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

Electronic Posters Presentations

BOOK OF ABSTRACTS

CSEB 2021

ID: 3
Epidemiology of dementia in primary care setting

Anh Pham, University of Alberta

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Dementia is an increasing concern in many countries, especially in those experiencing rapid growth in the proportion of older adults in their population. This study aims to describe trends and demographic characteristics of incident dementia cases in community- dwelling older adults recognized by primary care physicians.

Methods: We used electronic medical records from the Canadian Primary Care Sentinel Surveillance Network database to conduct a retrospective analysis to determine the number of and trends for incident diagnoses of dementia. Canadian community-dwelling seniors aged 65+ years who were not diagnosed with dementia before baseline with at least six years of record at their primary care clinics. Age and sex-standardized annual incidence rates were calculated.

Results or Preliminary Results: The cohort consisted of 39,067 patients of whom 58% were females; the mean (SD) follow-up was 8.4 (1.5) years. During follow-up, 4,935 patients were diagnosed with dementia. The risk for dementia diagnosis increased with increasing age but decreased in the last four years of follow-up among people aged 80 and older at baseline ($p < 0.001$). People with dementia were more likely to be females ($p = 0.001$) and urban residents ($p < 0.001$) and less likely to be classified into the least deprived group ($p = 0.012$).

Conclusion or Next Steps: The incidence of dementia diagnosis increased with age except in the oldest old in both sexes. This may be attributed to the effect of mortality competing risk. Future research on the association between risk factors and dementia should consider studying dementia among the oldest old separately to minimize bias.

AuthorNames: Anh Pham, University of Alberta

First Name: Anh

Last Name: Pham

Organization: University of Alberta

ID: 6
Mental health service use among children with mental-physical multimorbidity

Lauren Gosse, University of Waterloo

Primary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: While mental health service (MHS) use amongst Canadian youth has increased dramatically in the past two decades, the extent of service use among those with multimorbidity (i.e., co-occurring chronic physical and mental conditions) is relatively unknown. The research questions for this study are: (1) What types of MHS do youth with multimorbidity use? (2) What sociodemographic factors predict patterns of MHS use among youth with multimorbidity? (3) Do patterns of MHS use for youth with multimorbidity change over a 24-month period in relation to changes in their physical health?

Methods: Research questions will be addressed using Multimorbidity in Children and Youth Across the Life-course, a prospective study of 263 youth aged 2-16 years diagnosed with a chronic physical illness and their primary caregiving parents. Participants were recruited from outpatient clinics at a pediatric hospital in Ontario and study interviews were completed at recruitment, 6, 12, and 24 months. Sociodemographic, health, and psychosocial data were collected from all parents and youth ≥10 years also provided self-reports. Youth mental illness was measured using the Mini International Neuropsychiatric Interview—a structured, diagnostic interview. Physical functioning was measured using the WHO Disability Assessment Schedule 2.0 (WHODAS). Participant-reported data will be linked to provincial health records to determine use of Ministry of Health-funded MHS (e.g., hospitalizations, physician visits). MHS not funded by the Ministry of Health were measured using items adapted from the 2014 Ontario Child Health Study (e.g., use of other/allied health professionals, community agencies). Latent class analysis will be used to identify types/patterns of use (e.g., primarily hospital-based vs. community-based). Multinomial regression will be used to model baseline sociodemographic factors associated with different patterns of MHS use. Generalized equation modelling used to examine how changes in WHODAS scores influence patterns/intensity (e.g., number of consultations, length of hospital stays) of service use.

AuthorNames: Lauren Gosse, University of Waterloo; Mark Ferro, University of Waterloo

First Name: Lauren

Last Name: Gosse

Organization: University of Waterloo

ID: 13
Preprocessing methods to prepare unstructured text data for natural language processing: A scoping review

Marcello Nesca, University of Manitoba

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Our objective was to describe practices to preprocess UTD for applications of NLP methods.

Methods: We conducted a scoping review based on the Arksey and O'Malley framework. Our search strategy included the terms data quality, NLP, data preprocessing, and synonyms. The review included published empirical studies and review articles from 2000 to 2019 from Scopus, Web of Science, EBSCOhost, and ProQuest databases. The extracted information included characteristics of the article, features of the text data, preprocessing methods, data quality topics, and software.

Results or Preliminary Results: The search resulted in 1082 articles for title and abstract screening; 39 articles were selected for data extraction. Almost 90% of articles reported empirical research, and 59% were from computer science and engineering domains. Preprocessing of electronic medical records was reported in 20.5% of the articles. The most common preprocessing methods were those used to restructure and reorganize UTD, including tagging parts of speech such as nouns and verbs (46.2%), eliminating stop words with no inherent meaning (38.5%), and tokenizing sentences into individual words (28.2%). Less than one-quarter of the articles used an external dataset to validate the features of UTD.

Conclusion or Next Steps: Restructuring and reorganizing methods are commonly used to address UTD quality issues, but there appears to be little consensus about the choice of methods to apply to a dataset. The development of measures of UTD quality may be a useful step to guide the selection of preprocessing methods.

AuthorNames: Marcello Nesca, University of Manitoba; Lisa Lix, University of Manitoba; Carson Leung, University of Manitoba

First Name: Marcello

Last Name: Nesca

Organization: University of Manitoba

ID: 14

The association between adverse childhood experiences and late-life cognition: A systematic review

Priya Patel, University of Waterloo

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

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: A recent systematic review found an association between childhood maltreatment, a subclass of adverse childhood experiences (ACEs) and decreased cognition in children, adolescents, and young adults. However, no prior systematic review has explored the relationship between ACEs and cognition in late life, a critical period for cognitive fluctuation given the aging population. The objective of this review is to address the following research question: What is the association between ACEs and late-life cognition? Since ACEs are potentially modifiable, this review can provide policy relevant insights into the prevention of cognitive impairment in older adults, a large public health concern in Canada.

Methods: This systematic review will include cohort, cross-sectional and case-control studies. The study population will be persons aged ≥ 60 years who were asked about their exposure to ACEs prior to 18 years of age. Included articles must report analyses in which persons exposed to ACEs were compared to persons unexposed to ACEs, or the comparisons were conducted between persons exposed to different gradients of ACEs. ACEs will be defined according to WHO guidance as abuse, neglect, collective violence, bullying, household member(s) experiencing mental illness, incarceration of household member(s), household violence, parental death, and parental separation. Studies examining the association between exposure to at least one ACE and the outcome of late-life cognition, measured either by cognitive testing or the presence/absence of a neurocognitive disorder (e.g., major neurocognitive disorder), will be considered for inclusion. Articles were retrieved from Pubmed (1968 to present), PsycINFO (1884 to present), and Scopus (1946 to present); screening is complete and data extraction is underway. We will conduct the review in accordance with the PRISMA guidelines, employ the Newcastle-Ottawa Scale to evaluate risk of bias, and narratively synthesize the included articles.

AuthorNames: Priya Patel, University of Waterloo; Mark Oremus, University of Waterloo

First Name: Priya

Last Name: Patel

Organization: University of Waterloo

ID: 17

The Multilingual Mind: The Association of Number and Similarity of Spoken Languages with Executive Function in the Canadian Longitudinal Study on Aging

Nicole Winch, University of Waterloo

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Identifying factors that protect against cognitive impairment and dementia, particularly factors that increase or maintain cognitive reserve, is key to healthy aging. Cognitive stimulation through multilingualism may be one such factor. The consistent use of executive function required to juggle languages is hypothesized to enhance a multilingual's executive control, thereby building cognitive reserve. However, evidence of this multilingual advantage on tasks of executive function and dementia risk is mixed. The inconsistent definition of "bilingualism" (i.e., combining speakers of 3+ languages with bilinguals) may contribute to these mixed findings, as a multilingual advantage is more often reported in speakers of 3+ languages. Moreover, as greater executive control may be required to keep similar languages distinct, language type may be important; however, few studies have examined this question. Our study will examine the association of number and similarity of spoken languages with executive function in Canadians aged 45 to 85 years.

Methods: Analyses will use the Canadian Longitudinal Study on Aging's (CLSA) baseline Comprehensive Cohort (n=30,097). Raw scores for five tests of executive function will be converted to z-scores separately for tests completed in English and French, and then summed to create an overall score. Low executive function will be defined by a cut-point of ≥1.5 SD below the mean of the overall executive function score in a weighted cognitively healthy subsample. The number of languages spoken will be categorized as 1, 2, 3, 4+. Analyses of language similarity will use a subsample of bilinguals whose two languages are within the Indo-European language family. Language pairs will be defined as similar if both languages are within the same Indo-European subgroup. Weighted multivariable logistic regression models will be adjusted for province, age group, and sex to reflect the CLSA's sampling design, with subsequent adjustment for sociodemographics, general health, health behaviours, and cognitively stimulating activities.

AuthorNames: Nicole Winch, University of Waterloo; Mark Oremus, University of Waterloo; Suzanne Tyas, University of Waterloo; Phil St. John, University of Manitoba

First Name: Nicole

Last Name: Winch

Organization: University of Waterloo

ID: 18

Psychometric Properties and Informant Agreement of the WHODAS 2.0 in Youth with Mental Disorder and their Parents

Erica McDonald, University of Waterloo

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: This study estimated convergent/divergent validity, internal consistency, parent-youth disagreement, and factors associated with disagreement on the 12-item and 36-item versions of the World Health Organization Disability Assessment Schedule (WHODAS) 2.0, an assessment of functional impairment.

Methods: Data come from a clinical sample of 56 youth, aged 14-17 years, who were receiving mental health care at a pediatric hospital. Correlations between the WHODAS 2.0 and domain scores on the KIDSCREEN-27, a health-related quality of life assessment, were used to assess convergent validity. Correlations between the WHODAS 2.0 and demographic variables (youth age, youth sex, and household income) were used to assess divergent validity. Internal consistency was measured using ordinal alpha. The Bland-Altman method and intraclass correlation coefficients (ICC) were used to assess parent-youth disagreement. Factors associated with clinically meaningful disagreement were explored with logistic regression.

Results or Preliminary Results: Convergent validity correlations were low-to-moderate for both informants (Tau= -0.42 to 0.01), as were divergent validity correlations (Tau/Point Biserial = -0.12 to 0.32). Internal consistency was sufficient (ordinal alpha >0.7). Parent WHODAS 2.0 scores were significantly lower than youth scores for both versions of the WHODAS 2.0. Bland-Altman plots revealed measurement error between informants; agreement was low-to-moderate (ICC = -0.04 to 0.33). Lower household income was associated with lower odds of meaningful disagreement on the 36-item WHODAS 2.0 (OR= 0.28, 95% CI= 0.08-0.99), and increased youth age was associated with lower odds of meaningful disagreement on the 12-item WHODAS 2.0 (OR= 0.40, 95% CI= 0.19-0.84).

Conclusion or Next Steps: Because conclusions derived from both versions of the WHODAS 2.0 are similar, the 12-item version is sufficient for measuring functional impairment in a clinical context of youth with mental disorder. However, reports from both youth and parents appear valuable in understanding functional impairment. Additional work is needed to understand the factors that influence discrepancies and the implications for care.

AuthorNames: Erica McDonald, University of Waterloo; Sharon Kirkpatrick, University of Waterloo; Christopher Perlman, University of Waterloo, School of Public Health and Health Systems; Mark Ferro, University of Waterloo

First Name: Erica

Last Name: McDonald

Organization: University of Waterloo

ID: 21
Characteristics associated with fear of COVID19 among Syrian refugee parents in Canada

Paniz Fotoohi, York University

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The aim of this study was to assess the prevalence of fear of COVID-19 among Syrian refugee parents in the Greater Toronto Area and the demographic and other self-rated factors associated with it.

Methods: A sample of 155 Syrian refugee parents who resettled in Canada was initially recruited and interviewed in the summer of 2019. Participants were approached again in June 2020 and a total of 113 participants completed the survey questionnaire over the phone to abide with social distancing measures. Level of fear was measured using the fear of COVID-19 scale (FCV-19S). The factors assessed were age, gender, socioeconomic status, number of children, highest level of formal education, year of arrival to Canada, overall mental health, trust in healthcare professionals in Canada, current Canadian Language Benchmark level, and satisfaction with support from friends. Multiple Linear regression analysis was performed to assess the relationships between these factors and fear of COVID-19.

Results or Preliminary Results: Our overall findings indicate that the mean(SD) score for fear of COVID-19 was 17.60(6.90), with a range of 7 to 35, and that 30% of the parents reported a high fear level (score= 22-35). Results of the regression analysis showed that lower satisfaction with friendship support (β=3.65(SE=1.84), p= 0.050) and lower Canadian Language Benchmark levels (β=-4.16(SE=1.90), p=0.031) were associated with a significant increase in fear of COVID-19 in Syrian refugee participants. In addition, worse self-reported mental health was significantly associated with an increase in fear of COVID-19 (β=3.38(SE=1.51), p=0.028).

Conclusion or Next Steps: This study identified English language barrier and lack of support from friends as significant factors associated with increased fear of COVID-19, which impacts mental health and well-being. Targeted intervention and prevention strategies should be considered for the Syrian refugee population in Canada.

AuthorNames: Paniz Fotoohi, York University; Rama Eloulabi, York University; Hala Tamim, York University

First Name: Paniz

Last Name: Fotoohi

Organization: York University

ID: 30
Prevalence of and factors related to polypharmacy among persons with cancer in Ontario

Tamara Dean, Lakehead University

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Cancer often co-occurs with other chronic conditions, and despite the high prevalence of multimorbidity (MMB) in this group, conditions are often treated individually, resulting in multiple prescriptions. As such, polypharmacy (5+ medications) is more common among persons with MMB and is associated with a number of adverse outcomes.

Methods: This retrospective longitudinal study assesses the prevalence of polypharmacy, and the differences by (and interaction between) age, sex, MMB, and stage and type of cancer, using linked provincial health administrative data of 63,828 Ontarians 18+ years diagnosed with cancer between April 1, 2012, to March 31, 2013.

Results or Preliminary Results: The majority of the study population was females, aged 65+ years, and had at least one condition beside cancer. The overall prevalence of polypharmacy was 46.5% prior to cancer diagnosis and 57.1% within one year after. Polypharmacy increased with level of multimorbidity (from 13.8% among those with no chronic condition, to 55% among those with 3+ conditions). The highest prevalence of polypharmacy was observed in persons aged 65+ years (55.3%), those with lung and bronchus cancer (53.5%), and stage 4 cancer (53.8%); there was no meaningful difference by sex. The prevalence of polypharmacy was lowest in 18-44 year old females with no chronic conditions (7.5%) and highest in 65+ year females with 3+ conditions (64.9%).

Conclusion or Next Steps: The study findings could contribute to better understand which population groups may be more at risk for polypharmacy and inform prescribing practices that account for MMB.

AuthorNames: Tamara Dean, Lakehead University; Anna Kone Pefoyo, Lakehead University; Lynn Martin, Lakehead University

First Name: Tamara

Last Name: Dean

Organization: Lakehead University

ID: 31

Impact of polypharmacy on health service utilization and death of persons with cancer, accounting for MMB

Tamara Dean, Lakehead University

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

Secondary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The co-occurrence of cancer and other chronic conditions (MMB) is associated with significant negative outcomes such as increased health service utilization and death. Prescribed drugs can improve these outcomes, however, polypharmacy (5-9 medications) and hyper-polypharmacy (10+ medications) also carries risks. This retrospective longitudinal study assesses the relationship between polypharmacy prior to cancer diagnosis and emergency room visits, hospitalization, and death after cancer diagnosis while controlling for sex, age, multimorbidity, cancer type, and stage of cancer.

Methods: Linked provincial health administrative data of 63,828 Ontarians 18+ years diagnosed with cancer between April 1, 2012, to March 31, 2013, with follow-up service use data till March 31, 2014 were used. Outcomes measured were "high users" of ER services and hospitalizations based on the 90th percentile. We assessed long-term mortality until 2018, and those who died within one year were excluded.

Results or Preliminary Results: Overall, 10.7% of persons were considered "high users" of emergency room services, 21.3% of hospitalizations, and 26% died between one year post-cancer diagnosis and the end of follow-up. In the multivariate logistic regression models, polypharmacy and hyper-polypharmacy were, respectively, associated with 13% and 34% increase in the odds of being a high user of emergency room services, and 2% and 19% for high use of hospitalizations. They were also associated with a 1.3 and twofold increase in risk of death. In each of the multivariate models, increasing age, male sex, and increasing levels of multimorbidity were associated with increased likelihood of being a high user of both services and death. In particular, compared to having a diagnosis of cancer only, the presence of 3+ other chronic conditions was associated with an 82%, 41%, and 36% increase in those odds, respectively.

Conclusion or Next Steps: The findings highlight how polypharmacy may impact patients' outcomes and can be considered in the therapeutic management of persons with cancer and MMB.

AuthorNames: Tamara Dean, Lakehead University; Anna Kone Pefoyo, Lakehead University; Lynn Martin, Lakehead University

First Name: Tamara

Last Name: Dean

Organization: Lakehead University

ID: 36
Measurement invariance of the GAD-7 and CESD-R-10 among adolescents in Canada

Isabella Romano, University of Waterloo

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: To help elucidate sex- and age-related differences observed in reports of adolescent mental health, our study sought to further assess the validity of the 7-item Generalized Anxiety Disorder (GAD-7) and 10-item Center for Epidemiologic Studies Depression Revised (CESD-R-10) scales for use in non-clinical monitoring of anxiety and depressive symptoms among adolescent general populations. The primary objective of our study was to assess measurement invariance (by grade and sex) of the GAD-7 and CESD-R-10 scales within a large, population-based sample of adolescents in Canada. If measurement invariance was demonstrated, our secondary objective was to estimate differences in scale scores across these sub-groups.

Methods: We used data from 59,052 adolescents in Year 7 (2018-19) of the COMPASS school-based study. Measurement invariance was tested within a multi-group confirmatory factor analysis framework. Differences in scale scores were estimated using mixed linear regression which accounted for school-level clustering and adjusted for relevant confounders.

Results or Preliminary Results: The GAD-7 demonstrated strict measurement invariance by sex and grade in our sample. Mean GAD-7 scale scores were higher for adolescents in grade 12 compared to grade 9 ($b = 0.91$, $p < 0.001$) and among female students compared to males ($b = 3.36$, $p < 0.001$). Measurement invariance of the CESD-R-10 was not established.

Conclusion or Next Steps: Findings support the validity of the GAD-7 for assessing risk of generalized anxiety among Canadian adolescents via population-based survey data, and further indicate that differences observed in GAD-7 scores across sub-groups reflect actual differences in risk. Researchers relying on the CESD-R-10 to measure depressive symptoms among adolescents in Canada should be mindful when making comparisons with non-corrected data, as conclusions may be biased. We encourage replication of our analyses among other study samples to further evaluate measurement invariance of the CESD-R-10 among adolescents.

AuthorNames: Isabella Romano, University of Waterloo; Mark Ferro, University of Waterloo; Karen A. Patte, Brock University; Scott T. Leatherdale, University of Waterloo

First Name: Isabella

Last Name: Romano

Organization: University of Waterloo

ID: 39

Is Functional Social Support Associated with Memory in Middle- and Older-aged Adults? A Prospective Analysis of the Canadian Longitudinal Study on Aging

Samantha Yoo, University of Waterloo

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Identifying modifiable psychosocial factors that influence age-related outcomes is important for healthy aging. Functional social support (FSS), perceived availability of support from others, appears to delay memory loss via biological and psychological pathways. However, due to the complexity of measuring FSS, evidence is limited regarding its association with memory. We investigated the association between FSS and memory using baseline and 3-year follow-up data from the Comprehensive Cohort of the Canadian Longitudinal Study on Aging (CLSA), an ongoing cohort study of adults who were aged 45-85 years at baseline.

Methods: FSS was measured via the Medical Outcomes Study–Social Support Survey; immediate and delayed recall memory were measured with the Rey Auditory Verbal Learning Test. We regressed the difference in combined memory z-scores between baseline and follow-up on the FSS score, controlling for sociodemographic, health, and lifestyle covariates. Separate logistic regression models examined associations with meaningful decline or improvement (decrease or increase of >1 SD from mean change score) compared to no change in memory scores.

Results or Preliminary Results: Our analytic sample comprised 12,011 participants (mean age = 61 years, mean overall FFS score = 4.46/5.00). Seventy percent of participants exhibited no meaningful change in memory over three years, while 17% and 13% showed meaningful decline and improvement, respectively. Regression models showed non-significant associations between overall FSS and memory (OR = 0.97 for decreased score [95% CI: 0.83, 1.48]; OR = 0.91 for increased score [95% CI: 0.71, 1.18]). Age and sex were significant independent predictors of memory, but no clear pattern of effect modification was identified across the age and sex groups.

Conclusion or Next Steps: CLSA participants were cognitively stable and reported high levels of FSS, which likely contributed to the lack of a significant association between FSS and memory. Longer follow-up of the CLSA sample is required to further assess this association.

AuthorNames: Samantha Yoo, University of Waterloo; Mark Oremus, University of Waterloo; Suzanne Tyas, University of Waterloo; Colleen Maxwell, University of Waterloo

First Name: Samantha

Last Name: Yoo

Organization: University of Waterloo

ID: 43
The association between neighbourhood material deprivation and body mass index in children

Bindra Shah, Trillium Health Partners

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Socioeconomic status (SES) has been found to be inversely associated with childhood obesity. However, the contribution of area-level socioeconomic characteristics, such as neighbourhood material deprivation, to obesity risk among young children in Canada is not well understood. The objective of this study was to evaluate the association between neighbourhood material deprivation and body mass index z-scores (zBMI) in children.

Methods: A cross-sectional study was conducted with 5962 children 0 to ≤12 years of age living in the Greater Toronto Area (2013-2019). Material deprivation, from the Ontario Marginalization Index, was used as an area-level indicator of SES, a summary measure based on neighbourhood-level income, quality of housing, educational attainment and family structure characteristics. Odds ratios (OR) and 95% confidence intervals (CI) were estimated using multi-level multinomial logistic regression models for the association between material deprivation quintiles and zBMI categories [underweight (zBMI<-2), normal/referent (-2≤zBMI≤1), overweight (1<zBMI≤2)], adjusting in model 1 for age, sex, maternal ethnicity, and number of family members, and in model 2 adding self-reported family income.

Results or Preliminary Results: Children living in the most deprived neighbourhoods versus the least deprived had increased odds of obesity compared to the referent BMI category (Q5 vs Q1: OR:2.45, 95%CI: 1.52-3.95). Associations were slightly stronger for boys compared to girls, and for younger children (0 to

Conclusion or Next Steps: Neighbourhood-level deprivation was found to be strongly associated with childhood obesity, independent of family income, in an urban setting. Given this, obesity prevention strategies should consider neighbourhood material deprivation, in addition to just individual-level socioeconomic characteristics, as a helpful tool for reducing social inequities in child obesity.

AuthorNames: Bindra Shah, Trillium Health Partners; Charles Keown-Stoneman, Li Ka Shing Knowledge Institute; Brendan Smith, Public Health Ontario; Jonathon Maguire, Li Ka Shing Knowledge Institute; Catherine Birken, Child Health Evaluative Sciences, The Hospital for Sick Children Research Institute; Laura N Anderson, McMaster University; Cornelia Borkhoff, Child Health Evaluative Sciences, The Hospital for Sick Children Research Institute

First Name: Bindra

Last Name: Shah

Organization: Trillium Health Partners

ID: 45
Application of semiparametric, group-based trajectory models to depression and anxiety in geriatric population.

Yanzhao Cheng, University of Saskatchewan

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The traditional method for trajectory analysis usually focuses on the trajectory of the overall mean or individual variation. Group-based trajectory modeling (GBTM) as an extension of the finite mixture model was developed to generate heterogeneity from the population. In this study, trajectories are built with two longitudinal outcomes (depression and anxiety) using GBTM from Korea Health Panel Data Survey (KHPDS). Risk factors are also found for each outcome of trajectories.

Methods: Unlike other trajectory analysis using covariance structure methods, GBTM can detect unobserved subgroups in the overall population using the multinomial logit function. The trajectory paths of each subset can be identified with polynomial distributions. Since the outcome of our study is binary, each trajectory should follow a logistic polynomial function. Risk factors are selected based on the baseline characteristics using Multivariate Logistic Regression Analysis.

Results or Preliminary Results: KHPDS is a survey data having 3,983 elderly participants with up to 8 years of follow-up. From GBTMs, four trajectory groups for depression were identified with "low-flat (86.6%)", "low-to-middle (9.2%)", "low-to-high (1.3%)" and "high-curve (2.9%)", respectively. Also, four groups of trajectories are identified for anxiety with "low-flat (94.4%)", "low-to-middle (3.2%)", "high-to-low (1.8%)," and "high-stable (0.6%)", respectively. Gender females, age more than 80, having more than three chronic diseases, and homeownership are significant risk factors of depression trajectory groups. For anxiety trajectory groups, gender female is the only substantial risk factor.

Conclusion or Next Steps: Due to its sizeable reliable differentiation of trajectory groups can be made from this sample, with our findings supporting previously published results. Our findings will also assist health policy decision-makers in addressing, monitoring, and planning intervention programs targeting those most likely to experience persistent depression to improve psychological well-being in the Korean elderly.

AuthorNames: Yanzhao Cheng, University of Saskatchewan; Hyun Ja Lim, University of Saskatchewan

First Name: Yanzhao

Last Name: Cheng

Organization: University of Saskatchewan

ID: 47

The Association between Social Isolation and Memory Function in Middle- and Older-aged Adults: Analysis of the Canadian Longitudinal Study on Aging

Urooj Taqvi, University of Waterloo

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Aging persons often experience decreases in cognitive function. Intact cognition is a critical component of healthy aging. In particular, the memory domain of cognitive function is important for the performance of activities of daily living, such as taking medications correctly, handling finances, or driving safely--all tasks necessary for the preservation of independent functioning. While some decline in memory is expected with increasing age, diminishment beyond a certain level is a hallmark of age-related illnesses such as dementia. To prevent or reduce the impact of such conditions, the identification of risk and protective factors for memory is important. Social isolation is a psychosocial risk factor that has been shown to adversely affect memory in older age. However, the existing body of evidence shows mixed results, due to factors such as variations in study methods (e.g., design, measures of social isolation) or the inclusion of highly select subgroups of the population. The objective of this study is to examine the relationship between social isolation and memory in Canadian women and men aged 45 to 85 years at baseline.

Methods: Data from the Comprehensive Cohort of the Canadian Longitudinal Study on Aging (CLSA) will be used to regress memory change scores onto a social isolation index computed using baseline information on social networks, social participation, marital and retirement status. Memory will be measured using the immediate and delayed recall administrations of the Rey Auditory Verbal Learning Test; we will obtain change scores by subtracting three-year follow-up test scores from baseline scores. Regression analyses will control for a range of baseline covariates such as age, sex, education, income, and chronic disease comorbidities. We will also include weight and strata variables in our analyses to account for the CLSA's complex survey design.

AuthorNames: Urooj Taqvi, University of Waterloo; Colleen Maxwell, University of Waterloo; Suzanne Tyas, University of Waterloo; Mark Oremus, University of Waterloo

First Name: Urooj

Last Name: Taqvi

Organization: University of Waterloo

ID: 48

What are the Determinants of Preventable Emergency Department Visits? A Systematic Review of the Literature

Tammy Lau, University of Western Ontario

Primary Area of Focus: Health Informatics, Services & Systems (Health Services Research, Health Systems & Policy Studies)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Emergency department (ED) visits for non-urgent, low acuity reasons or conditions that could be treated or appropriately managed in primary care settings are considered to be preventable. To date, however, no systematic review has explored the determinants of these visits in the Canadian context. Therefore, we conducted a systematic review to investigate the prevalence and patient-related factors associated with preventable ED visits among adults in Canada.

Methods: We performed a literature search on MEDLINE, EMBASE, CINAHL, Web of Science, SCOPUS, and Cochrane Library, as well as grey literature and reference lists of the included studies. Titles and abstracts were screened by one reviewer, and the full text of eligible studies was independently screened by two reviewers. Data on the study design, setting, criteria used to identify preventable ED visits, prevalence of these visits, and patient-related factors were independently extracted by two reviewers. The data were qualitatively synthesized, and the risk of bias of the individual studies was independently assessed by two reviewers.

Results or Preliminary Results: We identified 17 studies that met our inclusion criteria. The prevalence of preventable ED visits ranged from 4.3% to 59.1%. These visits were associated with younger age, low education, low income, rural residence, and worse self-rated health. Common reasons for these visits included barriers to primary healthcare, perceived severity of symptoms that were coupled with need for immediate care, and positive perceptions of the accessibility and quality of care in EDs compared to primary healthcare.

Conclusion or Next Steps: Age, education, income, rurality, and self-rated health are associated with preventable ED visits. Patients' perceptions of the urgency of their symptoms, need for care, and the accessibility and quality of care in EDs were driving factors for these visits. Future population-based research that incorporates these elements will provide further insight into the impact of preventable ED visits in Canada.

AuthorNames: Tammy Lau, University of Western Ontario; Cynthia Sriskandarajah, University of Western Ontario; Piotr Wilk, University of Western Ontario; Shehzad Ali, University of Western Ontario

First Name: Tammy

Last Name: Lau

Organization: University of Western Ontario

ID: 52

Oral Health Support Needs For Indigenous Children In Northern Saskatchewan: A Realist Review

Maniza Chowdhury, University of Saskatchewan

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

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Early childhood caries is a growing public health concern in Canada and oral Health inequalities in Indigenous children of great concern. It poses a significant obstacle to the development of a fair health care policy. Despite numerous initiatives and interventions of the government and non-government organizations to address Indigenous children's oral health inequalities, the situation remains the same. This study aims to understand how we can improve Indigenous children's oral health living in northern Saskatchewan through a realist lens.

Methods: At first, I will conduct a realist synthesis of the literature to develop an initial program theory around Indigenous children's oral health that can be further tested and refined, using the program theory as the unit of analysis. By analyzing the relationship between mechanism, context, and outcome, realist reviews provide an approach to uncover the underlying theories of why a programme works, for whom and when. Subsequently, I will identify additional facts after stakeholder and patient family advisors confirmation by searching different databases to refine our initial theory into a middle-range programme theory. Data extraction will be based on the contextual factors at the individual, community, and system-level that result in positive (or negative) oral health amongst Saskatchewan Indigenous children and the mechanisms behind that. This research will be among the first in Saskatchewan to use realist methodology in the oral health sector.

AuthorNames: Maniza Chowdhury, University of Saskatchewan

First Name: Maniza

Last Name: Chowdhury

Organization: University of Saskatchewan

ID: 58
Physical Activity in Children with Physical-Mental Multimorbidity

Chloe Bedard, University of Waterloo

Primary Area of Focus: Nutrition, Physical Activity & Obesity (Food Security, Nutritional Epidemiology, Physical Activity Interventions)

Secondary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Limited existing research suggests children with co-occurring physical and mental illnesses (i.e., multimorbidity) are at risk of a number of negative health sequalae, however, it is currently unknown if they are also at risk of low levels of physical activity (PA). The purpose of this study is to quantify the PA levels in this population and explore various correlates of PA among children with multimorbidity.

Methods: This study uses baseline data from the Multimorbidity in Children and Youth Across the Life Course (MY LIFE) study. MY LIFE is an on-going cohort study following 263 children with a chronic physical illness 2-16 years of age (mean age: 9.8 years, SD = 3.98; 38% female). PA is measured using accelerometry and measures of demographic and biological, psychological, behaviour, and social variables were collected using parent- and child-report questionnaires.

Results or Preliminary Results: Of the 55 children with multimorbidity with valid accelerometer data, only 9.1% met Canadian PA guidelines. Significant correlates of PA among children with multimorbidity include age (rs = -0.45, self-perceived behavioural conduct (rs = -0.45), and physical health-related quality of life (rs = 0.56).

Conclusion or Next Steps: Overall, the results of this study demonstrate the children with multimorbidity are insufficiently active and their PA engagement is correlated with demographic and psychological factors. Further research is needed to confirm and extend these findings to provide critical information for intervention design to promote PA among children with multimorbidity.

AuthorNames: Chloe Bedard, University of Waterloo; Mark Ferro, University of Waterloo

First Name: Chloe

Last Name: Bedard

Organization: University of Waterloo

ID: 61

Associations entre l'obésité, mesurée par la combinaison de l'indice de masse corporelle et du tour de taille, et l'expression de marqueurs inflammatoires dans le tissu adipeux mammaire de femmes atteintes de cancer du sein.

Dzevka Dragic, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: L'inflammation est l'un des mécanismes, pas complètement élucidé, expliquant l'association entre l'obésité et le cancer du sein. L'obésité est souvent déterminée par l'indice de masse corporelle (IMC) alors qu'il a été observé que des femmes de poids normal mais avec une obésité abdominale sont plus à risque d'événements de santé négatifs. Déterminer l'obésité par la combinaison de l'IMC et du tour de taille (TT) pourrait clarifier le rôle des marqueurs inflammatoires dans le cancer du sein. Nous avons examiné l'effet de la combinaison des indices d'adiposité avec l'expression génétique de plusieurs biomarqueurs impliqués dans le cancer du sein.

Methods: L'expression de marqueurs inflammatoires (CYP19A1, ER-α, AIF1, COX2, IL-6, TNF-α et LEP) a été quantifiée par qRT-PCR dans le tissu adipeux mammaire de 141 femmes atteintes de cancer du sein. Les patientes ont été classées en 4 catégories d'adiposité : IMCNE/TTNE, IMCNE/TTE, IMCE/TTNE et IMCE/TTE (NE=non élevé, E=élevé). Des modèles linéaires mixtes ajustés pour l'âge, le statut de ménopause et la batch PCR ont été utilisés pour estimer les associations entre les catégories d'adiposité et l'expression des marqueurs inflammatoires.

Results or Preliminary Results: L'expression des gènes IL-6 (3 fois), TNF-α (2 fois), et LEP (2 fois) était plus importante dans le tissu adipeux mammaire des femmes ayant un TT élevé indépendamment de l'IMC (P

Conclusion or Next Steps: L'expression de certains biomarqueurs, particulièrement ceux liés à l'inflammation, est élevée dans le tissu adipeux mammaire des femmes avec un TT élevé, indépendamment de l'IMC. La détermination de l'obésité devrait donc tenir compte à la fois de l'IMC et du TT.

AuthorNames: Dzevka Dragic, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada; Sue-Ling Chang, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada; André Tchernof, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada; Francine Durocher, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada; Caroline Diorio, CHU de Québec-Laval University Research Center

First Name: Dzevka

Last Name: Dragic

Organization: Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada

ID: 62
Child Multimorbidity: Multilevel Analysis of the 2014 Ontario Child Health Study

Shannon Reaume, University of Waterloo

Primary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Child multimorbidity, the co-occurrence of a chronic physical illness and a mental illness, is common as 25% of children are living with physical illnesses such as diabetes and as many as 58% of these children are also diagnosed with a mental illness. The impact of child multimorbidity is pervasive, challenging children, families, and educational and health care systems. Individual characteristics and contextual factors found in families, schools, and neighbourhoods offer opportunities to reduce the impact of child multimorbidity. This project has three objectives, each aimed at improving the health of children and families: 1) Estimate the prevalence of child multimorbidity in Ontario; 2) Measure the extent to which self-esteem, functional limitations, household income, family functioning, and access and use of mental health services influences the association between physical and mental illness; and 3) Examine differences in mental health services access and use based on morbidity status.

Methods: Secondary analyses will be conducted on data from the 2014 Ontario Child Health Study— a cross-sectional, epidemiological study that examined the physical and mental health of 10,802 children aged 4 to 17 years. Multiple measures were used to determine the influence that families, schools, neighbourhoods, and services have on children's health. Multilevel modeling will generate unbiased estimates for each objective, while appropriately accounting for correlated responses of children residing in the same households and neighbourhoods. To ensure representativeness to the Ontario population, all analyses will be weighted based on probability of selection, survey non-response, and population prevalence estimates of illnesses. Access to the 2014 Ontario Child Health Study from the Research Data Centre at the University of Waterloo has been granted. The results from this proposed study will inform primary, secondary, and tertiary interventions while providing guidance for resource allocation and health and mental health care system integration.

AuthorNames: Shannon Reaume, University of Waterloo; Mark Ferro, University of Waterloo; Joel Dubin, University of Waterloo; Christopher Perlman, University of Waterloo, School of Public Health and Health Systems

First Name: Shannon

Last Name: Reaume

Organization: University of Waterloo

ID: 63
New exposure to opioids for low back pain in the urgent care system: understanding patterns and associations with prolonged opioid use

Sareen Singh, Dalhousie University

Primary Area of Focus: Health Informatics, Services & Systems (Health Services Research, Health Systems & Policy Studies)

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: More than 16,000 Canadians have died of opioid-related overdoses since 2016, many of whom used prescribed opioids to manage painful health conditions like low back pain (LBP). As many as 61% of adults presenting to the emergency department (ED) with LBP receive opioids, and filling a new opioid prescription from the ED increases the risk of prolonged opioid use and related harms. However, differences in how individuals can receive opioids in the urgent care system, and the effects on prolonged opioid use, have been largely overlooked. The proposed research aims: (1) To describe characteristics of opioids received by opioid-naive adults for LBP as they transition through a Canadian urgent care system (ambulance, ED, community pharmacy), and (2) To identify patterns of opioid exposure that are likely to be associated with prolonged use.

Methods: We will conduct a retrospective cohort study of opioid-naive adults presenting to the QEII ED in Halifax, Nova Scotia with LBP between October 2016 and September 2020. We will link data from five administrative health databases and one geographically-based index to compile clinical and demographic characteristics, and characteristics of opioids delivered and prescribed. The exposures of interest will be site-specific and cumulative patterns of opioid exposure across three urgent care sites (ambulance, ED, community pharmacy). The primary outcome will be prolonged opioid use, defined as filling an opioid prescription 8-90 days after the ED visit and an additional prescription within 60 days of six months after the visit. We will describe the distribution of patient and opioid characteristics, and use latent class analysis to identify clusters of individuals with similar patterns of opioid exposure in the urgent care setting. We will subsequently use logistic regression within a generalized estimating equation model to evaluate crude and adjusted associations between patterns of opioid exposure and prolonged opioid use.

AuthorNames: Sareen Singh, Dalhousie University; Mark Asbridge, Department of Community Health and Epidemiology, Dalhousie University; Sanja Stanojevic, Dalhousie University; Jill Hayden, Dalhousie University

First Name: Sareen

Last Name: Singh

Organization: Dalhousie University

ID: 64

Device-measured physical activity and sedentary time in breast cancer survivors at baseline: Results from the Alberta Moving Beyond Breast Cancer (AMBER) Cohort Study

Christine Friedenreich, Alberta Health Services

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The AMBER Study is an on-going prospective cohort study examining the role of physical activity and fitness in breast cancer survivorship. Here, we describe the results from baseline physical activity and sedentary time measured using accelerometry.

Methods: Measurements were collected at baseline (at diagnosis), one- and three-year time points using waist-mounted (Actigraph GT3X+®) and thigh-mounted (activPAL3 & 4®) accelerometer devices worn simultaneously. Participants wore both devices for seven days and completed a daily device log to record their awake time. The Choi algorithm was used to capture any non-wear time during the awake time. To define sedentary time, light, moderate, and vigorous intensity physical activity for the Actigraph® we used vertical-axis activity count/minute (cpm) cut-points, and a machine learning technique, combined with a decision tree and artificial neural network (R Sojourn package, Soj3x). For the activPAL®, sedentary time was estimated using thigh position (sitting, reclining) and from estimated Metabolic Equivalent of Task values.

Results or Preliminary Results: Of the 1,528 cohort participants, 1,450 completed accelerometry data at baseline for Actigraph® and 1,437 for activPAL®. The total wear times (hours/per day) were 13.97 (SD±1.31) for Actigraph® and 14.19 (±1.25) for activPAL®. The sedentary time (

Conclusion or Next Steps: Future analyses will examine the changes in these variables over time and their impact on breast cancer survival.

AuthorNames: Christine Friedenreich, Alberta Health Services; Qinggang Wang, Alberta Health Services; Kerry Courneya, University of Alberta; Jeff Vallance, Athabascau University; Charles Matthews, National Cancer Institute; Leanne Dickau, Alberta Health Services; Diane Cook, University of Alberta

First Name: Christine

Last Name: Friedenreich

Organization: Alberta Health Services

ID: 67

Prospective Cohort Study of Pre- and Post-diagnosis Obesity and Endometrial Cancer Survival

Renee Kokts-Porietis, Alberta Health Services

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

Secondary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: To 1) determine the associations between pre-, at- and post-diagnosis anthropometric measures with disease-free and overall survival among endometrial cancer survivors, and 2) assess how pre-diagnosis and post-diagnosis anthropometric changes impact survival outcomes.

Methods: The Alberta Endometrial Cancer Cohort Study is a follow-up of endometrial cancer survivors who participated in a previous case-control study conducted between 2002 and 2006 and were followed until death or March 20, 2019, whichever occurred first. Direct anthropometric measurements and self-reported lifetime weight history were assessed at-diagnosis and follow-up during in-person interviews. Cox proportional hazards regression model was used to estimate multivariate-adjusted HR (95% CI) for body mass index (BMI), weight, waist circumference, and waist-to-hip ratio with disease-free and overall survival for each time point. The proportional hazard assumption was assessed with Schoenfeld residuals.

Results or Preliminary Results: Of 540 endometrial cancer survivors included at baseline, 425 participated in follow-up interviews. During the median 14.2 years of follow-up (0.3-16.5 years), 132 participants had a recurrence and/or died (111 overall deaths). Reduced disease-free survival was associated with greater pre-diagnosis weight (HR=1.88, 95% CI=1.15-3.07), pre-diagnosis BMI (HR=1.88, 95% CI=1.09-3.22), and at-diagnosis BMI (HR= 2.04, 95% CI=1.18-3.53). Waist circumference ≥88 cm at diagnosis was also associated with decreased disease-free (HR=1.94, 95% CI=1.24-3.03) and overall survival (HR=1.90, 95% CI=1.16-3.13). Greater than 5% increase (HR=2.12, 95% CI=1.38-3.25) or 5% decrease (HR=1.85, 95% CI 1.16-2.97) in BMI from pre-diagnosis to diagnosis was associated with reduced disease-free survival. Similarly, ≥5% increase or decrease in body weight was associated with approximately a two-fold decrease in disease-free and overall survival. No associations with endometrial cancer survival outcomes were observed for any post-diagnosis measurements.

Conclusion or Next Steps: Pre-diagnosis and at-diagnosis anthropometric measures were associated with reduced survival among endometrial cancer survivors. Additionally, change in pre-diagnosis anthropometrics may be an important predictor of future survival outcomes of endometrial cancer patients.

AuthorNames: Renee Kokts-Porietis, Alberta Health Services; Christine Friedenreich, Alberta Health Services; Andria Morielli, Alberta Health Services; Linda S. Cook, University of New Mexico; Kerry Courneya, University of Alberta; Jessica McNeil, 2. Department of Kinesiology, Faculty of Health and Human Sciences, University of North Carolina Greensboro, Greensboro,

North Carolina, USA

First Name: Renee

Last Name: Kokts-Porietis

Organization: Alberta Health Services

ID: 68
Multimorbidity is associated with COVID-19 positivity in Ontario, and some pre-existing conditions increase the risk even more

Anna Kone Pefoyo, Lakehead University

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: As with any infectious disease, the chances of developing COVID-19 may vary according to characteristics of the host. It is crucial to examine sociodemographic or health factors that may play a role in controlling the pandemic. This retrospective cohort study assesses whether previous healthcare utilization (HCU), pre-existing chronic conditions and multimorbidity are related to risk of COVID-19 diagnosis (positivity).

Methods: The cohort included all individuals tested in Ontario between January and December 2020, using linked healthcare administrative data. Study variables included COVID-19 test results, sociodemographic characteristics, previous two years of HCU, and presence of 18 pre-existing chronic conditions. We used bivariate analyses and logistic regression to assess the association between level of multimorbidity (0-5+ conditions) and COVID-19 positivity, controlling for age, sex, SES and HCU.

Results or Preliminary Results: By December 2020, the province had tested 3,123,900 individuals; 3.5% were positive for COVID-19, varying from 0.4% to 10.1% between geographic regions. While positivity increased with multimorbidity levels, the differences were more substantial for specific pre-existing conditions such as Stroke (4.7%), Diabetes (4.8%), and Dementia (8.0%). Positivity was the lowest among high ED users (2.5%) and the highest among those who did not use any services (4.1%). In the adjusted model, the risk of developing COVID-19 increased incrementally with additional comorbidities, from two (1.02, CI=1-1.04) to 5+conditions (1.43, CI=1.38-1.48); but risk was slightly higher among those with no condition compared to 1. People in areas with highest ethnic concentration were 5.8 times more likely to test positive, and lowest income neighbourhoods had 1.41 times more risk.

Conclusion or Next Steps: This study identifies characteristics associated with elevated COVID-19 positivity risk, and could help inform screening targets and earlier identification of infected individuals to help stop spread. However, there is a need to account for other factors such as safety measures, exposure or other reasons for screening.

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

First Name: Anna

Last Name: Kone Pefoyo

Organization: Lakehead University

ID: 71

Early COVID-19 Pandemic Reinfection Rates in Ontario, Canada: Evidence from Population Healthcare Administrative Data

Anna Kone Pefoyo, Lakehead University

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: At the beginning of the COVID-19 pandemic, COVID-19 infection was expected to create immunity against future infection. Over time, however, cases of possible reinfection emerged. Reinfection rate analyses in geographic regions and time periods are important because reinfection risk could vary as new disease variants emerge and spread. The purpose of this study is to describe COVID-19 reinfection in Ontario, Canada early in the pandemic using population healthcare administrative data.

Methods: We used COVID-19 results, included in linked health administrative data, for all individuals tested positive in Ontario between January and December 2020, to identify probably cases of COVID-19 reinfection. In preliminary analyses, we operationalized COVID-19 reinfection as cases in which an individual had at least one positive COVID-19 test, two subsequent and consecutive negative COVID-19 tests, and then a further positive COVID-19 test result. Descriptive and bivariate analyses were performed to characterize these probable re-infections.

Results or Preliminary Results: During the study period, there were 110,064 individuals with at least one positive result and preliminary analyses identified 423 cases (0.38%) of COVID-19 reinfection. The average time from the second negative test to reinfection was 30 days (± 39), with a maximum of 213 days. Reinfection rates were higher (>1.5%) among people who had pre-existing stroke, renal disease or congestive heart failure. Risk of reinfection also increased with age. Reinfection rates significantly varied by LHIN, but not rurality, sex or neighborhood income. Subsequent sensitivity analyses are underway, in which we operationalize COVID-19 reinfection using more and less stringent criteria.

Conclusion or Next Steps: While we cannot conclude that identified cases were reinfection (as opposed to viral relapse or inflammatory rebound), our analyses identified rates of probable COVID-19 reinfection and demographic factors associated with reinfection risk. Information about reinfection rates and risk factors can help enhance Canada's public health response to curbing the virus spread.

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

First Name: Anna

Last Name: Kone Pefoyo

Organization: Lakehead University

ID: 74

The Association between Baseline Physical Activity and Changes in Knee Osteoarthritis Symptoms in Older Adults: A Longitudinal Analysis of the Multicenter Osteoarthritis Study

Angela Chen, University of Waterlo

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Knee osteoarthritis (OA) is a chronic, inflammatory disease characterized by joint cartilage degradation. Debate exists in the literature regarding the role of physical activity in the development of knee OA. Some believe that prolonged and vigorous physical activity might increase the risk of knee OA, while others feel that sedentary lifestyles are a greater risk for knee OA. Studies examining the association between physical activity and knee OA in older adults (age > 65 years) have mixed results due to a lack of standardization in study procedures and measurement tools. The purpose of this study is to examine the association between baseline physical activity and longitudinal changes in knee OA symptoms among older adults.

Methods: We will use data from the Multicenter Osteoarthritis Study (MOST), a longitudinal study of older adults (n=1,251, age range 65-79 years) with pre-existing or high risk of knee OA. Main exposure and outcome will be measured with reliable and valid instruments, including the Physical Activity Scale for the Elderly (PASE), a self-administered survey designed to quantify respondents' levels of physical activity on a scale of 0-793, with higher scores indicating greater levels of physical activity. Knee OA symptoms will be measured using the Western Ontario and McMaster Universities (WOMAC) Osteoarthritis Index and the Knee Injury and Osteoarthritis Outcome Score (KOOS). WOMAC and KOOS scores are available for a maximum of 5 timepoints (baseline [T0], 15-month [T1], 30-month [T2], 60-month [T3], and 84-month [T4]). We will utilize separate sets of generalized linear models to regress WOMAC or KOOS scores on PASE score, controlling for age, sex, and body mass index. We will use interaction terms to assess whether each of the three aforementioned covariates interacts with PASE score. In the regression models, the intercepts and time will be treated as random effects.

AuthorNames: Angela Chen, University of Waterlo; Mark Oremus, University of Waterloo

First Name: Angela

Last Name: Chen

Organization: University of Waterlo

ID: 75
Climate change impacts on the health of South Asian population- A scoping review

Ishwar Tiwari, University of Alberta

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Climate change impacts are felt unequally worldwide; geographically vulnerable populations, those living in small island states, and densely populated coastal areas, and women and children are affected disproportionately. The scoping review explores the prior research to learn air pollution and climate change vulnerability and health impacts among women and children under five years of age in South Asian countries and identify the research and knowledge gap.

Methods: A research librarian executed the search on the following databases: PROSPERO, OVID Medline, OVID EMBASE, OVID Global Health, Cochrane Library (CDSR and Central), EBSCO CINAHL, (e.g., MeSH, Emtree, etc.) and keywords representing the concepts "vulnerable populations" and "climate change" and "health impacts" and "South Asia." Databases were searched from 2010 to May 2020. Papers were screened independently by two researchers.

Results or Preliminary Results: The studies (48) met the study criteria. The highest percentage (54%) of the reviews came from India, 33% from Bangladesh, and 13% from other South Asian countries. Several studies showed a positive association between particulate matter pollution and increased risk of acute respiratory infections, birth weight, and stunting. Significant positive relationships between temperature and birth weight and diarrhea risk in children were also observed. For women, the low temperature was associated with decreased mortality risk. Extreme weather-induced events such as floods and cyclones were associated with higher maternal death. The risk of disease severity was significantly higher in females than males due to extreme weather conditions.

Conclusion or Next Steps: Air pollution and climate change-related health impacts are critical in South Asia. The review showed the significant effect of climate change on nutritional status, birth outcomes, respiratory infections, water-borne diseases, and premature mortality in women and children, while studies on vector-borne diseases were missing. More studies in other South Asian countries, besides India and Bangladesh, are essential to elucidating the region's overall disease burden.

AuthorNames: Ishwar Tiwari, University of Alberta; McKenzie Tilstra, University of Alberta; Sandra Campbell, University of Alberta; Shelby Yamamoto, University of Alberta; Stephen Hodgins, University of Alberta; Denise Spitzer, University of Alberta; Sherilee Harper, University of Alberta; Bhim Prasad Sapkota, University of Alberta

First Name: Ishwar

Last Name: Tiwari

Organization: University of Alberta

ID: 76
DNA Methylation of Circadian Genes and Biomarkers of Cardiometabolic Risk in Female Hospital Workers: A Pilot Study

Salman Ahmadi, Department of Public Health Sciences, Queen's University, Kingston, ON, Canada

Primary Area of Focus: Genetic & Molecular Epidemiology (Genetic Epidemiology, Genomics, Bioinformatics, Molecular Epidemiology)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: To investigate if DNA methylation of circadian genes, a potential causal mechanism in the pathway linking night shift work and cardiovascular disease, is differentially associated with biomarkers of cardiometabolic risk by shift work schedule among female hospital employees.

Methods: A cross-sectional study was conducted (2019-2020) enrolling 74 female hospital employees (38 day workers, 36 rotating night shift workers) at Kingston Health Sciences Centre in Kingston, ON. Participants completed a questionnaire to provide data on sociodemographic, lifestyle, and health characteristics, as well as lifetime occupational history to assess current and past day and night shift work. Fasting blood samples were collected to measure biomarkers of cardiometabolic risk and DNA was extracted for analysis with the Illumina Infinium MethylationEPIC BeadChip microarray to measure DNA methylation of 1150 cytosine-guanine (CpG) sites across 22 genes essential to the regulation of circadian rhythms. Multivariable linear and quantile regression modeling was conducted to investigate associations between methylation levels at individual CpG sites (β-values) and biomarkers of cardiometabolic risk, while considering effect modification by shift work schedule. The false discovery rate was applied to account for multiple comparisons ($q \leq 0.20$).

Results or Preliminary Results: Two CpG sites [cg06758649 (CRY1) and cg06899802 (CSNK1A1)] were differentially associated with waist circumference and body mass index by shift work schedule, and five CpG sites [cg26103512 (CSNK1D), cg03941313 (CSNK1E), cg12061096 (RORA), cg10133825 (RORA), and cg19652148 (RORA)] were differentially associated with LDL-cholesterol by shift work schedule ($q \leq 0.20$). For example, a 1% increase in methylation at cg06758649 in the CRY1 gene was associated with a 3.09 cm decrease in waist circumference among day workers, whereas it was associated with a 3.73 cm increase among night shift workers ($q = 0.05$).

Conclusion or Next Steps: Our findings suggest differential associations between DNA methylation of circadian genes and biomarkers of cardiometabolic risk that may underlie the increased risks of cardiovascular diseases observed among night shift workers.

AuthorNames: Salman Ahmadi, Department of Public Health Sciences, Queen's University, Kingston, ON, Canada; Parveen Bhatti, Program in Epidemiology, Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA, USA; Cancer Control Research, BC Cancer, Vancouver, BC, Canada; Jennifer Ritonja, Dept of Public Health Sciences, Queen's

University; Qingling Duan, School of Computing and Department of Biomedical & Molecular Sciences, Queen's University, Kingston, ON, Canada; Lisa Flaten, Department of Public Health Sciences, Queen's University, Kingston, ON, Canada; Francine Durocher, Centre de recherche du CHU de Québec – Université Laval, Québec, QC, Canada; Kristan Aronson, Division of Cancer Care and Epidemiology, Cancer Research Institute, Queen's University; Joan Tranmer, Queen's University

First Name: Salman

Last Name: Ahmadi

Organization: Department of Public Health Sciences, Queen's University, Kingston, ON, Canada

ID: 83

Interactions between polycyclic aromatic hydrocarbon exposure and xenobiotic metabolism genes and their impact on breast cancer risk

Derrick Lee, St. Francis Xavier University

Primary Area of Focus: Genetic & Molecular Epidemiology (Genetic Epidemiology, Genomics, Bioinformatics, Molecular Epidemiology)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Polycyclic aromatic hydrocarbons (PAHs) exert their carcinogenic effects through metabolic activation. Previous research suggests that women exposed to PAHs from their jobs have an increased breast cancer risk. Our objectives are to examine the relationship between genes involved in PAH metabolism and risk of breast cancer and to determine whether genetic variants of these genes modify the effects of PAHs on breast cancer risk in women.

Methods: From a population-based case-control study in British Columbia and Ontario, 641 cases and 803 controls were genotyped for 138 single nucleotide polymorphisms (SNPs) in genes involved in the metabolism of xenobiotics. Occupational exposure to PAHs was assessed by applying a job-exposure matrix to participants' lifetime work histories and multivariable logistic regression models examined the main genetic effects and interaction effects between genetic variants and PAH exposure.

Results or Preliminary Results: Twelve SNPs have associations with breast cancer, six of which showed evidence of an association after adjustment for the false discovery rate. There was evidence that two of the six SNPs modify the effects of prolonged PAH exposure; both SNPs are involved in genes from the AKR family, which are involved in the production of carcinogenic metabolites during PAH metabolism.

Conclusion or Next Steps: This study contributes evidence in support of an association between SNPs in metabolism-related genes and risk of breast cancer, as well as the role specific PAH-metabolizing pathways have in modifying the effects of occupational PAH exposure. Given that the genes studied are unlikely to affect employment choices, these results provide supporting evidence of the causal effects of PAHs and other environmental exposures on breast cancer, as the analyses are less vulnerable to confounding than work that does not consider genetic susceptibilities.

AuthorNames: Derrick Lee, St. Francis Xavier University; John Spinelli, BC Cancer Agency; Kristan Aronson, Division of Cancer Care and Epidemiology, Cancer Research Institute, Queen's University; Igor Burstyn, Drexel University; Angela Brooks-Wilson, Canada's Michael Smith Genome Sciences Centre

First Name: Derrick

Last Name: Lee

Organization: St. Francis Xavier University

ID: 85
An Intersectional Analysis of Intimate Partner Violence in Canada

Isabella Aversa, Department of Epidemiology and Biostatistics, Schulich School of Medicine & Dentistry, Western University

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Intimate partner violence (IPV) is a recognized public health concern in Canada. Certain groups are known to be at higher risk of IPV, including Indigenous women, sexual and gender minorities, immigrant women, women with activity limitations, and low-income women. Although previous studies have captured IPV among these groups, they have only covered limited intersections of identity. Additionally, the majority of the literature on gender-based violence in Canada lacks representation of transgender and non-binary individuals. This study will take an intersectional approach to better identify groups who are at higher risk of IPV. Intersectionality theory acknowledges that one's multiple intersecting identities can interact to create unique experiences. Consequently, the factors that shape the initiation and continuation of IPV may vary across intersections. The objectives of this study will be (1) to describe the prevalence of IPV in Canada across intersectional groups and (2) to describe the contextual factors in which IPV occurs among high-risk intersection groups, such as police reporting, consequences, and relationship to the abuser.

Methods: This study will use the Statistics Canada 2018 cross-sectional Survey of Safety in Public and Private Spaces (SSPPS). SSPPS is the first survey to follow the new Statistics Canada standards on sex and gender, allowing for the representation of transgender individuals. Random forest, a type of machine learning method, will be used to identify variables that are the most statistically relevant to include in intersections to predict IPV. The prevalence of IPV for each of the selected intersection groups and their 95% confidence intervals will then be estimated using Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA). Descriptive statistics will be used to understand the context in which IPV occurs among high-risk intersection groups.

AuthorNames: Isabella Aversa, Department of Epidemiology and Biostatistics, Schulich School of Medicine & Dentistry, Western University; Greta Bauer, Western University

First Name: Isabella

Last Name: Aversa

Organization: Department of Epidemiology and Biostatistics, Schulich School of Medicine & Dentistry, Western University

ID: 87

Characterizing local climate change vulnerability: Impacts of climatic and air pollution exposures on older adults and immigrants in Edmonton, Alberta

McKenzie Tilstra, University of Alberta

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Since climate change impacts on health are felt at a local scale and will differ depending on local context, we will explore the current risk facing older adults and immigrants to the effects of climate change in Edmonton, Alberta. The main objective will be to assess the relationship between environmental exposures, such as air pollution and extreme temperatures, and community health outcomes in older adult and immigrant populations. Our hypothesis is that climatic exposures are related to several health outcomes and that this relationship will be modified by several community-level factors such as socioeconomic status, social isolation, and active living environments, among others. With this research, we aim to generate important local data about climate change vulnerability and resilience in older adults and immigrants that can inform community-level planning activities for effective adaptation measures targeted at protecting the health of Edmontonians and form the foundation for another project aimed at developing a real-time climate change vulnerability index.

Methods: In this exploratory ecological study we will assess spatial differences at the level of the Dissemination Area in Edmonton and employ generalized linear models to explore associations between climatic and air pollution variables (extreme temperatures, ambient air pollution, and freeze-thaw cycles) and health events including cardiovascular, respiratory, mental health, and musculoskeletal outcomes. Community-level factors (demographics, sex, socioeconomic status, social isolation, active living environment, health facility availability) will be explored in terms of confounding and effect modification.

Results or Preliminary Results: Data on exposure variables and community-level factors have been obtained from publicly available sources and health events from the Discharge Abstract Database and the National Ambulatory Care Reporting System.

Conclusion or Next Steps: Data will be analyzed using descriptive statistics and subsequently modelled, results will be interpreted, and implications for older adult and immigrant health in Edmonton will be identified and disseminated to stakeholders.

AuthorNames: McKenzie Tilstra, University of Alberta; Shelby Yamamoto, University of Alberta; Charlene Nielsen, University of Alberta; Allyson Jones, University of Alberta; Bernadette Quemerais, University of Alberta; Alvaro Osornio Vargas, University of Alberta; Jordanna Salma, University of Alberta; Ishwar Tiwari, University of Alberta; Okan Bulut, University of Alberta

First Name: McKenzie

Last Name: Tilstra

Organization: University of Alberta

ID: 88

Processing and analysing records from Ontario Community Health Centres to better understand differing healthcare needs of rural as compared to urban populations

Natalie Pallisco, Western University

Primary Area of Focus: Rural/Remote/Circumpolar Health (Health in High Latitude Environments, Access to Care for Rural & Remote Populations)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Rural communities make up 18% of the national population, but they are only served by 8% of all practicing physicians in Canada. Rural populations have also been found to be, on average, older, less affluent, and less healthy than their urban counterparts. Ontario Community Health Centres (CHCs) strive to offer services specifically tailored to their communities, which is particularly valuable in rural communities that may have to prioritize the services they offer based on the limited resources available. The objective of this study is to harness CHC electronic health record (EHR) data to evaluate and understand the role of a CHC model of care for rural as compared to urban populations in Ontario.

Methods: De-identified EHR data for approximately 25 million visits between January 2008 and December 2017 from 670,000 adult CHC clients will be used for this study. Clients were assigned "rural" or "urban" indicators based on the second character of their primary residence postal code, which is coded by Canada Post Corporation as 0 for rural residents and 1 through 9 for urban residents.

Results or Preliminary Results: We excluded 25,967 patients (4%) with missing postal code information. The rural-urban distribution of classified clients is 16% and 84%, respectively.

Conclusion or Next Steps: Using the CHC-provided EHR dataset, four major comparisons will be made between rural and urban clients: analysing the reasons for which clients visit a CHC (specifically focusing on ambulatory-care sensitive conditions and mental health visits); the gender distribution of clients; the age distribution of clients on their first encounter date; and the type of service provider seen by clients. It is anticipated that these comparisons will allow for in-depth analyses that will highlight the specific needs of rural populations being served through CHCs in Ontario and how this may differ from urban populations also receiving care through CHCs.

AuthorNames: Natalie Pallisco, Western University; Jacqueline Kueper, The University of Western Ontario; Daniel J. Lizotte, Western University; Jennifer Rayner, Alliance for Healthier Communities

First Name: Natalie

Last Name: Pallisco

Organization: Western University

ID: 89

Descriptive epidemiology of incidence of limb amputation in Saskatchewan: Evidence from administrative health data

Samuel Kwaku Essien, University of Saskatchewan

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Understanding group-specific burden of limb amputation (LA) is crucial for directing subpopulation-specific interventions. We examined demographic distribution, amputation predisposing factors (APF), and levels of LA among a cohort of people in Saskatchewan.

Methods: Retrospective linked administrative health data of incidence of LA and sociodemographic (age, sex, urban/rural) factors from Saskatchewan between 2006 and 2019 was used. LA cases were categorized into three groups: overall LA (all reported LA), primary LA (first reported LA) and subsequent LA (revision or contralateral LA) and further divided into upper extremity (UEA) and lower extremity (LEA) amputations. APF were assessed based on the International Classification of Disease (ICD-10-CA) diagnostic codes. Chi-square tests were performed to determine differences in overall LA by population groups.

Results or Preliminary Results: 5868 LA were performed in Saskatchewan between 2006 and 2019. Of these 4239 (72.2%) were primary and 1629 (27.8%) were subsequent; 4895 (83.4%) were LEA and 973 (16.6%) were UEA. Primary LA constituted 70.0% (3424) of LEA and 83.8% (815) of UEA. APF, in order of prevalence, revealed 60.0% of the overall cohort was diagnosed with diabetes mellitus (DM), 15.2% with vascular disease independent of DM, followed by trauma (8.2%), infection (5.1%), cancer (2.1%), frostbite (1.2%) and congenital amputation (0.3%). The majority (52.6%) of the cohort was 50-74 years of age. Males comprised 4164 (71.0%) of all cases, and 3532 (60.6%) resided in urban areas.

Conclusion or Next Steps: Our findings that LEA were more common than UEA with DM as the highest diagnosed APF was expected. The 27.8% subsequent LA finding requires further exploration to determine descriptors of these cases. Surprising was the finding of frostbite at 1.2% of APF. While existing interventions target comorbidities such as DM, our study findings elucidate the need to target intervention to reduce LA incidence in men residing in urban areas.

AuthorNames: Samuel Kwaku Essien, University of Saskatchewan

First Name: Samuel Kwaku

Last Name: Essien

Organization: University of Saskatchewan

ID: 90

Prospective Study on the Longitudinal Impact of Bisphenol A and Paraben Exposure on Adolescent Obesity and Cardiometabolic Outcomes

Deanna Chinerman, McGill University

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

Secondary Area of Focus: Nutrition, Physical Activity & Obesity (Food Security, Nutritional Epidemiology, Physical Activity Interventions)

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Endocrine disrupting compounds such as bisphenol A (BPA) and parabens can have deleterious health effects as shown in human and animal studies. BPA and parabens are estrogenic compounds shown to promote obesity and cardiometabolic problems if exposure occurs prenatally, as this is a critical window of exposure. Adolescence, as a period of growth, also has the potential to be a critical window of exposure for BPA and parabens to impact obesity and cardiometabolic development. This will be determined using data from a cohort of children with a parental history of obesity who were followed throughout adolescence. Overall, this project has four objectives: quantify BPA and paraben levels throughout childhood and adolescence, examine longitudinal associations between BPA and paraben exposure on adiposity outcomes, examine longitudinal associations between BPA and paraben exposure on selected cardiometabolic outcomes, and explore the relationship between BPA and paraben exposure to the gut microbiota and their potential associations with adiposity.

Methods: Data collection was done in three phases, including clinical measures and urine samples, with a fourth on the way to measure microbiota samples. BPA and paraben levels will be quantified from urine samples taken in phases 1-3 using high performance liquid chromatography with tandem mass spectroscopy. Longitudinal associations between obesity and BPA and paraben exposure will be measured using group-based trajectory modelling. Measures of adiposity include standard anthropometrics and body fat as measured by DEXA (total and central) during the first three phases of data collection. Interdependence between exposures on obesity and cardiometabolic measures will be performed using multivariate modelling. Cardiac and metabolic measures include blood pressure, lipid profiles, and glucose metabolism as collected in phases 1-3. Microbiome analysis will be done using ANOVA, with microbiota samples taken from feces in phase four. All analysis will be performed in r.

AuthorNames: Deanna Chinerman, McGill University; Melanie Henderson, Department of pediatrics, Université de Montréal; Tibor Schuster, McGill University; Jonathan Chevrier, McGill University; Tracie Barnett, McGill University

First Name: Deanna

Last Name: Chinerman

Organization: McGill University

ID: 94

Identifying the predictors of Covid-19 infection outcomes and development of prediction models

Rashid Ansari, University of New South Wales

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: This study aimed to develop and provide an easy to use the model to predict the Covid-19 infection severity in the patients and to help to understand the patient's condition.

Methods: This study analyzed simulated data obtained from the large database for 340 patients with an active Covid-19 infection. The study identified predictors of Covid-19 outcomes that may be measured in two different ways: the total T-cell levels in the blood with T-cell subsets and number of cells in the blood infected with virus. All measures are relatively unobtrusive as they only require a blood sample, however, there is a significant laboratory cost implications for measuring the number of cells infected with the virus. This study used a methodological approach using two different methods showing how multiple regression and logistic regression can be used in the context of Covid-19 longitudinal data to develop the prediction models.

Results or Preliminary Results: This study has identified the predictors of Covid-19 infection outcomes and developed prediction models. In the regression model of Total_T Cell, the predictors BMI, comorbidity and Total_Tcell were all associated with increased levels of infection severity (p < 0.001). For BMI, the mean % of unhealthy cells increased by 0.42 (95% CI 0.24 to 0.60) and comorbidity predictor has on average 8.3% more unhealthy liver cells than without comorbidity (95% CI – 2.9% - 1.29%). The results of multivariate logistic regression model predicting the Covid-19 Infection severity were promising. The significant predictors were observed such as Age (OR 0.95, p = 0.02, 95% CI: 0.91 – 0.99), Helper T_cells (OR O.93, p = 0.03, 95% CI: 0.87 – 0.99), Basic_Tcell (OR 1.11, p=0.001, 95% CI: 1.06 -1.71) and Comorbidity (OR 0.41, p=0.05, 95% CI: 0.16 – 1.07).

Conclusion or Next Steps: In this study recommendation has been provided to clinical researchers on the best way to use the various Covid-19 infections measures along with identifying other possible predictors of Covid-19 infection. It is imperative to monitor closely the T-cell subsets using prediction models that might provide valuable information about the patient's condition during the treatment process.

AuthorNames: Rashid Ansari, University of New South Wales; Peter Baker, University of Queensland

First Name: Rashid

Last Name: Ansari

Organization: University of New South Wales

ID: 96
Air pollution exposure and respiratory emergency visits among children in Edmonton

Chunhui Tian, University of Alberta

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: We plan to investigate trends in associations between air pollution (PM2.5, CO, NO2, O3, SO2) levels and respiratory (wheeze, asthma, bronchiolitis) emergency departments visits in Edmonton among children under 17 years of age between 2016-2018, and to explore the difference between wildfire season and non-wildfire season. Also, we plan to investigate air pollution exposure as a predictor for respiratory hospital admissions in Edmonton among children under 17 years of age between 2016-2018

Methods: The study population is 8251 children under 17 years of age in Edmonton. Descriptive analysis was first performed to examine the data. Time-series analysis with Poisson regression or negative binomial regression models will be used to investigate associations between air pollution levels and respiratory emergency visits among children under 17 years of age between 2016-2018. Confounders varying over time, including seasonality, average daily temperature, relative humidity, day of the week, statutory holidays, and influenza activity will be included. Multivariable logistic regression will be used to explore the association between hospital admissions (yes/no) and air pollution exposure, adjusting for age, sex, and socioeconomic status.

Results or Preliminary Results: Descriptive analyses showed that the mean concentration of CO, O3, and PM2.5 increased from 2016 to 2018. The concentrations of CO and NO2 were highest in winter, and O3 and PM2.5, the highest in summer. There were peaks in PM2.5 levels during wildfire season every year. Children aged 0-4 had the largest number of respiratory emergency department visits, accounting for 69.48%. Predominantly allergic asthma without stated status asthmatics was most commonly diagnosed in 56.14% percent of children. Among Children who visited the respiratory emergency departments, 86.33% of them were not admitted to inpatient.

Conclusion or Next Steps: Time-series analysis and multivariable logistic regression will further explore these relationships.

AuthorNames: Chunhui Tian, University of Alberta; Alvaro Osornio Vargas, University of Alberta; Yan Yuan, University of Alberta; Shelby Yamamoto, University of Alberta; William Craig, University of Alberta

First Name: Chunhui

Last Name: Tian

Organization: University of Alberta

ID: 98

Population coverage of the Canadian Chronic Disease Surveillance System: A survey of the contents of health insurance registries across Canada

Naomi Hamm, University of Manitoba

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Health insurance registries, which capture insurance coverage and demographic information for entire populations, are a critical component of population health surveillance and research when using administrative data. Within Canada, registry data collection and upkeep falls under provincial and territorial jurisdiction. Lack of standardization across Canada could affect the comparability of surveillance measures. We assessed the contents of health insurance registries across Canada to describe the populations covered and document registry similarities and differences.

Methods: A survey about the contents and population identifiers in health insurance registries was developed by the study team and representatives from the Public Health Agency of Canada. The survey was completed by key informants from provinces and territories and then descriptively analyzed.

Results or Preliminary Results: Responses were received from all provinces; partial responses were received from the Northwest Territories. Demographic information in health insurance registries, such as primary address, date of birth, and sex, were captured in all jurisdictions. All jurisdictions had at least 20 years of registry data available, with snapshots to capture registry changes. Information about familial relationships, ethnicity, and socioeconomic status varied among jurisdictions, as did start and end dates of coverage and frequency of registry updates. Identifiers for specific populations, such as First Nations individuals, were captured in some, but not all jurisdictions. Some jurisdictions could obtain select characteristics and identifiers by linking registry data to supplemental databases.

Conclusion or Next Steps: Health insurance registries are a rich source of information about the insured populations of the provinces and territories. However, heterogeneity in their contents may affect who is included and excluded in population surveillance estimates produced using administrative health data. Development of a harmonized data framework could support timely and comparable population health research and surveillance results from multi-jurisdiction studies.

AuthorNames: Naomi Hamm, University of Manitoba; Joellyn Ellison, Public Health Agency of Canada; Karen Phillips, Prince Edward Island Department of Health and Wellness; Larry Svenson, Alberta Health; Lisa Lix, University of Manitoba; Cynthia Robitaille, Public Health Agency of Canada; Siobhan O'Donnell, Public Health Agency of Canada; Louise McRae, Public Health Agency of Canada; Kimberley Hutchings, Public Health Agency of Canada; Louis Rochette, Institut national de santé publique du Québec; Mahmoud Azimaee, ICES; MaryRose Stang, Saskatchewan Ministry of Health; Rolf Puchtinger, Ministry of Health, Government of Saskatchewan; Megan McCallum, Government of the Northwest Territories; Aijun Yang, British Columbia Ministry of Health; Yue Liu, Nova Scotia Department of Health and Wellness; Bin Zhang, New Brunswick Department of Health; James Ayles, New Brunswick Department of Health

First Name: Naomi

Last Name: Hamm

Organization: University of Manitoba

ID: 100
Family Functioning and Health-Related Quality of Life in Parents of Children with Mental Illness

Madeline Reed, University of Waterloo

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: This project examined whether parent caregivers of children with mental illness have poorer health-related quality of life (HRQoL) than Canadian population norms; modelled associations between family functioning and physical and mental HRQoL; and, investigated whether these associations were moderated by parent or child factors.

Methods: Cross-sectional data were collected from children receiving mental health care at a pediatric hospital and their parents. Physical and mental HRQoL of parents were measured using the Short Form 36 Health Survey (SF-36), and sample means were compared to weighted Canadian population norms using t-tests and effect sizes were calculated. Multiple regression was employed to evaluate associations between family functioning and parental physical and mental HRQoL, adjusting for child and parent demographic and clinical covariates. Proposed moderators, including child age, sex, and externalizing disorder, and parental psychological distress, were added as product-term interactions to the models.

Results or Preliminary Results: Parent caregivers had significantly poorer physical and mental HRQoL than adult Canadian norms in most domains of the SF-36, and in the physical and mental component summary scores ($d = 0.31$ to 1.47). Family functioning was not significantly associated with parental physical HRQoL, $\beta = 0.13$ (0.17), $p = .46$. Greater family dysfunction was related to poorer parental mental HRQoL, $\beta = 0.29$ (0.14), $p = .04$. No moderators significantly augmented the associations between family functioning and parental HRQoL.

Conclusion or Next Steps: These findings support the uptake of approaches that strive for collaboration among healthcare providers, children, and their families (i.e., family-centered care) in child psychiatry settings, to support the health needs of all family members. Future research should assess potential mediators and moderators of these associations in longitudinal samples and examine the impact that family interventions may have on improving parent outcomes, and subsequently, child mental health.

AuthorNames: Madeline Reed, University of Waterloo; Mark Ferro, University of Waterloo; Dillon Browne, University of Waterloo; Christopher Perlman, University of Waterloo, School of Public Health and Health Systems

First Name: Madeline

Last Name: Reed

Organization: University of Waterloo

ID: 103
Assessing the socioeconomic gradient of walking speed as a measure of general health among older adults using the Canadian Longitudinal Study on Aging

Samantha Radford, Dalhousie University

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: As the Canadian population ages understanding inequality in health among older adults is critical, and identifying good measures of health to assess the socioeconomic gradient of health among older adults is essential. Walking speed is an objective measure of health and attracting increasing attention as a potentially useful measure of general health among older adults. The goal of this project was to explore the use of walking speed as a measure of health in the assessment of the socioeconomic gradient among older adults in Canada.

Methods: With a sample of 25,064 observations from the first follow-up data of the Canadian Longitudinal Study on Aging Comprehensive, we used separate Ordinary Least Squares (OLS) regression models to assess associations between walking speed and other measures of health (frailty, number of chronic conditions, activities of daily living, and self-rate health) and to examine the association between walking speed and socioeconomic status adjusting for demographic, anthropometric, health behaviour, social, and geographic variables.

Results or Preliminary Results: The mean walking speed of the sample was 0.98 m/s (SD =0.18). Walking speed was clinically and statistically significantly associated with frailty. Walking speed exhibited an independent, statistically significant socioeconomic gradient with the highest income category walking on average 0.06 m/s (99% CI: 0.039, 0.082) faster than the lowest income group.

Conclusion or Next Steps: Our finding suggests that walking speed is a useful measure of health in the assessment of health inequality among older adults. Walking speed can be considered as a simpler alternative to frailty and an objective measure alternative to a popular subjective measure of self-rated health. Identifying the usefulness of walking speed, this study filled an important gap in the health measurement and health inequality literature and expands an option for policy makers and researchers accurately to depict the distribution of health in the aging population.

AuthorNames: Samantha Radford, Dalhousie University; Yukiko Asada, Dalhousie University; Melissa Andrew, Dalhousie University; Susan Kirkland, Dalhousie University

First Name: Samantha

Last Name: Radford

Organization: Dalhousie University

ID: 104

The association between depressive symptoms or depression and health outcomes in adults with low back pain: a prognostic factor systematic review and meta-analysis

Jessica Wong, Dalla Lana School of Public Health, University of Toronto

Primary Area of Focus: Ageing & Musculo-Skeletal Health (Dementia, Palliative Care, Bone & Joint Health)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Study results vary on whether depressive symptoms are associated with poorer outcomes in adults with low back pain (LBP). We conducted a systematic review to assess the association between depressive symptoms or depression and health outcomes in adults with LBP.

Methods: We searched MEDLINE, Embase, CINAHL, and PsycINFO from inception to June 2020. We included cohort and case-control studies assessing the association between depressive symptoms (questionnaires) or depression (diagnoses) and health outcomes in adults aged ≥16 years with LBP. Paired reviewers screened articles, extracted data, and assessed risk of bias using the Quality in Prognosis Studies tool. We classified exploratory versus confirmatory studies based on phases of prognostic factor investigation. We conducted random-effects meta-analyses and descriptive synthesis when appropriate.

Results or Preliminary Results: Of 13,221 citations screened, 62 studies were relevant (63,326 participants; 61 exploratory studies, 1 confirmatory study). For acute LBP, depressive symptoms were associated with self-reported disability (descriptive synthesis: 6 studies), poorer recovery (descriptive synthesis: 5 studies), and slower traffic injury-related claim closure (1 study), but not pain or return-to-work. Depressive symptoms predicted greater primary healthcare utilization for acute LBP based on one confirmatory study. For chronic LBP, depressive symptoms were associated with pain (descriptive synthesis: 9 studies; meta-analysis: 3 studies, 2902 participants, adjusted β=0.11, 95%CI 0.05-0.17), self-reported disability (descriptive synthesis: 6 studies; meta-analysis: 5 studies, 3549 participants, adjusted β=0.16, 95%CI 0.04-0.29), and poorer recovery (descriptive synthesis: 2 studies; meta-analysis: 2 studies, 13,263 participants, adjusted β=-0.09, 95%CI -0.13, -0.05), but not incident widespread pain (1 study). For adults with LBP with an index healthcare visit, depressive symptoms predicted poorer tolerability of symptom severity (1 study).

Conclusion or Next Steps: Depressive symptoms are associated with self-reported disability and poorer recovery for adults with acute and chronic LBP, and greater primary healthcare utilization for acute LBP. Findings have implications for health services delivery and future research to improve outcomes.

AuthorNames: Jessica Wong, Dalla Lana School of Public Health, University of Toronto; Pierre Côté, OntarioTech University; Catherine Y. Liang, Canadian Institute for Health Information; Jeremy A. Lewis, Dalla Lana School of Public Health, University of Toronto; Zachary Bouck, Dalla Lana School of Public Health, University of Toronto; Laura Rosella, Dalla Lana School of Public Health, University of Toronto; Andrea Tricco, Li Ka Shing Knowledge Institute of St. Michael's

Hospital, Unity Health Toronto

First Name: Jessica

Last Name: Wong

Organization: Dalla Lana School of Public Health, University of Toronto

ID: 106

Bacillus Calmette-Guerin vaccination and multiple sclerosis: a population-based birth cohort study in Quebec, Canada.

philippe corsenac, Institut national de la recherche scientifique

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The Bacillus Calmette-Guerin (BCG) vaccine could reduce the incidence of multiple sclerosis (MS) through immunomodulation. Previous epidemiological studies, each with important methodological shortcomings, reported no association. We examined this association in a large birth cohort, classifying incident MS cases into relapsing-remitting or unspecified MS (unknown clinical form of MS).

Methods: The cohort included 400,563 individuals born in Quebec between 1970 and 1974, and was linked with the Quebec BCG vaccination registry and administrative health data. Individuals were followed-up from 1983 to 2014 for the occurrence of MS. Most cohort members (70.4%) had public prescription drug insurance between 1997 and 2014 (median duration=6.9 years). Incident MS cases were those with ≥ 3 hospital or physician claims for MS. Subjects with ≥ 1 reimbursement for disease modifying therapies (DMT) were classified as having relapsing-remitting MS. Cox proportional hazards regression models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for two time periods: 1983-1996 and 1997-2014. Models were adjusted for potential confounders and effect modification due to sex was evaluated.

Results or Preliminary Results: A total of 178,335 (46%) subjects were BCG vaccinated (88% in the first year of life) and 1,707 (0.4%) incident cases of MS were identified among the 400,563 subjects. There were 274 (0.06%) incident MS cases identified in 1983-1996, and 1,433 (0.4%) in 1997-2014. Within period 1, no association was found among either relapsing-remitting (96 cases) or unspecified (178 cases) MS (combined adjusted HR= 0.95, 95% CI: 0.74-1.22). Within period 2, BCG vaccination was not associated with relapsing-remitting MS (adjusted HR=1.01, 95% CI: 0.84-1.22; 480 cases), but there was an association with unspecified MS (adjusted HR=1.32, 95% CI: 1.16-1.51; 953 cases). There was no interaction by sex.

Conclusion or Next Steps: BCG vaccination was not associated with relapsing-remitting MS. The observed excess risk of unspecified MS with BCG vaccination warrants further investigation.

AuthorNames: philippe corsenac, Institut national de la recherche scientifique; Marie-Elise Parent, Institut national de la recherche scientifique, University of Quebec; Christina Wolfson, Department of Epidemiology, Biostatistics and Occupational Health, Faculty of Medicine, McGill University, Montreal, QC, Canada; Nathalie Arbour, Centre de recherche du CHUM, Départements des Neurosciences et de Microbiologie, infectiologie et immunologie, Université de Montréal; Pierre Duquette, CHUM Research Center, University of Montreal; Andrea Benedetti, McGill University; Hugues Richard, INRS-Institut Armand-Frappier; Simona Stäger, Centre Armand-Frappier Santé

Biotechnologie, Institut National de la Recherche Scientifique (INRS), Laval, Canada; Marie-Claude Rousseau, Institut National de la Recherche Scientifique (INRS) - Institut Armand-Frappier

First Name: philippe

Last Name: corsenac

Organization: Institut national de la recherche scientifique

ID: 109
Socio-demographic and behavioural correlates of e-cigarette use among Canadian youth

Gabriella Luongo, Health Canada

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: E-cigarette use among Canadian youth has increased in recent years. Our aim was to examine the socio-demographic and behavioural correlates of e-cigarette use among Canadian youth to further understand this rapid rise in youth vaping.

Methods: Nationally representative data from the 2018-19 Canadian Student Tobacco, Alcohol and Drugs Survey (n=62,850) was analyzed. A multivariable logistic regression model was fitted to estimate the correlates of past-30-day use of nicotine e-cigarettes (NECs). The model covariates included socio-demographic variables, tobacco use, substance use behaviours, and e-cigarette access and perception of risk.

Results or Preliminary Results: In 2018/19, the prevalence of past-30-day NEC use was 17.7% (95% CI: 15.1-20.2) among Canadian youth in grades 7 to 12. Relative to never smokers, former smokers (OR: 3.83, 95%CI: 2.67-5.49), puffers (OR: 4.30, 95%CI: 3.07-6.02), experimental smokers (OR: 4.66, 95%CI: 2.13-10.18), and current smokers (OR: 4.63, 95%CI: 2.92-7.36) had significantly higher odds of NEC use. Use of alternative tobacco products in the past-30-days (OR: 3.60, 95%CI: 2.23-5.82), and heavy drinking (OR: 3.22, 95%CI: 2.18-4.74) and cannabis use at least once a week (OR: 5.30, 95%CI: 4.05-6.95) in the past-30-days increased the odds of NEC use relative to those who reported no use. Additionally, use of recreational drugs (excluding cannabis) in the past 12 months was associated with increased odds of NEC use (OR: 1.54, 95%CI: 1.24-1.92) as compared to those who reported no use. Finally, those who perceived that NEC use posed great risk (relative to no risk) had decreased odds of NEC use (OR: 0.22, 95%CI 0.13-0.37), and those who perceived that access to NECs was easy (relative to difficult) had increased odds of NEC use (OR: 5.32, 95%CI: 4.07-6.96).

Conclusion or Next Steps: Use of nicotine e-cigarettes among Canadian youth was significantly associated with use of other substances. Study findings may inform future surveillance efforts and policies to improve population health.

AuthorNames: Gabriella Luongo, Health Canada; Christine Czoli, Health Canada; Trevor Mischki, Health Canada; David Mills, Health Canada

First Name: Gabriella

Last Name: Luongo

Organization: Health Canada

ID: 112

Challenges in use of Administrative Data for estimating incidence rates of foodborne infections

Mahmood Reza Gohari, University of Waterloo

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

Secondary Area of Focus: Nutrition, Physical Activity & Obesity (Food Security, Nutritional Epidemiology, Physical Activity Interventions)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Analyses of administrative health data can generate robust evidence of burden of disease in the population through estimating epidemiological measures such as disease incidence rates. Estimating these measures, however, is challenging when their basis is administrative data. We may underestimate the person-time at risk of the incidence denominator because of (1) ignoring the fact that infected individuals can return to the at-risk population after a specific period of immunity, (2) removing certain individuals who appear in a database only sporadically (e.g., who leave a province and return), and (3) missing and nonlinked data across databases.

Methods: This study evaluates the influence of these issues on estimating incidence rates, using three-sensitivity analyses, and proposes methods to address the resulting bias. We used as an example application our "Beyond diarrhea, to disability and death: uncovering the hidden health consequences of foodborne infections" project (that employs data from BC's notifiable disease and administrative health databases) to estimate the incidence of 14 foodborne infections (FBIs) during 2005 to 2014 in BC's population.

Results or Preliminary Results: This study evaluates the influence of these issues on estimating incidence rates, using three-sensitivity analyses, and proposes methods to address the resulting bias. We used as an example application our "Beyond diarrhea, to disability and death: uncovering the hidden health consequences of foodborne infections" project (that employs data from BC's notifiable disease and administrative health databases) to estimate the incidence of 14 foodborne infections (FBIs) during 2005 to 2014 in BC's population. Results: Of the 41,233 individuals with FBIs, we could not track 1.5% in any of other databases and 6.3% had at least one year missing at-risk status during 10 years of the study. The results suggest that returning individuals to the at-risk set has a minimal effect on the overall incidence, but may result in as much as 4% overestimation in subgroups of the population. Inability to link the FBI database with other related databases can cause 2.2% (range 0.9%-4.8%) bias in FBI incidence-rate estimations.

Conclusion or Next Steps: Care must be taken to avoid bias when using administrative data for estimating disease incidence rates by performing more complex data management, screening the new cases, and handling missing data.

AuthorNames: Mahmood Reza Gohari, University of Waterloo; Marsha Taylor, BC Centre for Disease Control; Eleni Galanis, School of Population and Public Health, University of British Columbia, Vancouver, Canada; Shannon Majowicz, University of Waterloo; Dimitra Panagiotoglou, McGill University

First Name: Mahmood Reza

Last Name: Gohari

Organization: University of Waterloo

ID: 115

Mapping Three Versions of the International Classification of Diseases to Categories of Chronic Conditions

Viktoriya Vasylkiv, University of Manitoba

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Administrative health data capture diagnoses using the International Classification of Diseases (ICD), which has multiple versions over time. To facilitate longitudinal investigations using these data, we aimed to map diagnoses identified in three ICD versions – ICD-8 with adaptations (ICDA-8), ICD-9 with clinical modifications (ICD-9-CM), and ICD-10 with Canadian adaptations (ICD-10-CA) – to mutually exclusive chronic health condition categories adapted from the open source Clinical Classifications Software (CCS).

Methods: We adapted the CCS crosswalk to 3-digit ICD-9-CM codes for chronic conditions and resolved the one-to-many mappings in ICD-9-CM codes. Using this adapted CCS crosswalk as the reference and referring to existing crosswalks between ICD versions, we extended the mapping to ICDA-8 and ICD-10-CA. Each mapping step was conducted independently by two reviewers and discrepancies were resolved by consensus through deliberation and reference to prior research. We report the frequencies, agreement percentages and 95% confidence intervals (CI) from each step.

Results or Preliminary Results: We identified 354 3-digit ICD-9-CM codes for chronic conditions. Of those, 77 (22%) codes had one-to-many mappings; 36 (10%) codes were mapped to a single CCS category and 41 (12%) codes were mapped to combined CCS categories. In total, the codes were mapped to 130 adapted CCS categories with an agreement percentage of 92% (95% CI: 86%-98%). Then, 321 3-digit ICDA-8 codes were mapped to CCS categories with an agreement percentage of 92% (95% CI: 89%-95%). Finally, 3583 ICD-10-CA codes were mapped to CCS categories; 111 (3%) had a fair or poor mapping quality; these were reviewed to keep or move to another category (agreement percentage = 77% [95% CI: 69%-85%]).

Conclusion or Next Steps: We developed crosswalks for three ICD versions (ICDA-8, ICD-9-CM, and ICD-10-CA) to 130 clinically meaningful categories of chronic health conditions by adapting the CCS classification. These crosswalks will benefit chronic disease studies spanning multiple decades of administrative health data.

AuthorNames: Viktoriya Vasylkiv, University of Manitoba; Amani Hamad, University of Manitoba; Lin Yan, University of Manitoba; Ridwan Sanusi, University of Manitoba; Olawale F Ayilara, Department of Community Health Sciences, University of Manitoba; Joseph Delaney, University of Manitoba; Elizabeth Wall-Wieler, Stanford University; Mohammad Jafari Jozani, University of Manitoba; Pingzhao Hu, University of Manitoba; Shantanu Banerji, University of Manitoba; Lisa Lix, University of Manitoba

First Name: Viktoriya

Last Name: Vasylkiv

Organization: University of Manitoba

ID: 125
Mental Health Related Emergency Department Visits Among Children in Ontario: A Linked Population and Health Administrative Data Study

Jinette Comeau, King's University College at Western University

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

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

Please select which type of submission best describes your abstract: Works Proposed (in proposal stage)

Objectives: Mental disorders affect 18-22% of children in Ontario, yet few have contact with specialized mental health services. The large number of children suffering from untreated mental disorders is raising concerns that emergency departments (EDs) may be key settings where they seek crisis management and treatment. Using health administrative data documenting ED visits in Ontario linked with provincially representative survey data on children between the ages of 4-17, the objectives of this study are to (1) estimate the prevalence and correlates (clinical, behavioural, and socio-demographic) of children's mental health related ED visits, (2) identify the correlates that have the strongest prognostic prediction for a mental health related ED visit, and (3) examine the extent to which correlates of mental health related ED visits are stable over successive time frames ranging from 6 to 36 months after the child's survey date.

Methods: This study uses data from the 2014 Ontario Child Health Study (n=9,666) linked with the National Ambulatory Care Reporting System (NACRS), which documents diagnostic and procedural information from ED visits. This is one of the first Canadian studies to supplement health administrative data with a wide range of clinical (e.g. mental disorder, suicidal ideation and attempts, non-urgent mental health service contacts), behavioural (e.g. screen time, substance use, peer victimization), and socio-demographic (e.g. race/ethnicity, household income, parental education, family structure) variables to better understand the characteristics of children with mental health related ED visits that may serve as the target of preventative interventions to minimize child suffering and the related healthcare burden. Analyses are ongoing and include logic regression models assessing correlates of mental health related ED visits, separately by child age (4-11 vs. 12-17) and sex (male vs. female). Results will be available prior to CSEB 2021.

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

First Name: Jinette

Last Name: Comeau

Organization: King's University College at Western University

ID: 129
Impact of Health Links Coordinated Care Planning on Frequent Emergency Department Use

Kathryn Clark, McMaster university

Primary Area of Focus: Multimorbidity (Definitions of Multimorbidity, Complex Patients, Comorbidity)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Objectives: In Ontario, individuals who use the top 5% of hospital and home care services account for 61% of hospital and home care costs. In 2012, Ontario announced the creation of Health Links in each of its Local Health Integration Networks (LHINs) to provide coordinated care planning for individuals with high use of health care services. The objective of the present study was to explore patterns of Emergency Department (ED) utilization among individuals receiving coordinated care planning in the Hamilton Niagara Haldimand Brant (HNHB) LHIN.

Methods: Methods: This analysis focused on patients receiving coordinated care planning, who also experienced frequent use of the ED (5+ visits/year) during the 2012/13 to 2019/20 fiscal years. Information was gathered from the following databases accessed through Integrated Decision Support (IDS) to determine patient characteristics, their ED use, and whether ED use changed after care coordination enrollment: Client Health and Related Information System, National Ambulatory Care Reporting System, and Discharge Abstract Database.

Results or Preliminary Results: Preliminary Results: 4,294 adult residents met the inclusion criteria. The average age was 69 years (range: 18-101). Participants had a mean of 10 chronic conditions (range: 0-25). Over the course of eight years, there were 148,310 ED visits, averaging 35 per individual (range: 5-1,151). 4,025 individuals (94%) were hospitalized 34,063 times for a total of 302,627 days, averaging 75 days per stay (range: 1-1,117). Of all hospitalized individuals, 2,348 had an ICU stay for a total of 31,854 days, averaging 14 days (range: 1-548). 1,501 of the participants (35%) were deceased during the period of exploration.

Conclusion or Next Steps: Next Steps: This analysis is ongoing with further determination of the reasons for presentation to the ED, including the discharge diagnoses from ED and hospital. Change in frequency of use over time following care coordination is to be determined. Further analysis of death data will be undertaken.

AuthorNames: Kathryn Clark, McMaster university; Iwona Bielska, McMaster University; Kelly Cimek, HNHB LHIN; Ivy Cheng, Sunnybrook Health Sciences Centre; Lexie Zhang, Hamilton Health Sciences; Chloe Nyitray, Hamilton Health Sciences; Dale Guenter, McMaster University; Jean-Eric Tarride, Centre for Health Economics and Policy Analysis

First Name: Kathryn

Last Name: Clark

Organization: McMaster university

ID: 130

A systematic review and network meta-analysis on the effects of chemopreventive agents on the incidence of recurrent colorectal adenomas

Yibing Ruan, Alberta Health Services

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Colorectal cancer (CRC) is the third most common cancer and second leading cause of cancer-related death in Canada. Although the adoption of CRC screening in recent decades has contributed to a decreasing incidence trend, the uptake of screening remains relatively low. Additional methods of prevention are of interest to further reduce the burden of CRC, such as using chemopreventive agents (CPAs) to reduce colorectal adenomas, the precursors of CRC. Many classes of potential CPAs have been investigated. In order to identify the most effective CPAs, we conducted a systematic review and a network meta-analysis (NMA).

Methods: An electronic search was performed through August 2020 to identify all randomized controlled trials (RCTs) assessing the efficacy of any CPA on the incidence or recurrence of colorectal adenomas following an index colonoscopy and polypectomy. After applying eligibility criteria, 33 RCTs were included in the NMA, which was conducted under a Bayesian inference framework. Random effects models were used with adjustment for follow-up length and control group event rates to yield relative risks (RRs) and 95% credible intervals (CrIs). All analyses were performed using the R package 'BUGSnet'.

Results or Preliminary Results: Our network consisted of 13 interventions in addition to a placebo arm. A total of 20,925 patients and 7,766 findings of any adenoma were included. Compared to placebo, aspirin (RR 0.77, CrI 0.60-1.00) and the combination of difluoromethylornithine (DFMO) + Sulindac (RR 0.24, CrI 0.10-0.55) both demonstrated protective effects, while celecoxib 800mg had a RR of 0.56 (CrI 0.31-1.01) and metformin had a RR of 0.56 (CrI 0.22-1.39).

Conclusion or Next Steps: Our results suggest that select CPAs may be effective in preventing the development of adenomas. Further studies are needed to confirm their efficacy and the minimum effective dosages of CPAs.

AuthorNames: Yibing Ruan, Alberta Health Services; 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; Devon Boyne, University of Calgary; Robert Hilsden, University of Calgary; Brittany Mah, University of Calgary; Hannah Lyons, Queen's University; Teresa Nguyen, University of Calgary; Steven Heitman, University of Calgary; Nauzer Forbes, University of Calgary; Emily Heer, University of Calgary

First Name: Yibing

Last Name: Ruan

Organization: Alberta Health Services

ID: 133

Sociodemographic Determinants of Access to Mental Health Consult Services in Canada

Natalie Willett, Dalhousie University

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: This study aims to examine patterns of mental health service usage among Canadians based on the sociodemographic factors of income, race, and education level.

Methods: To investigate the effects of sociodemographic factors on seeking professional services for mental health care, data from the Canadian Community Health Survey (CCHS) were analyzed. The dataset was restricted to include individuals above age 18. The final sample size was 27,480. Unadjusted logistic regressions were performed, and a multivariate logistic model was constructed to examine the association between income, race, and education level with mental health service use while controlling for age, sex, and self-reported mood disorder and/or anxiety disorder. Sample weights were incorporated into the analysis.

Results or Preliminary Results: Overall 14.0% (95% CI: [13.3%, 14.7%]) of respondents reported having a mental health encounter with the healthcare system in the last 12 months. The proportion of those who received mental health consults were similar across income groups, and when examining by education level, was highest among those with a post-secondary education (15.4%). Unadjusted modelling results showed an increase in odds in those who were Caucasian (OR: 1.40 95% CI: 1.1, 1.76). Odds were also higher in those with a high level of education (OR: 1.46, 95% CI: 1.20, 1.77). ORs tended to decrease in those with higher levels of income compared to the baseline

Conclusion or Next Steps: Race and education are significant determinants of receiving care from a mental health professional, and more research is needed on the effect of income on accessing mental health services.

AuthorNames: Natalie Willett, Dalhousie University; Samuel Stewart, Dalhousie University

First Name: Natalie

Last Name: Willett

Organization: Dalhousie University

ID: 137

Descriptive analysis of patients with high use of ambulance services in Southern Ontario Emergency Departments

Karanpreet Bath, McMaster University

Primary Area of Focus: Health Informatics, Services & Systems (Health Services Research, Health Systems & Policy Studies)

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Research shows that individuals who have frequent use of the emergency department (ED) tend to have greater utilization of health care resources. A disproportionate number of frequent users arrive at the ED via ambulance and they have higher rates of leaving without being evaluated by medical staff which may contribute to repeat visits. The purpose of this study was to determine the characteristics and health care utilization patterns of patients who frequently arrive in emergency departments via ambulance.

Methods: Using data from the National Ambulatory Care Reporting System and the Discharge Abstract Database obtained from Integrated Decision Support (IDS), a descriptive analysis was performed on a population of individuals residing in the Hamilton Niagara Haldimand Brant Local Health Integration Network with five or more annual ambulance arrivals to the ED during one or more fiscal years between 2012/2013 and 2019/20. Information on patient profiles and ED utilization was analyzed and presented descriptively.

Results or Preliminary Results: Preliminary results showed that over this 8-year timeframe, there were 12,554 individuals who used ambulance services 5 or more times. The average age of the patients was 64.9 years and females were slightly overrepresented (51%). A majority of the patients (72%) had four or more chronic conditions. Among the cohort, 9,380 individuals had one year of high use of ambulance services, 1,840 individuals had two years of high use, while 34 individuals experienced high use over eight years. A large proportion of the patients received home care services (76%) and 17% were enrolled on coordinated care plans.

Conclusion or Next Steps: We will determine the reasons for presentation to the ED and discharge diagnoses from the ED and hospital to learn further about the population experiencing high use of ambulance services. The findings of this study will contribute to the body of knowledge on Canadian frequent users of ambulance services reaching the ED.

AuthorNames: Karanpreet Bath, McMaster University; Iwona Bielska, McMaster University; Kelly Cimek, HNHB LHIN; Jean-Eric Tarride, Centre for Health Economics and Policy Analysis ; Lexie Zhang, Hamilton Health Sciences; Gina Agarwal, McMaster University; Brent McLeod, HNHB Emergency Services Steering Committee; Richard Ferron, Niagara Emergency Medical Services

First Name: Karanpreet

Last Name: Bath

Organization: McMaster University

Investigating the intersection of victimization, bullying, and delinquency among Ontario youth.

Alex Luther, University of Waterloo

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

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: This project will: 1—model the effects of informant (parents and teachers) characteristics on the reporting of victimization, bullying, and delinquent behaviour of youth; 2—characterize latent classes of co-occurring victimization, bullying, and delinquency types among youth; and, 3—investigate the moderating effects of home and school factors on the associations between latent classes and mental disorders.

Methods: This project will use data from the Ontario Child Health Study and School Mental Health Survey (2014). For objective 1, structural equation modelling will be used to estimate how informant-specific characteristics influence reporting of youth victimization, bullying, and delinquency. For objective 2, latent class analysis will be conducted with a wide range of measures for victimization, bullying and delinquent behaviours to describe subgroups of youth with co-occurring behaviours and experiences. For objective 3, the influence of home and school characteristics on the relationships between the determined subgroups and mental disorders will be investigated through the use of multilevel multinomial regression models.

Results or Preliminary Results: This work is in progress, but results will identify the impact of informant differences and characteristics on how these behaviours and experiences are reported in home and school contexts; describe how experiences of victimization and participation in bullying and delinquent behaviours cluster and co-occur; and determine the effects and interactions of home and school characteristics on how these behaviours and experiences are associated with mental health.

Conclusion or Next Steps: This project is currently conducting data cleaning and preliminary analyses. The next steps include finalizing analytical strategies and developing the models to address study objectives using MPlus and SAS software, before producing results for interpretation.

AuthorNames: Alex Luther, University of Waterloo

First Name: Alex

Last Name: Luther

Organization: University of Waterloo

Use of National Ambulatory Care Reporting System (NACRS) to ascertain acute health care outcomes in Canada-wide linkage data

Michael Branion-Calles, University of British Columbia

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

Secondary Area of Focus: Healthy Cities (Health Impacts of Urban Planning, Walkability)

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: The National Ambulatory Care Reporting System (NACRS) gathers records of emergency department (ED) visits in Canadian hospitals. NACRS data can be analyzed via the Canadian Institute of Health Information (CIHI) and have been linked to a variety of administrative data holdings and secondary data cohorts, including the Canadian Census Heath and Environment Cohorts (CanCHEC). This analysis examines consistency in ED record completion across provinces and time to assess use of this linkage for national studies requiring diagnostic codes to ascertain acute health outcomes from ED records. Specific objects are to quantify for each province and year (2006-2018): (i) the number of EDs submitting to NACRS by year and province and (ii) the proportion of EDs which require the submission of diagnosis codes to NACRS by year.

Methods: We compiled NACRS CIHI metadata 2006-2018 to align with CanCHEC follow-up. For each year, we enumerated the total number of EDs that submitted visit data to NACRS by year and province. We then quantified the proportion of EDs which required submissions contain diagnosis codes. To better understand the extent of missing ED visits we compared the ratio of ED visits submitted to NACRS to the ratio of ED visits from EDs that submit financial information to the Canadian Management Information System Database.

Results or Preliminary Results: Standards for submission varied by province and year. All EDs in Ontario and Yukon Territory appear to both have captured most ED visits with sufficiently detailed diagnosis codes to enable population-based analyses of acute health outcomes between 2006-2018. Alberta data coverage is adequate from 2011 on, while British Columbia had diagnostic detail before 2009 for a small number of EDs but subsequently dropped reporting standards, precluding ascertainment.

Conclusion or Next Steps: There are distinct methodological challenges to use of NACRS data in national linked cohorts. Studies using national linked data may require regional sub-analyses or exclusion of non-reporting provinces.

AuthorNames: Michael Branion-Calles, University of British Columbia; Anne Harris, Ryerson University; Larine Sluggett, University of Northern British Columbia; Michael Tjepkema, Health Analysis Division, Statistics Canada

First Name: Michael

Last Name: Branion-Calles

Organization: University of British Columbia

ID: 153
Breast cancer prediction models encompassing a polygenic risk score for the general population: A systematic review

Cynthia Mbuya-Bienge, Université Laval

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

Please select which type of submission best describes your abstract: Works Completed or in Progress

Objectives: Breast cancer (BC) is the most common cancer among women worldwide. Several risk prediction models have been developed in the past years to better stratify women according to their risk of developing BC and inform screening and prevention recommendations. There is some evidence suggesting that incorporating single nucleotide polymorphisms (SNPs) in the form a polygenic risk score (PRS) could improve the predictive ability of these models. However, the characteristics of these models in terms of development, inclusion of predictors and validation varies considerably from a model to another which may limit their use in clinical practice. Since no review of existing BC risk models incorporating a PRS has been published, we therefore conducted a systematic review to characterize these models.

Methods: Studies were identified through Medline, EMBASE and the Cochrane library from February to June 2020. Articles were included if they described the development and/ or validation of a prognostic BC risk model using a PRS to identify high risk women in the general population and if they reported a measure of performance allowing to assess the predictive capacity of the model.

Results or Preliminary Results: We identified 15 articles accounting for a total of 24 different models. All models used SNPs published in genome wide association studies to built their PRS. Most models (75%) were developed on Caucasian population and had better predictive capacity than models developed on other ethnicities. Models combining PRS and other clinical factors had generally a better predictive performance than models using a PRS alone. The area under the curve or c-statistic range from 0.55 to 0.63 for model using a PRS alone and from 0.55 to 0.72 for model combining a PRS with other risk factors. Methodological information on handling of missing data were often limited or not mentioned.

Conclusion or Next Steps: Models combining a PRS with clinical risk factors provided the best discriminative accuracy. Further studies are needed to validate their clinical utility and their readiness to be implemented in clinical practice.

AuthorNames: Cynthia Mbuya-Bienge, Université Laval; Cornelia Kazemali, Université Laval; Nora Pashayan, Department of Applied Research, University College London; Julie Lapointe, Centre de recherche du CHU de Québec-Université Laval, Axe Oncologie; Hermann Nabi, Université Laval, Faculté de médecine, département de médecine sociale et préventive

First Name: Cynthia

Last Name: Mbuya-Bienge

Organization: Université Laval