were reviewed. A list of inclusion and exclusion criteria was set out, and studies were selected according to these criteria. Title/ abstract screening and full-text screening were performed by two independent reviewers and disagreements were resolved by a third reviewer. Data were extracted and then thematically analysed to identify the prevalence and factors that influence the intention to use COVID-19 vaccine.

Results or Preliminary Results: A total of 48 relevant articles out of 4239 were identified for inclusion in the review. Outcomes presented fell into 55 theoretical constructs. These were classified into seven themes: demographics, social influences, vaccination behaviours, vaccine-related perceptions, health-related perceptions, perceived barriers, and vaccine recommendations. Age, gender, education level, race/ethnicity, vaccine safety and effectiveness, influenza vaccination history, and confidence in health care system and government were the most prominent factors associated with intention to use COVID-19 vaccine. Furthermore, the majority of studies (n=34/48) reported a relatively high prevalence of intention to get vaccinated against COVID-19 with a range from 60% to 93%.

Conclusion or Next Steps: This scoping review enables creating demographic, social, and contextual constructs associated with intention to vaccinate among adult population. These factors are likely to play a major role in any targeted vaccination programs, notably COVID-19 vaccination.

B1.3

The Impact of Congregate Living on Positive COVID-19 Tests Among Adults with Intellectual and Developmental Disability in Ontario

Rebecca Hansford, Queen's University; Helene Ouellette-Kuntz, Queen's University; Lynn Martin, Lakehead University

Primary Area of Focus: COVID-19 (Health Impacts, Surveillance, Policy)

Objectives: To determine the influence of living in a congregate setting on positive COVID-19 tests among a sample of high-risk adults with intellectual and developmental disability (IDD) in Ontario.

Methods: The sample consisted of 132 individuals with IDD who were assessed for homecare. Chi-square tests were used to identify statistically significant associations between positive COVID-19 tests and select demographic and clinical characteristics. Odds ratios (OR) with 95% confidence intervals (CI) were reported for statistically significant associations. Preliminary logistic regression models were conducted to examine the influence of congregate setting on positive COVID-19 tests. Age was examined as a potential effect modifier using stratified logistic regression analyses (age <45 years of age; age = 45 years or greater).

Results or Preliminary Results: Forty-five individuals tested positive for COVID-19 (34.09%). Bivariate analyses showed that older age was associated with positive tests (OR=3.17, 95% CI 1.47, 6.87), as was living in congregate settings (OR=2.69, 95% CI 1.23, 5.88). Those with dependency in personal hygiene had decreased odds of testing positive (OR=0.31, 95% CI 0.12, 0.85), as did individuals with dependency in dressing (OR=0.29, 95% CI 0.12, 0.72). For older persons, living in congregate settings was associated with increased odds of testing positive but statistically non-significant (OR=3.23, 95% CI, 0.925, 11.29; p=0.07). Among younger individuals, living in congregate settings was not associated with increased odds of testing positive (OR=1.08, 95% CI 0.31, 3.79, p=0.91).

Conclusion or Next Steps: Given the OR estimate changes in the stratified regressions, age may modify the relationship between congregate living and COVID-19. Analyses will continue to be conducted as the sample size increases. Future analyses will examine the potential mediating effect of assistance with personal hygiene and dressing.

B1.4

Pan-Canadian survey on the impact of the COVID-19 pandemic on cervical cancer screening and management

Mariam El-Zein, Division of Cancer Epidemiology, McGill University; Rami Ali, Division of Cancer Epidemiology, Gerald Bronfman Department of Oncology, McGill University; Eliya Farah, McGill University; Eduardo Franco, McGill University Department of Oncology

---

Primary Area of Focus: COVID-19 (Health Impacts, Surveillance, Policy)

Objectives: The COVID-19 pandemic has caused disruptions to cancer care by delaying diagnoses and treatment, presenting challenges and uncertainty for both patients and physicians. We conducted a nationwide online survey to assess the effects of the pandemic from mid-March to mid-August 2020, and capture modifications, prompted by pandemic-related control measures, of cervical cancer screening-related activities across Canada.

Methods: The survey consisted of 61 questions related to the continuum of care in cervical cancer screening and treatment: appointment scheduling, tests, self-sampling, colposcopy, follow-up, treatment of pre-cancerous lesions and cancer, telemedicine, over/under screening during the pandemic, and resumption of in-person practice. We piloted the survey with 21 Canadian experts in cervical cancer prevention and care. We partnered with the Society of Canadian Colposcopists, Society of Gynecologic Oncology of Canada, Canadian Association of Pathologists, and Society of Obstetricians and Gynecologists of Canada, which distributed the survey to their members via their electronic newsletter. We reached out to primary care providers via MDBriefCase, which invited family physicians as well as general and nurse practitioners. The survey was also posted on McGill Channels (Department of Family Medicine News and Events), and social media platforms.

Results or Preliminary Results: Responses were collected from 615 participants (16 November 2020 - 19 February 2021), representing 374 fully- and 241 partially- completed surveys. Respondents comprised general practitioners/family physicians (36.9%), gynecologists (18.5%), colposcopists (9.3%), nurse practitioners (8.0%), gynecological oncologists (4.4%), cytopathologists (4.1%), pathologists (3.1%), and gynecology nurses (2.1%). They were mostly from Ontario (39.8%), British Columbia (14.3%), and Alberta (11.1%). Data collection (closing date: 28 February 2021) and analyses are ongoing.

Conclusion or Next Steps: Survey results will be used to inform optimal resumption of steps in cervical screening, treatment, management, and follow-up, as well as in epidemiological modelling of the long-term effects on cervical cancer morbidity and mortality from interruptions and delays in screening activities.

B1.5

Spatiotemporal Clusters and the Socioeconomic Determinants of COVID-19 in Toronto Neighbourhoods, Canada: An Observational Study

Nushrat Nazia, University of Waterloo; Jane Law, University of Waterloo

---

Primary Area of Focus: Public Health / Population Health (Disease Prevention, Population Health, Population Health Interventions)

Objectives: With over 96 million cases and 2 million deaths, COVID-19 is a global pandemic that has rapidly spread since first reported in December 2019 and has brought unprecedented challenges. The city of Toronto currently has one of the highest cumulative COVID-19 cases in Canada with spatial variability of incidences, causing tremendous public health concern. Socioeconomic factors may be able to explain the spatial variability of COVID-19 incidence. This research, by using COVID-19 surveillance data, aims to identify spatially variable socioeconomic drivers for the COVID-19 incidences in Toronto.

Methods: Geographical, epidemiological, and socioeconomic data from 140 geographically distinct neighbourhood profiles in Toronto were used in this study. Following a Pearson's correlation coefficient and a multicollinearity test, a total of four socioeconomic variables: higher education level, concentration of immigrants, low income and unemployment rates were selected for the spatially explicit regression models. We employed Spatial Error Model (SEM) or Spatial Lag Model (SLM), as appropriate, to identify the socioeconomic drivers and examine those drivers in a Geographically Weighted Regression (GWR) model to identify the local spatial relationship of the drivers with the COVID-19 incidences.

Results or Preliminary Results: Out of the four variables, only the percentage of higher education in the neighbourhoods was found to be significantly negatively associated with the COVID-19 incidences in the linear regression model. Building the GWR model with the percentage of higher education in the neighbourhoods show that the estimates were substantially varied across the neighbourhoods.

Conclusion or Next Steps: The finding suggests that although, in general, the lower percentage of higher education was associated with the higher incidence rate of COVID-19 in the neighbourhoods; it is, however, not valid for every neighbourhood. It implies that a single intervention package for the entire area would not be an effective strategy for controlling the disease; the interventions should be targeted only the areas where it is needed.

B2.1

Taking the High Road: Traffic Violations Among Emerging Adults Who Use Cannabis

Tiana Ciccarelli, University of Waterloo; Scott Leatherdale, University of Waterloo; Christopher Perlman, University of Waterloo, School of Public Health and Health Systems; Kara Thompson, St. Francis Xavier University; Mark Ferro, University of Waterloo

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: While some research has shown that cannabis can impair driving ability, evidence to the degree and impact of impairment are lacking. This study examined the association between habitual or casual cannabis use and past-year traffic violations among emerging adults (EAs). Specifically, the objectives were to: (1) estimate the overall, sex-specific, and age-specific prevalence of past-year traffic violations, (2) model the association between cannabis use frequency and traffic violations, adjusting for potential confounding factors; and (3) test whether sex, age, habitual substance use, and mental disorders moderate the association.

Methods: Data come from the 2012 Canadian Community Health Survey–Mental Health. Respondents (n=5,630) were categorized as: early (15–19 y), middle (20–24 y), and late (25–29 y) EAs. Traffic violations were measured using self-report and cannabis use was measured using the WHO Composite International Diagnostic Interview.

Results or Preliminary Results: The prevalence of traffic violations was higher for males (19.2%) vs females (9.9%) and middle (16.2%) and late (19.4%) EAs vs early (8.8%) EAs. The odds of reporting traffic violations were higher for EAs who engaged in habitual [OR= 1.77 (1.17-2.67)] or casual [OR=1.79 (1.27-2.51)] cannabis use when compared to non-users. Age moderated the association such that higher odds of traffic violations were reported in early EAs who were casual cannabis users and middle EAs who were habitual or casual cannabis users when compared to non-users. Use of other drugs was also a moderator—in the absence vs. presence of other drug use, odds of traffic violations were higher in those who engaged in either habitual or casual use of cannabis.

Conclusion or Next Steps: When accounting for the moderating effects of age and drug use, habitual and casual cannabis use resulted in increased odds of a traffic violation. Future research is warranted to explore the robustness of our findings.

B2.2

Life satisfaction and mental health service use: A prospective observational study

Camilla Michalski, University of Toronto; Laura Rosella, Dalla Lana School of Public Health, University of Toronto; Vivek Goel, University of Toronto; Lori M. Diemert, University of Toronto; Mack Hurst, University of Toronto

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Measures of subjective wellbeing, such as life satisfaction, are gaining traction as insightful indicators for public and international policy. Our study aims to: (1) investigate the impact of life satisfaction on future mental health-related visits in hospital/emergency department (ED) and outpatient settings, and (2) determine how associations vary by household income.

Methods: Baseline data was captured from five pooled cycles of the Canadian Community Health Survey (2005-2014), then linked to administrative data for Ontarians aged 18 years and older (N=131,809). Life satisfaction was measured using a single-item Likert scale, and the outcome was a count of subsequent mental health-related visits. Each participant had up to five years of follow-up, and to account for visit history, a three-year lookback window. Poisson regression models estimated population-representative rate ratios in each care setting, adjusting for sociodemographic measures, visit history, and health behaviours.

Results or Preliminary Results: Compared to those most satisfied with life, those least satisfied exhibited a rate ratio for future visits of 3.71 (95% confidence interval (CI): 2.14, 6.45) in the hospital/ED setting, and 1.83 (95% CI: 1.42, 2.37) in the outpatient setting. When considering the joint effects of income, compared to the most satisfied/highest income individuals, the least satisfied/lowest income individuals exhibited a hospital/ED visit rate ratio of 11.25 (95% CI: 5.32, 23.80), and an outpatient visit rate ratio of 1.84 (95% CI: 1.29, 2.63).

Conclusion or Next Steps: The findings suggest that life satisfaction is an independent risk factor for future mental health visits, further underscoring the usefulness of this indicator. The substantially increased rate of repeated hospital/ED visits among the least satisfied/lowest income group points to existing barriers to continued mental health care. This falls in line with socio-ecological perspectives on health which recognize the influence of broader life contexts on health and highlight the appropriateness of prevention frameworks to help address Ontario's growing mental health burden.

B2.3

Mental Disorders Risk Prediction using Objectively Measured Family Health Histories: A Multigenerational Linkage Study

Amani Hamad, University of Manitoba; Lisa Lix, University of Manitoba

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Mental disorders are a major public health concern affecting over 6 million Canadians. Identifying individuals at risk of mental disorders is critical to address their significant burden on individuals, healthcare systems, and societies. This project aims to 1) examine the intergenerational transmission of mental disorders and 2) test for improvements in offspring mental disorders risk prediction using multigenerational histories of comorbid physical conditions.

Methods: Population-based cohort studies will be conducted using administrative healthcare databases in Manitoba, one of a few sites worldwide with population-based familial record linkage. The cohorts will include adult offspring between 1974 and 2020 with linkage to at least one parent, about 300,000 individuals based on prior work. Three generations will be linked: generation 1: grandparents, generation 2: parents and their siblings, and generation 3: offspring and their siblings. Mental and physical health conditions will be identified for offspring and family members from diagnosis codes in hospital and outpatient physician visit records. Separate cohorts will be defined for: 1) mood and anxiety disorders, 2) schizophrenia, and 3) substance use disorders, and comorbid mental disorders. Random forest machine-learning techniques, based on decision trees, will be used to efficiently mine health histories across multiple generations and identify important risk factors in mental disorders risk prediction models. For objective 1, a base model will be built for each of the three mental disorders and will include offspring sociodemographic and comorbid conditions. History of any mental disorder for each family member will be added as separate model covariates. For objective 2, we will assess improvements in mental disorders risk prediction when including family history of various physical health conditions of family members. For all models, we will assess performance using area under the receiver operating characteristic curve and prediction error. K-fold cross validation will be used for internal model validation.

Results or Preliminary Results:

Conclusion or Next Steps:

B2.4

Trends in the Prevalence of Diagnosed Mood or Anxiety Disorders Among Migrant Groups in Ontario, 1995-2015: A Population-based, Repeated Cross-sectional Study

Jordan Edwards, McMaster University; Maria Chiu, Institute for Clinical Evaluative Sciences ; Rebecca Rodrigues, Western University; Amardeep Thind, Western University; Saverio Stranges, University of Western Ontario; Kelly Anderson, Western University

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: International evidence on the frequency of mood or anxiety disorders among migrant groups is highly variable, as it is dependent on the time since migration and the socio-political context of the host country. Our objective was to estimate trends in the prevalence of diagnosed mood or anxiety disorders among recent (<5 years in Canada) and settled (5-10 years in Canada) migrant groups, relative to the general population of Ontario, Canada.

Methods: We used a repeated cross-sectional design consisting of four cross-sections spanning 5 years each, constructed using health administrative databases from 1995 to 2015. We included all Ontario residents between the ages of 16 and 64 years. We assessed differences in the prevalence of mood or anxiety disorders adjusting for age, sex, and neighbourhood-level income. We further evaluated the impact of migrant class and region of birth.

Results or Preliminary Results: The prevalence of mood or anxiety disorders was lower among recent (weighted mean= 4.10%; 95%CI = 3.59%, 4.60%) and settled (weighted mean= 4.77%; 95%CI = 3.94%, 5.61%) migrant groups, relative to the general population (weighted mean= 7.39%; 95%CI = 6.83%, 7.94%). Prevalence estimates varied greatly by region of birth and migrant class. We found variation in prevalence estimates over time, with refugee groups having the largest increases between 1995 and 2015.

Conclusion or Next Steps: Our findings highlight the complexity of mood and anxiety disorders among migrant groups, and that not all groups share the same risk profile. These results can be used to help inform health service allocation and the development of supportive programs for specific migrant groups.

B2.5

Climate change and mental disorders in low and middle-income countries: A scoping review

Isobel Sharpe, Queen's University; Colleen Davison, Queen's University

---

Primary Area of Focus: Environmental & Occupational (Environmental Health, Occupational Health, Risk Assessment, Climate Change)

Objectives: Research shows that climate change adversely affects physical health, while less is known about its relationship with mental health. Low and middle-income countries (LMICs) are particularly vulnerable to the impacts of climate change, and often lack adequate mental health care infrastructure. Few reviews have captured the extent of this literature, particularly within recent years. Therefore, the objective of this scoping review was to conceptualize the relationship between climate change and mental disorders in LMICs.

Methods: This review followed the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) checklist. To identify relevant studies, we searched five electronic databases: MEDLINE, EMBASE, Global Health, APA PsycInfo, and Sociological Abstracts, as well as the grey literature. The identified studies were screened by two independent reviewers. Included studies had an adult LMIC population, a climate change-related exposure, and a mental disorder outcome. Any empirical literature published in 2007 or later was included. Relevant study information was extracted and synthesized.

Results or Preliminary Results: Fifty-eight studies were identified. Most (n=48) employed a cross-sectional design, while others used prospective (n=5), ecological (n=4), and case-crossover (n=1) designs. The most commonly studied exposure-outcome combinations were flood-related post-traumatic stress disorder (PTSD) (n=28), flood-related depression (n=15), and storm-related PTSD (n=13). Few studies included a baseline or comparator (i.e. unexposed) group, thereby limiting our understanding of the climate change-mental disorders association. However, among the climate change exposed groups, we observed an overall positive association between exposure severity and mental disorder outcomes. In addition, several research gaps were identified including the lack of longitudinal studies and non-uniformity of geographic coverage.

Conclusion or Next Steps: To our knowledge, this was the first scoping review to investigate the relationship between climate change and mental disorders in LMICs. Overall, the findings of this review support the need to consider mental health as a priority within LMIC climate change adaptation policy.

B3.1

Low social support is associated with low executive function in women but not in men: Results from the Canadian Longitudinal Study on Aging

Emily Rutter, University of Waterloo; Suzanne Tyas, University of Waterloo; Mark Oremus, University of Waterloo; Colleen Maxwell, University of Waterloo; Megan O'Connell, University of Saskatchewan

---

Primary Area of Focus: Social Determinants of Health (Social Epidemiology, Measuring Social Determinants)

Objectives: The social distancing restrictions implemented in response to the COVID-19 pandemic have brought renewed attention to the role of social support availability (SSA) in cognitive health. While high SSA may benefit cognitive function, how this relationship varies by sex remains unclear. This study investigated whether SSA is associated with the executive function domain of cognitive function, stratified by biological sex.

Methods: Our cross-sectional study used baseline data from the Comprehensive Cohort (N=30,097) of the Canadian Longitudinal Study on Aging (CLSA), an ongoing study of community-dwelling Canadians aged 45–85 at recruitment. The 19-item Medical Outcomes Study–Social Support Survey assessed overall SSA and four subtypes: tangible, affectionate, emotional/informational, and positive social interactions. Overall executive function was calculated by combining z-scores across the five tests. Sex-stratified, weighted logistic regression models were used to assess the association of SSA with executive function, adjusted for sociodemographic, health and social covariates.

Results or Preliminary Results: Neither overall SSA nor any subtype was associated with low executive function in males after adjusting for covariates. In contrast, for females, low tangible SSA (OR=1.25, 95% CI=1.01–1.53) and positive social interactions (OR=1.29, 95% CI=1.04–1.60) were significantly associated with low executive function in fully adjusted models, as was low emotional/informational SSA for married females who experienced loneliness (OR=2.17, 95% CI=1.17–4.02).

Conclusion or Next Steps: Sex may play an important role in the association between SSA and executive function. While a clear understanding of the direction of the observed associations is limited by the cross-sectional design, improving the availability of, and access to, overall social support or its subtypes may represent important strategies for supporting cognitive health among women in mid- to late-life. These findings are novel and provide foundational knowledge for future longitudinal analyses into the impact of SSA on cognitive function over time.

B3.2

Rebecca Rodrigues, Kelly K. Anderson, Piotr Wilk, Graham Reid, Jason Gilliland, GY Zou, Kathryn Nicholson, Giuseppe Guaiana, Saverio Stranges

Rebecca Rodrigues, Western University; Kelly Anderson, Western University; Piotr Wilk, University of Western Ontario; Graham Reid, Western University; Jason Gilliland, Western University; Guangyong Zou, Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, University of Western Ontario; Kathryn Nicholson, Western University; Giuseppe Guaiana, Western University; Saverio Stranges, University of Western Ontario

---

Primary Area of Focus: Public Health / Population Health (Disease Prevention, Population Health, Population Health Interventions)

Objectives: Disruptions in sleep quality or duration affect over half of the older adult population. Poor sleep health is associated with increased risk of mortality and chronic conditions. Inequities in sleep health likely contribute to disparities in poor health outcomes. Our objective was to identify the social determinants of sleep health among middle-aged and older adults in Canada.

Methods: We used cross-sectional baseline data from the Canadian Longitudinal Study on Aging, a survey of 30,097 community-dwelling adults, aged 45-85. Self-reported sleep measures included sleep duration, sleep dissatisfaction (vs satisfied/neutral), and sleep disturbances (difficulty initiating or maintaining sleep). We selected social determinants a priori based on relevance from research in other settings. We used the modified Poisson regression to estimate prevalence ratios for sleep dissatisfaction and sleep disturbances, and linear regression for sleep duration. Using block-wise adjustment, estimates were adjusted for all available social determinants, and further adjusted for lifestyle and clinical covariates.

Results or Preliminary Results: Female sex was associated with a higher prevalence of both sleep dissatisfaction and sleep disturbances, and unemployment (vs retired) was associated with sleep dissatisfaction. Older age and higher household income were associated with a lower prevalence of sleep dissatisfaction and disturbances. Higher education level was associated with a lower prevalence of sleep disturbances. Factors associated with shorter sleep duration included employed (vs retired), and Black, East Asian, and other/mixed race groups (vs white). Adjusting for lifestyle and clinical variables, married/common-law (vs single/never married) and employed (vs retired) groups were also associated with sleep dissatisfaction, and the association with household income was attenuated. All other associations persisted with adjustment.

Conclusion or Next Steps: Our findings highlight sleep health disparities among Canadian middle-aged and older adults across socioeconomic and ethnic/racial minority groups. Poor sleep health in disadvantaged groups warrants increased attention as a public health problem in Canada.

B3.3

Estimating the inequitable burden of COVID-19 exposure at work across race/ethnicity: The Occupational Exposure to COVID-19 Risk Tool

Brendan Smith, Public Health Ontario; Christine Warren, Public Health Ontario; Erin Hobin, Public Health Ontario; Peter Smith, Institute for Work & Health; Arjumand Siddiqi, University of Toronto; Roman Pabayo, University of Alberta; Kevin Brown, Public Health Ontario; Sarah Buchan, Public Health Ontario; Arif Jetha, Institute for Work and Health; Nikhil Rajaram, University of Toronto; Lisa Simon, Simcoe Muskoka District Health Unit; Faraz Vahid Shahidi, Institute for Work and Health

Primary Area of Focus: Environmental & Occupational (Environmental Health, Occupational Health, Risk Assessment, Climate Change)

Objectives: The study objective was to describe the differential burden of occupational exposure to COVID-19 risk in Ontario across race/ethnicity.

Methods: A cross-sectional study was conducted using a representative sample of Ontario labour force participants from the 2016 Canadian Census (n=7.5 Million, ≥15 years). Workers within occupations (National Occupational Classification) and industries (North American Industry Classification) were examined according to age, sex and race/ethnicity. The dataset was enhanced by linking information on essential service industries and exposure information from the Occupational Information Network, including frequency of close working proximity to others, and, exposure to infections. The percentage of workers in essential service, with frequent close proximity to others and with a high risk of infection were estimated by race/ethnicity.

Results or Preliminary Results: Overall, 78% males and 64% females were employed in essential service industries. In females, Black (69%) and Southeast Asian (67%) workers were more likely to be employed in essential services compared to White workers (63%). Further, among females working in essential services, Black (31%) and Southeast Asian (30%) workers were more likely to be employed in occupations requiring frequent close proximity to others compared to White workers (21%). Similarly, Black (37%), Southeast Asian (37%) and Latino (31%) female workers were more likely to be employed in occupations with a high risk of infection compared to White workers (25%). No racial/ethnic differences were observed in men.

Conclusion or Next Steps: This study highlights an important sex-specific mechanism contributing to racial/ethnic inequities in COVID-19 in Ontario. Interventions to reduce occupational exposure to COVID-19 risk (e.g., adequate personal protective equipment) are urgently needed to mitigate COVID-19 inequities. Further research examining workplace characteristics is required to inform the design of equitable policies and interventions to reduce COVID-19.

B3.4

Preventable Emergency Department Visits in Canada: An Analysis of the 2015-2016 Canadian Community Health Survey

Tammy Lau, University of Western Ontario; Shehzad Ali, University of Western Ontario; Piotr Wilk, University of Western Ontario

Primary Area of Focus: Public Health / Population Health (Disease Prevention, Population Health, Population Health Interventions)

Objectives: Emergency department (ED) visits for reasons or conditions that could be treated or appropriately managed in primary care settings are considered to be preventable. These visits are associated with ED overcrowding, increased wait times, and indicate underlying barriers to primary healthcare. There is, however, a paucity of population-based Canadian research on preventable ED visits that are understood in the light of patients' perceptions of their health condition and whether they perceive their visit to be preventable. Therefore, the objective of this study was to elucidate the key correlates of self-reported preventable ED visits among adults in Canada with a regular healthcare provider (HCP).

Methods: We conducted a secondary analysis of data from the 2015-2016 Canadian Community Health Survey. Respondents were asked if their last ED visit within the past year was preventable (i.e. for a condition that could have been treated by their regular HCP if he/she had been available). Patient characteristics were chosen based on previous research and Andersen's Behavioural Model of Health Services Use. Multivariable logistic regression analyses were conducted to assess the associations between the patient characteristics and preventable ED visits.

Results or Preliminary Results: Our study included 22,529 respondents, of which 39.9% reported having a preventable ED visit in the past year. These visits were significantly associated with younger age, females, low education, being employed, non-white ethnicity, low income, having no recent consultations with a medical doctor, having a strong sense of community belonging, and worse self-rated mental health.

Conclusion or Next Steps: In Canada, a sizable proportion of ED visits made by adults with a regular HCP were reported to be preventable. Additional research on the key correlates identified in our study would assist in developing healthcare policies to improve the delivery of primary healthcare and reduce the number of preventable ED visits.

B3.5

Intersectional Social Inequalities and Cognitive Functioning among Community-Dwelling Older Adults in England: A Decomposition Analysis of the Mediating Role of Loneliness

Chantel Walwyn, Western University; Greta Bauer, Western University

Primary Area of Focus: Issues in Equity, Diversity & Inclusiveness (Social & Political Dimensions of Disparities in Health)

Objectives: Intersectionality has historically been used to study the interlocking nature of social positions, and their impact on population health disparities. Intersectional research suggests a need to identify the differential impact of modifiable factors that mediate the effects of social positions on health outcomes. Hence, the objective of this study was to study disparities in memory change amongst the intersectional groups of age, sex, and education, and the potential mediating role of loneliness. We also sought to advance intersectional mediation decomposition methods with regard to variance estimation in a complex probability sample.

Methods: Data from 2,871 community-dwelling English cognitive disease-free older adults age 50 years and older from the English Longitudinal Study of Ageing were analyzed for change in memory from 2008-2009 (Time 0) to 2016-2017 (Time 1). Three-way decomposition analysis was used to examine the mediating effect of loneliness on the association between intersectional groups and change in memory, adjusting for adverse childhood experiences, childhood social status, ethnicity, and immigration. Balanced repeated replications with group balanced half samples were used for variance estimation.

Results or Preliminary Results: At Time 0, loneliness varied significantly by intersectional group (F=9.66, $p<0.0001$), and was lowest amongst the reference group, Males 65 years and older with high educational attainment ($\bar{x}$=3.71 (SE=0.07)). For specific intersectional groups, memory decline was significantly larger in comparison to the reference group. At the mean low level of loneliness (3.71), results suggest a negative and significant residual inequality present in the association between intersectional group membership and change in memory. Different levels of loneliness appeared to play a mediating role only for Females 65 years and over with low educational attainment (PIE=0.14 (0.03, 0.24)).

Conclusion or Next Steps: There are existing intersectional inequalities in memory decline among older adults. Our findings demonstrate the value of using the intersectional framework when researching cognitive health in aging populations.

B4.1

Incidence and Trends of Limb Amputation in First Nations and General Population in Saskatchewan, 2006-2019

Samuel Kwaku Essien, University of Saskatchewan

Primary Area of Focus: Indigenous Health (First Nations, Metis, & Inuit Peoples)

Objectives: There is conflicting evidence whether limb amputation (LA) disproportionately affects indigenous populations. We compared LA incidence rates between First Nations persons registered under the Indian Act of Canada (RI) and the general population (GP) in Saskatchewan.

Methods: Retrospective linked administrative health data containing hospital discharge LA cases, demographic characteristics (age, sex), and resident population were stratified by RI and GP from 2006-2019. LA cases for each stratified group were disaggregated into three broad categories: overall LA (all reported LA), primary LA (first reported LA), and subsequent LA (revision or contralateral LA). Rates were calculated using LA cases as numerator and resident population as denominator.

Results or Preliminary Results: 1347 RI and 4520 GP LA cases were reported in Saskatchewan from 2006-2019. Primary LA constituted 64.5% (869) of RI and 74.5% (3369) of GP cases. Subsequent LA constituted 35.5% (478) of RI and 25.5% (1151) of GP cases. The average age-adjusted LA rate in the RI cohort was 153.9 ± 17.3 compared to 31.1 ± 2.3 per 100,000 in the GP cohort. In the GP cohort overall and primary LA rates declined 0.7% and 1.0%, subsequent LA increased 0.1%. In the RI cohort LA rates increased in all categories (overall 4.9%, primary 5.1%, and subsequent 4.6%). Risk of LA was 1.98 times higher in RI males and 1.66 times higher in RI females than their GP counterparts. RI aged 0-49 years and 50+ years were 2.04-5.33 times higher risk of LA than their GP cohort.

Conclusion or Next Steps: Saskatchewan's indigenous individuals, specifically First Nations persons registered under the Indian Act of Canada, experience LA at a higher rate than the general population. This disparity exists for all variables examined, including overall, primary, and subsequent LA rates, sex, and age. These results underscore the need for better understanding of the underlying causes of this disparity.

B4.2

Sense of Belonging and its relationship with Family Functioning among Syrian Refugee parents in Toronto

Maria Boulos, York University; Rama Eloulabi, York University; Hala Tamim, York University

---

Primary Area of Focus: Immigrant Health (Refugee Health, Health of Recent Immigrants)

Objectives: This study aimed to determine the relationship between sense of belonging and family functioning in a sample of new parent Syrian refugees resettled in Toronto.

Methods: A sample of 155 new parent Syrian refugees who were above 16 years of age, resettled in Toronto after 2015, and had at least one child under four years of age were recruited and interviewed in 2019. Sense of belonging to Canada was collected using a 4-Likert scale that ranged from 1 (very weak) to 4 (very strong). The main outcome, family functioning, was collected using the Macmaster 12-item GFS-scale, where the higher the score indicates a worst family functioning. Multiple linear regression analysis was performed to assess the relationship between sense of belonging and family functioning while controlling for socio-demographic, resettlement, and health factors.

Results or Preliminary Results: The sample consisted of 81 and 74 self-identified mothers and fathers respectively and 16.8% of the parents were equal or above the clinical cut-off score of 2.00, indicating an unhealthy family functioning score. In addition, 10.3% of the participants reported a very weak or weak sense of belonging to Canada. Findings indicated that a higher sense of belonging was associated with improved family functioning (Adjβ -0.197; 95%CI -0.295, -0.099). Also, an increase in age (Adjβ - 0.013; 95%CI -0.026 – 0.000) and a higher number of friends in Toronto (Adjβ -0.094; 95%CI - 0.167, -0.021) was associated with a healthier family functioning.

Conclusion or Next Steps: Findings suggest the importance of addressing a sense of belonging when implementing effective resources to assist Syrian refugee parents and families during resettlement in host countries.

B4.3

Prevalence and Characteristics of Indigenous Populations in Canada without a Regular Medical Doctor

Rama Eloulabi, York University; Asvini Keethakumar, Employment and Social Development Canada; Yasma Ali-Hassan, Carleton University; Hala Tamim, York University

---

Primary Area of Focus: Indigenous Health (First Nations, Metis, & Inuit Peoples)

Objectives: The main objective is to assess the prevalence and characteristics of Indigenous populations living off-reserve in Canada who do not have a RMD.

Methods: The study was a secondary data analysis of the 2017 Aboriginal Peoples Survey (APS), a national cross-sectional survey conducted by Statistics Canada. The target population included First Nations, Métis, and Inuit individuals over the age of 15. A multivariable logistic regression analysis was performed to assess the relationship between sociodemographic, socioeconomic, residential, lifestyle and health factors and having a RMD.

Results or Preliminary Results: The prevalence of not having a RMD was 19.81%. Multivariable logistic regression analysis showed that those of Inuit identity in comparison to First Nations peoples (OR: 3.15, 95% CI: 3.00-3.32) and those living in the Territories in comparison to those living in Ontario (OR: 6.62, 95% CI: 6.28-6.98) were at increased odds of not having a RMD. Being a male, single/never married, and under the age of 65 increased the odds of not having a RMD. Additionally, having Indigenous language mother tongue, experiencing residential school and residential instability, and having unmet health needs were at increased odds of not having a RMD.

Conclusion or Next Steps: A significant proportion of Indigenous peoples do not have a RMD. The barriers to healthcare access and utilization that Indigenous populations face must therefore be addressed, studied, and eliminated.

B4.4

Vaccine Confidence and Hesitancy in Métis Nation of Ontario (MNO) Citizens

Sarah Edwards, Métis Nation of Ontario/ICES; Keith King, University of Alberta; Graham Mecredy, ICES

Primary Area of Focus: Indigenous Health (First Nations, Metis, & Inuit Peoples)

Objectives: Determine if MNO Citizens plan to be vaccinated for COVID-19. Secondary objectives included understanding the psychological antecedents of vaccine uptake and their influence on vaccine acceptability, as well as differences by sociodemographics.

Methods: An online survey was developed using questions from a CIHR-funded project (Vaccination in a pandemic: The impact on routine vaccinations and future COVID-19 vaccine acceptance) that built on the work of Betsch et al (2018) to develop a measure of the psychological antecedents of vaccination, including the "5Cs": confidence, complacency, constraints, calculation, and collective responsibility. The survey was distributed to registered MNO Citizens via email, where available (N=11,381). The survey was launched on February 8th, 2021 and 11,205 invitations were successfully delivered (1,247 failed/bounced).

Results or Preliminary Results: As of February 17th, 2021, 3,335 MNO Citizens had responded to the survey. Amoung respondents to date, 70.8% agreed or strongly agreed they planned to get vaccinated, 9.9% disagreed or strongly disagreed they planned to get vaccinated, and 18.4% were not sure. Under 1% preferred not to respond to this question. The top three reasons MNO Citizens who planned to get vaccinated selected were to protect themselves, protect their families, and protect their communities. For MNO Citizens who did not plan to be vaccinated, the top reasons were that the COVID-19 vaccines will be new, the vaccines have been developed too quickly, and concern about the safety of the vaccines.

Conclusion or Next Steps: The survey will close February 28th. Descriptive analyses of the full 5Cs will be explored for MNO Citizens who indicated they plan to be vaccinated, do not plan to be vaccinated, or who are unsure. Findings will inform targeted health education and communication campaigns for MNO Citizens to optimize the uptake of COVID-19 vaccines and future vaccination campaigns.

B4.5

Variations in Perceived Stress among Syrian Refugee Parents Resettled through Different Sponsorship Programs in Canada

Yasma Ali-Hassan, Carleton University; Kamyar Sartipi, York University; Ali Jammal, York University; Hala Tamim, York University; Durdana Khan, York University

---

Primary Area of Focus: Immigrant Health (Refugee Health, Health of Recent Immigrants)

Objectives: This study aims to assess the relationship between the different sponsorship programs [Government-Assisted Refugees (GAR), Privately Sponsored Refugees (PSR) and Blended Visa Office-Referred refugees (BVOR)] and perceived stress among SR parents, with at least one child under the age of four, who resettled in the Greater Toronto area after 2015.

Methods: A convenience sample of 155 Syrian Refugee (SR) parents was recruited. Perceived levels of stress were measured using the Perceived Stress Scale (PSS-10). Multiple linear regression analysis was performed to assess the independent relation between several types of sponsorship programs and PSS adjusting for demographic, economic and social factors.

Results or Preliminary Results: The overall average PSS score was found to be 12.5 + 7.2 with BVORs presenting the highest level of moderate stress when compared to GARs and PSRs (75.0% compared to 39.5% and 35.2% respectively). Multivariate analysis showed that the mean PSS was significantly higher among BVORs when compared with GARs (Adj β = 4.8; 95% CI 0.4, 9.2). No significant difference in PSS levels was reported when PSRs were compered to GARs. Increased PSS scores were found to be associated with worse family functioning (Adj β = 4.2; 95% CI 1.0, 7.4), while decreased PSS scores were associated with increased age (Adj β = -0.4; 95% CI -0.6, -0.1).

Conclusion or Next Steps: A better understanding of the various underlying factors associated with elevated stress is essential for improving the quality of life for SRs in Canada. Results of the study may help tailor more effective preventative measures or government interventions dedicated to reducing stress levels among this population.

B5.1

Derivation and validation of predictors for oral anticoagulant-related adverse events in seniors transitioning from hospital to home

Harsukh Benipal, McMaster University; Anne Holbrook, McMaster University; J. Michael Paterson, Institute for Clinical Evaluative Sciences; James Douketis, McMaster University; Gary Foster, McMaster University; Jinhui Ma, McMaster University; Lehana Thabane, McMaster University

---

Primary Area of Focus: Clinical & Pharmacoepidemiology (Clinical Trials, Drug Safety and Effectiveness, Systematic Reviews, Clinical Outcomes)

Objectives: Oral anticoagulant (OAC)-related adverse event rates are high after hospital discharge. Our objective was to identify and validate clinical and continuity of care variables associated with OAC-related adverse events within 30 days of hospital discharge amongst seniors.

Methods: This was a retrospective cohort study of all adults aged > 66 years who were discharged from hospital on an OAC between September 2010 to March 2015 in Ontario, Canada. The primary outcome was a composite of the time to first hospitalization or emergency department visit for a hemorrhagic or thromboembolic event, or mortality within 30 days of hospital discharge. Cox proportional hazards analysis was used to develop the model and a split sample method validated the final model.

Results or Preliminary Results: We included 120,721 Ontario seniors of which 5,423 experienced the composite outcome. Patients discharged on a direct acting OAC as compared to warfarin (apixaban Hazard Ratio [HR]= 0.82, 95% Confidence Interval [CI] 0.71, 0.94; dabigatran HR= 0.73, 95% CI 0.63, 0.84; rivaroxaban HR= 0.79, 95% CI 0.71, 0.88), dispensed the same OAC in the past 12 months as compared to new OAC users at discharge (HR= 0.82, 95% CI 0.69-0.96), with a history of a thromboembolic event (HR= 0.51, 95% CI 0.44, 0.58), joint replacement or major surgery (HR= 0.40, 95% CI 0.33, 0.50; HR = 0.69, 95% CI 0.60, 0.80, respectively) had a lower risk for OAC-related harm. Continuity of care, measured as outpatient follow-up in the 7 days post-discharge, was not a significant predictor. The Cox model was stable with acceptable discrimination but poor goodness-of-fit.

Conclusion or Next Steps: Our study characterized a more comprehensive list of potential clinical predictors for OAC-related adverse events which may help clinicians in the management of senior patients following hospitalization. Further research to explore model validation across different populations is required.

B5.2

Determining an optimal adherence threshold for classifying adherent and non-adherent adult asthma patients in an administrative health database

Michael Asamoah-Boaheng, Memorial University of Newfoundland; William Midodzi, Memorial Unuiversity

---

Primary Area of Focus: Epidemiologic Methods (Study Designs, Ethics, Data Quality, Record Linkage, Cohort Studies)

Objectives: Although there exist a wide variety of database adherence methods, there is no standardized ideal threshold for measuring optimal asthma medication adherence. Thus, this study investigated the association between varying adherence cut-off points and asthma exacerbation to stratify adherent and non-adherent asthma patients optimally.

Methods: This was a retrospective cohort study involving four linked administrative claim databases from the Population Data BC (PopData) from January 1, 1998, to December 31, 2018. The study adopted a validated case definition to identify adult asthma patients aged 18 years and older. Patients were followed retrospectively from 2001 to 2018. The main exposure variable was medication adherence thresholds. The proportion of days covered (PDC) and the medication possession ratio (MPR) were used as a proxy for measuring asthma medication adherence. The study used four varying thresholds (< 0.5, ≥ 0.5, ≥ 0.75, ≥ 0.80) for each of the PDC and MPR. Further, we measured the study outcome of interest as asthma exacerbation. The authors used the Generalized Estimating Equation (GEE) logistic regression to estimate the adjusted odds ratios.

Results or Preliminary Results: The study included a total of 55,122 adult asthma patients with a mean age of 29.12 years. We followed the patients from 2001 through to 2018 to identify patient outcomes. Patients who achieved an adherence threshold of '$0.5 \leq PDC < 0.75$' (OR: 0.208, 95%CI: 0.204-0.212); '$0.75 \leq PDC < 0.80$' [OR: 0.218, 95%CI: 0.209-0.], and $PDC \geq 0.80$ compared to '$PDC < 0.5$' were significantly less likely to develop asthma exacerbation after controlling for relevant confounders and covariates. Similar results were found when the MPR varying thresholds were used.

Conclusion or Next Steps: While most studies choose arbitrary adherence thresholds with no clinical rationale, our study has identified three optimal adherence thresholds (≥ 0.5, ≥ 0.75, ≥ 0.80) for assessing adherence to asthma medications.

B5.3

Association between medication adherence and risk of COPD diagnosis in patients with asthma: A 20-year retrospective cohort study in Canada

Michael Asamoah-Boaheng, Memorial University of Newfoundland; William Midodzi, Memorial Unuiversity

---

Primary Area of Focus: Chronic Disease & Injury (Injury, Cancer, Diabetes, Cardiovascular Disease & Stroke, Respiratory, Other Chronic/Neurological Disability, Health Impacts, Prevention, Screening, Treatment)

Objectives: The association between prior history of asthma and increased risk of chronic obstructive pulmonary disease (COPD) diagnosis have been well established. However, the association between medication adherence (good vs. poor) and risk of COPD diagnosis is unclear. The literature on this phenomenon remains inconclusive.

Methods: The study employed a retrospective population-based cohort study and utilized four linked administrative health databases from the Population Data BC (PopData). All patients aged 18 years and older with diagnosis of asthma (using a validated case definition) between 1998 and 2000 were included into the study cohort. Patients were retrospectively followed from 2001 to 2018. We used the proportion of days covered (PDC) as a surrogate for measuring medication adherence dichotomized as (adherent ≥ 0.80, non-adherent < 0.80). We further assessed COPD diagnosis during the follow-up period as the main study outcome. The random effects exponential Accelerated Failure Time (AFT) model was used to estimate the adjusted time ratios for measuring the association.

Results or Preliminary Results: A total of 55,122 adult asthma patients fulfilled the study eligibility criteria with mean age of 29.12 years. The propensity score matching technique was used to match patient covariates at baseline. The results of the random effects AFT model showed that mild asthma patients who adhered to prescribed medications were significantly less likely to develop COPD with a delayed time to COPD onset [Adjusted time ratio (ATR): 2.00, 95% CI: 0.99-4.04]. Conversely, severe asthma patients who attained optimal adherence to prescribed medications were significantly more likely to develop COPD over a long period with a truncated survival time (ATR: 0.50, 95% CI: 0.37,0.68).

Conclusion or Next Steps: While compliant mild asthma patients experience delayed time to onset of COPD, severe asthma patients were at an increasing risk of COPD diagnosis despite optimal adherence to therapies. Interventions targeted at improving adherence to medications should be prioritized.

B5.4

Analysis of health care costs over a one-year period following anticoagulant therapy among Ontario patients diagnosed with atrial fibrillation

Michael Situ, Western University; Sisira Sarma, The University of Western Ontario; Guangyong Zou, Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, University of Western Ontario; Ute Schwarz, The University of Western Ontario

---

Primary Area of Focus: Health Economics (Econometrics, Cost-effectives Analysis, Resource Allocation)

Objectives: To reduce the risk of ischemic stroke attributed to atrial fibrillation (AF), oral anticoagulants (OACs) are prescribed. The standard OAC, warfarin, has a narrow therapeutic range, outside of which there is high variability of effects and an increased risk of adverse events. Rivaroxaban and apixaban are newer OACs developed to address warfarin drawbacks but have a higher upfront drug cost. To date, no study has examined health care costs of switching from warfarin to newer OACs in the Canadian context.
This study's objective was to compare one-year health care costs of switching from warfarin to rivaroxaban, and apixaban amongst Ontario residents aged 66 and over who were diagnosed with AF between 2012-2017 and prescribed OACs.

Methods: Inverse probability weighted regression adjustment estimators were used to ensure that patients prescribed with warfarin, rivaroxaban, and apixaban were comparable. Overall and component costs (i.e. drug, hospitalization, emergency department (ED), and physician visits) were obtained from health administrative databases, and were compared to determine the most cost-saving option. Models were selected using various model fit statistics.

Results or Preliminary Results: Amongst 21 423 individuals, rivaroxaban and apixaban were associated with overall one-year cost savings compared to warfarin, but only rivaroxaban was significantly cheaper than warfarin at $1577 in per-patient savings. This was driven by significant cost savings in hospitalization, ED, and physician costs for rivaroxaban compared to warfarin, outweighing rivaroxaban's significantly higher drug costs. Furthermore, switching to rivaroxaban was associated with cost savings, particularly for women and patients at high-risk of bleeding events.

Conclusion or Next Steps: We found that switching from warfarin to apixaban or rivaroxaban for patients diagnosed with AF would save costs to the health system. This was driven by reduction in hospitalizations, ED, and physician visits. Our findings have the potential to influence OAC reimbursement policy in both Ontario and Canada.

B6.1

Mental-Health Service Contacts in Children and Youth with Identified Mental Health Care Needs Using Linked Survey and Health Administrative Data.

Jordan Edwards, McMaster University; Kathy Georgiades, McMaster University; Laura Duncan, Offord Centre for Child Studies, McMaster University; Jinette Comeau, King's University College at Western University; Kelly Anderson, Western University; Li Wang, Offord Centre for Child Studies, McMaster University

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: To describe the patterns of mental health service contacts in children and youth with varying levels of identified mental health care needs. This includes: 1) describing the concordance of mental health related contacts obtained from survey and health administrative data; and 2) defining the socio-demographic and clinical characteristics of children and youth contacting various services and describe children and youth who have had no mental health related service contact.

Methods: Respondents to the 2014 Ontario Child Health Study (OCHS) were linked at the child-level to health administrative databases at Statistics Canada. These databases capture physician billings from hospitals, emergency departments, and outpatient physician visits, including visits to family physicians and paediatricians. Starting with a sample of youth with identified mental health care needs, based on disorder classifications from standardized diagnostic interviews from the OCHS, we will assess mental health service contacts in the 6-months prior to completion of the OCHS survey. Mental health service use will be separated into contacts identified in administrative data and those identified in survey data. We will assess whether contacts vary by titrating mental health care needs based on factors related to severity of mental illness. We will use modified Poisson regression analyses to assess which socio-demographic and clinical factors are associated with youth coming in contact with various mental health services and youth who do not come in contact.

Results or Preliminary Results: Our analysis is currently underway and will be complete prior to CSEB 2021.

Conclusion or Next Steps: There is currently a need to understand the patterns and characteristics of youth with mental health care needs who come in contact with various mental health services. Evidence from either survey or health administrative data in isolation provide an incomplete view of mental health related contacts. To describe various mental health service contact groups, including youth with no mental health service contacts, this work will leverage the wide range of clinical, behavioural, and environmental variables available in the 2014 OCHS. This information will help inform which children and youth with mental health care needs are not receiving any mental health care services, who may be higher risk of worse long-term outcomes.

B6.2

Measurement Invariance of the Flourishing Scale among a Large Sample of Canadian Adolescents

Isabella Romano, University of Waterloo; Mark Ferro, University of Waterloo; Scott T. Leatherdale, University of Waterloo; Karen A. Patte, Brock University; Ed Diener, University of Illinois

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: The primary aim of our study was to examine measurement invariance of the Flourishing Scale (FS) – a concise, 8-item tool for measuring self-reported psychological wellbeing – across two study samples and by population characteristics among Canadian adolescents. Our secondary objective was to assess differences in wellbeing across subgroups.

Methods: Data were retrieved from 74,501 Canadian secondary school students in Year 7 (2018-19) of the COMPASS Study and from the original validation of the FS (n = 689). We assessed measurement invariance using a confirmatory factor analysis in which increasingly stringent equality constraints were specified for model parameters between the following groups: study sample (i.e., adolescents vs. adults), gender, grade, and ethno-racial identity. A mixed linear regression model was used to estimate differences in FS score across groups while controlling for potential confounders. All models adjusted for school clustering, and missing data was addressed using full-information maximum likelihood functions.

Results or Preliminary Results: In all models, results demonstrated the presence of full measurement invariance of the FS by study sample, gender, grade, and ethno-racial identity. Mean FS score among all COMPASS Study students was 32.19 (SD: 5.72) out of a modified possible sum score of 40, with regression results indicating lower scores among girls ($b = -0.881$, $p < 0.0001$), by decreasing school grade [e.g., grade 12 vs. grade 9, ($b = -0.629$, $p < 0.0001$)], and among students who identified with a racialized ethnic identity ($b = -0.828$, $p < 0.0001$).

Conclusion or Next Steps: Our findings support the validity of the FS for measuring psychological wellbeing among Canadian adolescents in school-based contexts. Observed differences in FS score among subgroups therefore represent true differences in wellbeing rather than artifacts of differential interpretation.

B6.3

Social support and coping strategies in the relationship between childhood maltreatment and major depressive disorder: A causal mediation analysis of a population-based longitudinal cohort

Muzi Li, McGill University & Douglas Mental Health University Institute; Kieran O'Donnell, McGill University; Jean Caron, McGill University; Yingying Su, University of Saskatchewan; Kenneth Carl D'Arcy, University of Saskatchewan; Xiangfei Meng, Department of Psychiatry, McGill University and Douglas Mental Health University Institute

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Childhood maltreatment (CM) predicts the high likelihood of subsequent major depressive disorder (MDD). However, the underlying causal mechanisms of the mediating effects through resilience attributes (social support and coping strategies) warrant further investigations.
The present study aims to verify the impact of CM on subsequent MDD while considering the presence of genetic predispositions – polygenetic risk score (PRS) and to articulate the roles of social support and adaptive coping in the relationship between CM and MDD.

Methods: Data analyzed are from the Montreal Southwest longitudinal cohort with a clear temporal order of CM, social support and coping strategies, and lifetime MDD. Principle component analysis was used to generate index variables for positive and negative coping strategies, respectively. Causal mediation analyses were applied to estimate the direct effect (the pathway from CM to MDD) and the indirect effects (the pathways from CM to MDD through either social support or coping strategies, respectively). Age, sex, ethnicity, education, and PRS were also considered in the modeling process as covariates.

Results or Preliminary Results: A total of 905 participants were eligible and included in this study. Of which, 227 had developed lifetime MDD, whereas 678 participants were MDD-free. CM was significantly associated with the subsequent MDD (direct effect coefficient (β) 0.016, $p=0.037$, 95% CI 0.001~0.031). Social support (indirect $\beta=0.004$, SE=0.002, 95% CI 0.0001~0.009) and negative coping (indirect $\beta=0.015$, SE=0.003, 95% CI 0.009~0.022) both partially mediated the relationship between CM and MDD.

Conclusion or Next Steps: The present study provides robust evidence to support the fact that although childhood maltreatment has a detrimental effect on later-on MDD, social support and adaptive coping strategies could be viable solutions for mental health prevention and intervention programs to target its elevated risk of MDD among those with the exposure of CM, and their protective effects stand even considering the genetic predispositions of MDD.

B6.4

Self-esteem and mental health in young people with epilepsy: A longitudinal mediation analysis via structural equation modeling

Peter Cahill, McMaster University; Mark Ferro, University of Waterloo; Wenonah Campbell, McMaster University; Gabriel Ronen, McMaster University

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Self-esteem is a modifiable predictor of mental health. In this study, our objective was to evaluate whether self-esteem mediates the impacts of environmental and condition-specific factors on mental health outcomes in young people with epilepsy.

Methods: A prospective cohort of 480 young people with epilepsy with verbal comprehension scores within normal limits and their families participated in 5 visits over 28 months. Data were collected on clinical seizure burden and cognitive comorbidity. Peer and parental support, self-esteem, and mental health symptoms were measured using self-reported outcomes. We performed a mediation analysis using structural equation modeling to test relationships among these constructs simultaneously. Bias-corrected bootstrapped tests of direct, indirect, and total effects were completed. Our interpretation of results focused on the statistical significance of indirect effects.

Results or Preliminary Results: We found evidence that self-esteem mediated the effect of peer support ($\beta = -.15$, standard error [SE] = .06) and clinical seizure burden ($\beta = .23$, SE = .10) on mental health. In contrast, we found no evidence of mediation for the effects of parental support ($\beta = -.07$, SE = .04) and cognitive comorbidity ($\beta = -.01$, SE = .01) on mental health.

Conclusion or Next Steps: Results were consistent with self-esteem mediating the effects that both peer support and clinical seizure burden have on mental health outcomes. However, the findings were not consistent with self-esteem mediating the effects of parental support or cognitive comorbidity. We interpret these results as preliminary support indicating that assessment of and interventions targeting self-esteem may be appropriate to support the mental health of young people with epilepsy, mitigating negative influences on mental health caused by resistant epilepsy or low peer support. Further research is crucial to evaluate whether this statistically significant mediation also demonstrates clinical importance.

B6.5

Lost in Transition: Health Service Utilization of IWK Mental Health & Addictions Patients on Transition to Adult Services

Cole Bowerman, Dalhousie University; Leslie Anne Campbell, Dalhousie University - Department of Community Health and Epidemiology ; Yukiko Asada, Dalhousie University; Adrian MacKenzie, Nova Scotia Health/Dalhousie University; Sanja Stanojevic, Dalhousie University; Debbie Emberly, IWK Health

---

Primary Area of Focus: Addictions & Mental Health (Addictions, Cannabis, Mental Health, Psychosocial Health)

Objectives: Mental illness affects 1 in 5 Canadians in any given year, with most mental illnesses emerging between the ages of 14-25 years. Unfortunately, this coincides with a transition from youth to adult mental health and addictions (MHA) services in adolescence. These transitions do not often happen smoothly, as over half of youth who need to transition to adult care do not receive or attend appointments. Unsuccessful transitions negatively impact the management of one's mental illness and contribute to poor outcomes. Additionally, inequities may also contribute to unsuccessful transitions, further marginalizing vulnerable youth. Factors affecting transition success have not yet been investigated in Nova Scotia, despite government and community calls to improve the transition process. Thus, this project has the following objectives:

1) Describe the demographic, clinical, socioeconomic, geographic, and health service use characteristics of transition aged youth at the IWK.
2) Assess the association of these characteristics with transition success and identify potential inequities.
3) Assess the degree to which these associations vary when using a novel indicator of transition success.

Methods: A retrospective cohort of IWK MHA patients eligible to transition to adult MHA services between the years of 2016-2019 will be linked to adult administrative databases and followed for appointment attendance, no-show, and cancellation information, and Emergency Department use, for 6-months following the transition boundary. The associations between the characteristics of interest and transition success will be investigated using hierarchical logistic regression and interpreted under an equity framework. As a novel contribution to the literature, a sensitivity analysis will be used to assess whether these associations are sensitive to the measurement of transition success when using a more conservative definition of success (attendance to two adult appointments rather than one). This study will help target clinical and community interventions for youth most vulnerable to unsuccessful transitions.

*Preliminary results expected March 2021

Results or Preliminary Results:

Conclusion or Next Steps: