The Impact of the COVID-19 Pandemic on Pediatric Asthma Hospitalizations: A Systematic Review and Meta-Analysis

Presented by: Reem Abdelrahim
Submission Authors: Reem Abdelrahim1, Nelson Lau1, Zhiwei Gao1, Mary Jane Smith1, Leigh Anne Newhook1
Author Affiliations: 1Memorial University

Abstract
Objectives: Asthma is a prevailing chronic inflammatory condition in children and continues to be a leading cause of pediatric morbidity in the form of hospitalizations. The COVID-19 pandemic has introduced novel impacts on our healthcare system and, therefore, how asthmatic patients can seek care. For many asthmatic children, hospital inaccessibility can yield serious ramifications related to their health and well-being. We aim to investigate pediatric asthma hospital admissions during the pandemic and compare these admissions to pre-pandemic periods. Methods: A robust search strategy was implemented in EMBASE, PubMed (MEDLINE), CINAHL, and the Cochrane Library alongside a medical librarian. Reference lists from some included studies were also analyzed to identify additional articles. We included observational studies on pediatric asthma patients aged 0 to 18, with hospital admission as our outcome. Two independent reviewers with research experience in pediatric asthma completed the title and abstract and full-text screening. Data were extracted on study and participant characteristics, outcomes, and exposure periods. Results or Preliminary Results: Of the 1038 studies identified, 876 underwent title and abstract screening after removing duplicates. We reviewed the full text of 121 articles, of which 33 are undergoing data extraction review.Conclusions or Next Steps: Quality analysis and a meta-analysis will be conducted to attain a pooled estimate of pediatric asthma admissions between the pandemic and the pre-pandemic timeline. Subgroup analysis based on the geographical region may also be done. We are also interested in investigating these admissions compared to periods where COVID-19 viral variants were dominant.

The projected health and economic impact of increased colorectal cancer screening participation among Canadians by income quintile.

Presented by: Abisola Adegbulugbe

Submission Authors: Abisola Adegbulugbe1, 2, Eliya Farah1, 2, Yibing Ruan3, Winson Cheung1, 2, 3, Darren Brenner1, 2, 3, 4

Author Affiliations: 1Department of Oncology, Cumming School of Medicine, University of Calgary, AB, Canada, 2Department of Cancer Epidemiology and Prevention Research, Alberta Health Services, Calgary, AB, Canada, 3Department of Community Health Sciences, University of Calgary, Calgary, AB, Canada, 4Forzani & MacPhail Colon Cancer Screening Centre, Alberta Health Services, Calgary, AB, Canada

Abstract

Objectives: Colorectal cancer (CRC) screening programs are beneficial for the early detection, removal of pre-cancerous lesions, and reductions in CRC-related morbidity and mortality. However, disparities in CRC screening uptake are observed across Canada's socioeconomic divides including by income. In this study, we used the OncoSim-Colorectal cancer microsimulation model to evaluate health and economic outcomes associated with increasing CRC screening participation to the national target of 60% amongst Canadians with varying income levels.Methods: OncoSim-Colorectal simulates the natural history and progression of adenomas and colorectal cancer. Baseline CRC screening participation rates were obtained from the 2017 Canadian Community Health Survey. Survey participants were categorized by total household income based on income quintile thresholds obtained from the 2016 Canadian Census. Using OncoSim-Colorectal, we simulated an increase in CRC screening uptake to 60% among the income quintiles to assess the effects on CRC incidence, mortality, and associated economic costs from 2020-2050.Results: Our analyses suggest that elevating the CRC screening participation rate to 60% across all income quintiles would prevent a total of 8,400 CRC cases and 4,800 CRC-deaths. The improvement of clinical outcomes would also translate to increased life-years and quality-adjusted life-years. The largest impact was observed in the lowest income group, with 2,700 cases and 1,500 deaths prevented over 30 years. Increased participation could lead to higher screening cost ($60 million CAD more per year), and offset by lower treatments costs ($19 million CAD less per year), averaged over 2020-2050.Conclusion/Next Steps: These projections suggest that increased screening participation rates will improve clinical outcomes across all income groups while alleviating associated treatment costs. The benefits of an increased screening participation rate will be particularly pronounced amongst individuals in the lowest income quintile.

Prevalence and factors associated with suicidal ideation, cannabis, and alcohol misuse during the COVID-19 pandemic in Saskatchewan: findings from a joint-effect modeling

Presented by: Daniel Adeyinka

Submission Authors: Daniel Adeyinka1, Nuell Novik2, Gabriela Novotna2, Mary Bartram3, Gabrys Robert4, Nazeem Muhajarine5

Author Affiliations: 1Saskatchewan Health Authority (SHA), 447-St. Andrew's College, 1121 College Drive, Saskatoon, SK S7N 0W3, 2Faculty of Social Work, University of Regina, 3737 Wascana Parkway, Regina, SK, S4S 0A2, 3Mental Health Commission of Canada, Ottawa ON, K1R 1A4, 4Canadian Centre on Substance Use and Addiction, Ottawa, ON, K1P 5E7, 5Department of Community Health and Epidemiology, College of Medicine, University of Saskatchewan, 107 Wiggins Rd, Saskatoon, SK, S7N 5E5

Abstract

Objectives: Pandemics such as COVID-19 take an enormous toll on people's lives. Often not considered top-line indicators of impact, but important, more research needs to focus on the multiple adverse mental health and behavioral issues, such as suicidal ideation and substance misuse. However, research on the interplay of suicidality and substance misuse during the pandemic has been limited. We aimed to investigate the prevalence of co-occurrence of suicide ideation, alcohol and cannabis misuse, and the factors that are associated with these co-occurrences in the province of Saskatchewan during the COVID-19 pandemic.Methods: We performed a multivariable trivariate probit regression on a sample of 666 Saskatchewan adolescents and adults (≥16 years), drawn from the cycle 10 data collection (March 2022) of the Mental Health Commission of Canada, and Canadian Centre on Substance Use and Addiction (MHCC-CCSA) dataset.Results: The prevalence of suicidal ideation was higher among respondents who reported both problematic cannabis and alcohol use (25.8%) than single users of alcohol (23.2%) and cannabis (18.7%). Younger respondents (16-34 years) and those who reported other coping behaviors that were not particularly adaptive or helpful were independent factors that were associated with the common experience of suicide ideation, problematic cannabis, and alcohol use. Having a diagnosis of mental health disorders either before or during the pandemic, and the perceived inability to bounce back after the pandemic (low resilience) are strong correlates of suicidal ideation. Those who lived alone, between 35 and 55 years of age were more likely to report problematic alcohol use. Those who reported coping strategies that were deemed more adaptive, who reported pandemic stress, and declared a LGBTQIA2S+ identity had higher probability of problematic cannabis use.Conclusion: As the pandemic evolves, improving access to suicide and substance use interventions for the vulnerable groups identified in this study may be impactful.

Temporal trends in adherence to non-pharmaceutical interventions among children and parents in the Greater Toronto Area

Presented by: Mary Aglipay

Submission Authors: Mary Aglipay1, Justin Semalhago2, Charles Keown-Stoneman3, Catherine S Birken4, Jeff Kwong1, Ashleigh Tuite1, Muhammad Mamdani5, Jonathon L Maguire6

Author Affiliations: 1Division of Epidemiology, Dalla Lana School of Public Health, University of Toronto, 2Faculty of Engineering, University of Toronto, 3Applied Health Research Centre, St. Michael's Hospital, Unity Health Toronto, 4SickKids Research Institute, 5Advanced Analytics and Data Sciences, St. Michael's Hospital, Unity Health Toronto, 6Li Ka Shing Research Centre, St. Michael's Hospital, Unity Health Toronto

Abstract

OBJECTIVES: Individual-level non-pharmaceutical interventions (NPIs) and community-level measures have played an important role in preventing COVID-19 transmission. The objectives of this study were to investigate how adherence to NPIs among parents and children in the Greater Toronto Area changed over time, and to determine if school closures and provincial lockdowns were associated with higher NPI adherence among children and parents respectively.METHODS: A longitudinal study was conducted in children aged 0-10 years and their parents through the TARGet Kids! COVID-19 Study of Children and Families in the Greater Toronto Area (April 2020 -May 2021). We conducted a descriptive analysis of adherence to 5 NPIs (staying home, limiting visitors, avoiding contact with others, social distancing and handwashing, measured as number of adherent days practicing per week). Temporal trends were assessed using LOESS and piecewise linear mixed effects models. The impact of school closures, lockdowns, and reopenings on adherence to NPIs were assessed using interrupted time series analysis.RESULTS: Among 819 included children and their parents, mean age was 5.6 years (SD=2.7) and 373 were female (45.5%). Figure 1 demonstrates adherence to all 5 NPIs over time. School closure was associated with significant increases in NPI adherence in children (average jump of 1.30 adherent days per week, 95%CI: 1.21 to 1.39) and school reopening was associated with decreases (average drop of 0.67 adherent days/week, 95%CI: 0.58 to 0.76). For parents, lockdown was associated with significant increases in NPI adherence (average jump of 0.59 adherent days/week, 95%CI: 0.52 to 0.66), and reopening was associated with significant drops (average drop of 0.40 adherent days/week, 95%CI: 0.29 to 0.51).CONCLUSION: Adherence to individual-level NPIs varied according to community-level measures in place. During this period, school closures and lockdowns were an effective way to increase individual adherence to NPIs.

Seroprevalence of SARS-CoV-2 antibodies among children in the Greater Toronto Area

Presented by: Mary Aglipay

Submission Authors: Mary Aglipay1, Miriam Woldu2, Charles Keown-Stoneman3, Catherine S Birken4, Jeff Kwong1, Ashleigh Tuite1, Muhammad Mamdani5, Jonathon L Maguire6

Author Affiliations: 1Division of Epidemiology, Dalla Lana School of Public Health, University of Toronto, 2Division of Social and Behavioural Health Sciences, Dalla Lana School of Public Health, University of Toronto, 3Applied Health Research Unity, St. Michael's Hospital, Unity Health Toronto, 4SickKids Research Institute, 5Data Science and Advanced Analytics, Unity Health Toronto, 6Li Ka Shing Knowledge Institute, St. Michael's Hospital, Unity Health Toronto

Abstract

OBJECTIVE: Characterizing the seroprevalence of SARS-CoV-2 infection in children is needed to optimize the public health response and inform decision-making for families and policymakers. The objective of this study was to quantify the seroprevalence of SARS-CoV-2 infection among children in the Greater Toronto Area.METHODS: A longitudinal cohort study was conducted in healthy children aged 0-10 years and their mothers through the TARGet Kids! COVID-19 Study in Toronto, Canada. The primary outcome was seroprevalence of SARS-COV2 antibodies, ascertained from dried blood spots collected quarterly between January 2021 and July 2022. Samples were tested using an enzyme-linked immunosorbent assay (ELISA) for antibodies (IgG) to spike, receptor binding domain and the nucleocapsid. With each sample, families answered extensive questionnaires on public health measures, sociodemographic factors, and household and living situation. Descriptive statistics were used to describe seroprevalence and sample characteristics.RESULTS: 373 children participated in this study. 50.1% were girls and mean age was 5.75 years (IQR=4.0 to 8.58), and 71.9% of children were reported to be in a form of childcare other than with parents or in school. We identified 51 seropositive children, resulting in an estimated crude seroprevalence of 13.7%. Children who tested seropositive were slightly older (mean age 7.87 years vs 5.91 years, $p<0.01$), and a slightly higher proportion of seropositive children had mothers of non-Caucasian ethnicity (12.1% of children with Caucasian mothers tested seropositive vs 20.9% of children with non-Caucasian mothers tested seropositive, $p=0.08$).CONCLUSION: Results provide a benchmark for seroprevalence of SARS-CoV-2 antibodies in the Greater Toronto Area. Ongoing monitoring of the serological status of children is important particularly in the context of new variants of concern, low vaccine coverage in children, and low PCR testing of children.

Association between depression, anxiety, and suicidal ideation during COVID-19 pandemic among Canadian adults: A moderated mediation model involving problematic substance use and migrant status

Presented by: Md Sabbir Ahmed

Submission Authors: Md Sabbir Ahmed1, Nazeem Muhajarine1

Author Affiliations: 1Saskatchewan Population Health and Evaluation Research Unit, Department of Community Health and Epidemiology, College of Medicine, University of Saskatchewan

Abstract

Objective: To identify the role of problematic current substance use (alcohol and cannabis) and migrant status, specifically modifier and/or mediator, in the relationship between poor mental health (depression and anxiety) and suicidal ideation among Canadian adults during the COVID-19 pandemic.Methods: This study comprised N= 16,797 Canadians who completed an online survey via Leger's online panel. It consisted of ten waves of data collected between Oct-2020 and Mar-2022. Pooled data from 5147 Canadian adults who used alcohol/cannabis in last month were analyzed for this study. Analysis was performed using PROCESS v4.1 package in SPSS v.26.Results: Mediation analysis showed that alcohol and cannabis use jointly mediate the association between depression and suicidal ideation [total indirect effect (IE Total= 0.0188, SE= 0.0031, 95% CI: 0.0129 to 0.0250)], and the association between anxiety and suicidal ideation (IE Total= 0.0253, SE= 0.0031, 95% CI: 0.0193 to 0.0315)—indicating that participants with higher level of depression and anxiety symptoms are more likely to have higher problematic and alcohol and cannabis use, and, in turn, participants with higher alcohol and cannabis use are more likely to report suicidal ideation since the pandemic. Migrant status significantly moderated the mediation effect of problematic alcohol and cannabis use in the relationship between depression and suicidal ideation [Index of Moderated Mediation (IMM (via alcohol use))= -0.0035, SE= 0.0018, 95% CI: -0.0076 to -0.0007, IMM (via cannabis use)= -0.0026, SE= 0.0015, 95% CI: -0.0061 to -0.0002]. Indirect effects were higher for those who were immigrant. However, this moderation effect was not significant for the relationship between anxiety and suicidal ideation.Conclusion: This study provides evidence that targeting problematic alcohol and cannabis use and supporting alternate coping strategies during a time of societal disruption may have a meaningful positive effect on mental health, including potentially reducing suicide ideation and suicides.

La relation entre la qualité de l'alimentation et la récidive chez les survivantes du cancer de l'ovaire.

Presented by: Sophia Al Rached
Submission Authors: Sophia Al Rached 1, 2, Vikki Ho2, 3, Marie-Pierre Sylvestre 2, 3, Anita Koushik2, 3
Author Affiliations: 1Centre de recherche du Centre hospitalier de l'Université de Montréal, Montréal, Québec, Canada, 2Département de médecine sociale et préventive, École de santé publique de l'Université de Montréal, Montréal, Québec, Canada , 3Centre de recherche du Centre hospitalier de l'Université de Montréal, Montréal, Québec, Canada

Abstract
Objectif : La majorité des femmes en rémission après un cancer de l'ovaire auront une récidive, diminuant considérablement leur pronostic. L'alimentation, plus facilement modifiable que les facteurs pronostics connus (âge, stade, traitement, etc.), peut jouer un rôle dans l'amélioration de la survie. Dans cette étude, la qualité de l'alimentation des survivantes du cancer l'ovaire a été évaluée en relation avec une récidive.Méthodes : Une étude de cohorte prospective a été réalisée à Montréal auprès de femmes en rémission d'un cancer de l'ovaire. Les habitudes alimentaires ont été collectées à la baseline, définie comme étant 6 mois après la fin de leur traitement, puis de nouveau 4 mois après (soit 10 mois post-traitement), à partir du « Canadian Diet History Questionnaire II », données avec lesquelles le « Canadian Healthy Eating Index - 2005 » (CHEI), un score de la qualité de l'alimentation, a été calculé. Le score CHEI varie entre 0 et 100. Plus le score est élevé plus cela reflète une alimentation saine, en adéquation avec les recommandations nutritionnelles canadiennes. Les risques instantanés (HR) et les intervalles de confiance à 95% (IC95%) ont été estimés à partir de modèles à risques proportionnels de Cox. Résultats préliminaires : Parmi les 94 participantes présentant des données alimentaires valides, 45 récidives sont survenues sur un suivi médian de 1.7 an. Le score CHEI médian est de 70 à la baseline et de 67 à 10 mois post-traitement. En examinant la qualité de l'alimentation à la baseline, le HR ajusté (IC95%) pour chaque augmentation de 10 points du score CHEI est de 0.94 (0.68-1.32).Conclusion et prochaines étapes : Ces résultats ne soutiennent pas une relation forte entre la qualité du régime alimentaire et la récidive chez les survivantes du cancer de l'ovaire. Les prochaines analyses utiliseront la qualité de l'alimentation à 10 mois post-traitement en tant que mesure d'exposition.

Preconception health risk factors in Canadian females with and without migraine

Presented by: Melina Albanese
Submission Authors: Melina Albanese1, 2, Hilary Brown1, 2
Author Affiliations: 1Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada, 2Department of Health and Society, University of Toronto Scarborough, Toronto, Ontario, Canada

Abstract
Objectives: Preconception health impacts reproductive and obstetric outcomes. Migraine is a chronic condition that disproportionately affects reproductive-aged women and is associated with obstetric complications. However, the preconception health of females with migraine has received minimal attention. We compared the preconception health of females with and without migraine. Methods: We completed a cross-sectional study using 2015-2016 Canadian Community Health Survey data for 15 to 49-year-old females, excluding those who were currently pregnant or had had a tubal ligation. Using the US Centers for Disease Control and Prevention's preconception health indicators, we compared 21 preconception health risk factors in females with migraine (n=2,625) and without migraine (n=11,856). We used multinomial logistic regression to estimate adjusted odds ratios (aOR) for 2, 3, or ≥4 risk factors versus 0 or 1, and modified Poisson regression to calculate adjusted prevalence ratios for each individual risk factor. Adjusted models controlled for demographic factors.Results: Nearly everyone had at least 1 preconception health risk factor. Females with migraine were more likely than those without migraine to have ≥4 risk factors (aOR 1.94, 95% CI 1.45-2.58), but not 3 (aOR 1.28, 95% CI 0.94-1.74) or 2 (aOR 0.97, 95% CI 0.70-1.36), versus 0 or 1. Migraine was associated specifically with less than high school education, low income status, smoking, second-hand smoke exposure, being overweight, poor/fair general health, poor/fair mental health, poor/fair community belonging, anxiety and mood disorders, asthma, cardiovascular disease/stroke, and chronic hypertension, but not with absence of a regular healthcare provider, binge drinking, illicit drug use, inadequate fruit/vegetable consumption, no folic acid supplement, inadequate physical activity, diabetes mellitus, or no flu shot receipt. Conclusion: This study reinforces the importance of targeting the preconception health of everyone of reproductive age while highlighting the need for targeted interventions for females with migraine, who have additional preconception health risk factors.

Mixture Item Response Theory Model for identifying differential item functioning in patients with epilepsy

Presented by: Olayinka Arimoro
Submission Authors: Olayinka Arimoro1, Colin Josephson1, Samuel Wiebe1, Scott Patten1, Lisa Lix2, Tolulope Sajobi1
Author Affiliations: 1University of Calgary, 2University of Manitoba

Abstract
Objective: Patient-reported outcome measures (PROMs) are widely used in epilepsy for eliciting patients' perceptions of their health status, symptoms, and/or quality of life. However, the validity of PROM scores for comparing population groups could be threatened by differential item functioning (DIF). DIF is a situation where patients interpret and respond to PROM items differently, despite having similar underlying health statuses. Conventional statistical methods have been developed to identify DIF in PROMs, but they assume that patient characteristics associated with DIF are known a priori. This study examines the presence of DIF in the responses of patients with epilepsy to the Neurological Disorders Depression Inventory for Epilepsy (NDDI-E) when relevant predictors of DIF are not known a priori.Methods: Data were from 1576 epilepsy patients seen in the outpatient clinic at Foothills Medical Center in Calgary. The mixture item-response theory (MixIRT) model was used to evaluate the presence of DIF in patients' responses to NDDI-E items. Fit statistics were examined using the Bayesian information criterion, the bootstrap likelihood ratio test, and model entropy. Multinomial regression characterized the latent classes of the best-fitting model on patients' characteristics.Results: Of the 1576 epilepsy patients who completed NDDI-E items, 806 (51.1%) were female, and 671 (42.6%) patients reported that their epilepsy was not severe. Fit statistics revealed that a three-class MixIRT was optimal for the data, with class proportions 0.33, 0.36, and 0.31. The three groups differed with respect to age, sex, global assessment of seizure-related severity and disability, driving status, and employment status.Conclusion: Patients with epilepsy differ in their interpretation of questions about depression. These different response patterns were defined by demographic and disease characteristics. Clinicians and researchers are encouraged to consider and account for patients' differential interpretations and responses to NDDI-E when screening for depression in epilepsy.

Assisted reproduction in Canada: mapping the policy landscape and assessing population-level effects

Presented by: Nichole Austin
Submission Authors: Nichole Austin1
Author Affiliations: 1Dalhousie University

Abstract
Objectives: Canadian coverage for assisted reproduction (ART) varies widely by province. As treatment costs easily exceed $10,000, coverage (or lack thereof) may impact access to care and subsequent treatment outcomes. However, this remains largely unexplored in the Canadian context due in part to a lack of comprehensive data on coverage over time. In this analysis, we present new data on shifts in provincial ART coverage; we then use these data to estimate the relationship between coverage and selected population-level outcomes. Methods: We began by compiling provincial data on ART coverage (including the extent of coverage and associated nuances) from 2000 to 2022. We merged this novel dataset with publicly-available data on fertility and births from Statistics Canada (2000-2021). We identified two population-level indicators that could plausibly be influenced by changes to ART coverage: age-specific fertility rates (ASFRs) and multiple births. We used a controlled interrupted time series (CITS) design to assess coverage-induced changes in these outcomes in Quebec. Preliminary results: As of early 2023, 7 Canadian provinces offered some form of financial coverage for ART. Quebec's implementation of full coverage was associated with a notable and robust shift in the 40-44 ASFR (RD: .37, 95% CI: .10, .64), but no change in ASFRs among younger age groups, and no change in multiple births. Restricted coverage in 2015 was not associated with any changes in ASFRs or multiples compared to the preceding period. Conclusion: Quebec's comprehensive ART coverage may have contributed to a meaningful increase in 40+ ASFRs. Notably, while declines in multiple births are commonly linked to the implementation of ART coverage, our analysis suggests that these declines may be attributable to other factors. As only a subset of the population accesses fertility treatment, individual-level data are required to better understand the effects of coverage.

Assessing the Impact of Youth Multimorbidity on the Trajectories of Psychopathology and Quality of Life of Their Sibling

Presented by: Dominique Basque
Submission Authors: Dominique Basque1, Karen A. Patte2, Scott T. Leatherdale1, Mark A. Ferro1
Author Affiliations: 1University of Waterloo, 2Brock University

Abstract
Objectives. Research suggests that youth with chronic physical illness are more vulnerable to developing mental illness compared to their healthy counterparts. An estimated 25% of youth and emerging adults with chronic physical illnesses have a mental illness, a situation known as multimorbidity, which is likely to negatively impact them throughout their lives. It has been demonstrated that multimorbidity early in life has negative impacts on families; however, research has primarily focused on the individual and parents. Calls from researchers and health providers have advocated for the inclusion of siblings in child/youth health research, as sibling relationships have important influences on development and mental health. The purpose of this study is to assess how youth multimorbidity impacts sibling mental health and quality of life. Methods. Longitudinal data were collected from 263 families of youth with physical illness over 48 months. Cross-lagged pathways and group-based trajectory modelling will be used to assess the continuity of mental illness in youth with physical illness and the mental health trajectories of their siblings (n = 172). To compare the association between mental health and quality of life in both youth with physical illness and their siblings, mixed effect models will be conducted. Finally, using latent growth modeling, the potential mediating effect of psychopathology on the association between disability and quality of life in youth with physical illness and their siblings will be assessed and compared. The study will contribute to the paucity of literature on the impact of youth multimorbidity on mental and psychosocial health of siblings. Findings will provide information on the progression of mental health to inform the allocation of services in family-centred care, improving the health of youth with physical illness and siblings.

Longitudinal physical activity behaviour among children with physical-mental multimorbidity

Presented by: Chloe Bedard
Submission Authors: Chloe Bedard1, Joyce Obeid2, Brian W Timmons2, Mark A Ferro1
Author Affiliations: 1University of Waterloo, 2McMaster University

Abstract
Objectives: Approximately 30-50% of children with a chronic physical illness experience a co-occurring mental illness, known as multimorbidity. Physical activity (PA) among children with chronic illness has been touted as a secondary disease prevention strategy; however, limited cross-sectional evidence indicates that children with multimorbidity are insufficiently active. Whether this pattern of inactivity remains consistent or is affected by the type of mental illness is unknown. Therefore, this study examined the longitudinal association between multimorbidity and PA in children.Methods: Data come from Multimorbidity in Children and Youth Across the Life Course (MY LIFE), an on-going cohort study following 263 children with a chronic physical illness 2-16 years of age (mean age at baseline: 9.8 years, SD = 3.98; 47.7% female). Mental illness was measured using the Mini International Neuropsychiatric Interview for Children and Adolescents and PA was measured using accelerometry. Moderate-to-vigorous PA (MVPA) was derived from valid accelerometer data (≥10 hours of wear on ≥3 days) obtained from 140, 95, 108, and 110 participants at baseline, 6, 12, and 24 months, respectively.Results: There were significant main effects for time (β = -6.67, p<.01), male sex (β = 6.17, p=.01), age (β = -2.05, p<.01), and ADHD (β = 9.28, p=.02), and a significant time-by-age interaction (β = -1.71, p<.01) on MVPA. No significant main effects were found for mood (β = -4.38, p>.05), anxiety (β = -1.79, p>.05) or behavioural disorders (β = -6.59, p>.05) on changes in MVPA.Conclusions: Findings demonstrate that children with a physical illness engage in less MVPA over time, with older children demonstrating larger declines in PA, and that the type of mental illness may be differentially associated with changes in PA. Interventions may consider targeting younger children to promote PA early in the illness course to prevent declines in PA during childhood and adolescence.

Rheumatoid arthritis and sarcoidosis risk in a mining industry cohort, Ontario, Canada

Presented by: Colin Berriault
Submission Authors: Colin Berriault1, Nancy Lightfoot2, Victoria Arrandale3, Paul Demers1, 3
Author Affiliations: 1Occupational Cancer Research Centre (Ontario Health), Toronto, ON, Canada, 2School of Kinesiology and Health Sciences, Laurentian University, Sudbury, ON, Canada, 3Dalla Lana School of Public Health, University of Toronto, Toronto, ON, Canada

Abstract
Objectives: Rheumatoid arthritis (RA) and sarcoidosis risks are associated with occupational exposures to crystalline silica, dusts, fumes and metal inhalation. Exposures to these hazards is routine in the mining industry. This study aims to assess the risk of RA and sarcoidosis in a cohort of Ontario mixed hard-rock miners.Methods: The Ontario Mining Master File (MMF) is comprised of work histories collected during mandatory annual medical exams (1928-1988). Linkages with provincial hospital and outpatient databases (1999-2017) were performed to ascertain RA and sarcoidosis incidence. Internal comparisons were made using Poisson regression to estimate age and birth year-adjusted incidence rate ratios (RRs) and 95% confidence intervals (CIs).Preliminary Results: In the cohort of 30,382 males there were 1,413 RA and 110 sarcoidosis cases. The mean ages at diagnosis were 65.5 years (sd=11.4) for RA and 62.9 years (sd=11.1) for sarcoidosis. There were increased risks for majority underground miners (>51% employment duration) of RA (RR=1.12, 1.00-1.25), and sarcoidosis (RR=1.34, 0.88-2.05. Risks increased with employment duration peaking at 25-29 years for RA (RR=1.40, 1.11-1.78) and sarcoidosis (RR=3.46, 1.37-8.73) compared with those employed <5 years.Next Steps: Preliminary results suggested increased risks of RA and sarcoidosis among hard-rock miners consistent with increased risks observed for coal miners and other silica-exposed occupations. Next steps include finalizing development of a job-exposure matrix (JEM) using 18,770 historical silica measurements from the Ontario Mines Exposure Database (OMED), collected by workplace inspectors and the mining industry between 1960 and 1992. This JEM would be applied it to the MMF cohort to allow investigation of the association of RA and sarcoidosis with silica exposure. Our findings may have important implications for our understanding of RA and sarcoidosis risks to metal miners and potential policy interventions in the mining industry.

Establishing Patient Priorities for Interpreting Patient-Reported Outcome Measures (PROMs) in Clinical Settings

Presented by: Muditha Bodawatte Gedara
Submission Authors: Muditha Bodawatte Gedara1, Depeng Jiang1, Sunmee Kim1, Lisa Lix1
Author Affiliations: 1University of Manitoba

Abstract
Objectives: Patient-reported outcome measures (PROMs) are appraisals from patients about their well-being and quality of life. Differential item functioning (DIF) and response shift (RS) are measurement biases associated with PROMs. DIF occurs when patients with the same health status level do not have the same interpretation of the items that comprise a PROMs instrument. RS occurs when patient's interpretations of PROMs items changes over time. Many studies have used statistical and machine learning (ML) methods to address the valid measurement of PROMs, but there is little work to translate this methodological knowledge to support PROMs use in clinical settings. Our objectives are to: (a) develop and disseminate knowledge translation materials about the measurement validity of PROMs; (b) contribute to clinically-meaningful PROMs interpretations.Methods: We will conduct semi-structured interviews with researchers, patients and members of the public. Researchers will be selected from a quality of life assessment team who engages patients and clinicians to establish clinically-meaningful PROMs, DIF, and RS interpretations and the international RS-In Sync Working Group that includes patient representatives and healthcare professionals with experience in RS analysis and interpretation. Patients and members of the public will be contacted through the Manitoba Patient-Reported Measurement Strategy Advisory Committee, which develops provincial dissemination strategies with patients' involvement. Interview data will be analyzed on pre-defined themes.Preliminary results: Expected themes and topics include: potential negative consequences of RS and DIF; strengths and limitations of ML methods to detect RS and interpret PROMs; patient understanding of ML and its applications; implications of detecting RS with ML methods; and challenges working with PROMs.Next Steps: The interpretations will guide us to develop new RS detection methods. This project will engage patients as partners in methodological research decision-making to explore a new area. It would support PROMs and ML uses in practice.

Association between human papillomavirus and prostate cancer: A systematic review and meta-analysis

Presented by: Sarah Botting-Provost
Submission Authors: Sarah Botting-Provost1, Cassandra Laurie1, Rodrigo Noorani1, Mariam El-Zein1, Eduardo L Franco1
Author Affiliations: 1Division of Cancer Epidemiology, McGill University

Abstract
Objective: Infection with human papillomavirus (HPV), the necessary cause of cervical cancer, is also associated with an increased risk of other anogenital cancers. The identification of HPV in prostate cancer specimens suggests its potential etiological role in prostate carcinogenesis. We will synthesize the epidemiological literature on the association between HPV and prostate cancer.Methods: We conducted a systematic search on March 19, 2022 of Embase, MEDLINE, Scopus and Cochrane to identify peer-reviewed, empirical studies on the association between HPV and prostate cancer. Two reviewers independently screened articles for eligibility. Data extraction is ongoing; data items extracted by each reviewer will be validated by another. A third reviewer will resolve discrepancies.Preliminary results: The search identified 1874 records, of which 876 were unique after deduplication. Following title/abstract and full-text screening, 77 articles (1990-2021) were included for data extraction. Most studies were cross-sectional (n=42, 3,709 participants: 1,903 cases and 1,737 controls); 22 were case-control and 7 nested case-control (25,694 participants: 10,899 cases and 14,995 controls), five were cohort (two registry-linked, one prospective, two retrospective) and one study was longitudinal. The age range of participants was 17-94 years. The HPV detection methods reported were HPV DNA (n=51), HPV serology (n=16), immunohistochemistry (n=2), self-report (n=6), and chart review (n=2).Next steps: We will assess study quality using the Newcastle-Ottawa scale and heterogeneity using Higgins I2. We will meta-analyze the pooled data using the appropriate model. We will visually and statistically assess publication bias using a funnel plot and Egger's test, respectively. We plan to perform subgroup analyses to assess the effects of different HPV types and different detection methods on the association between HPV and prostate cancer, and to perform a sensitivity analysis stratifying by HIV status to explore the effect of immunodeficiency. Data permitting, we will further assess study heterogeneity using meta-regression.

Assessing the scope of public knowledge of sepsis in Canada: a cross-sectional national survey and qualitative online focus groups to inform development of a national sepsis awareness campaign

Presented by: Rebecca Brundin-Mather

Submission Authors: Jeanna Parsons Leigh1, Rebecca Brundin-Mather2, Deirdre Walsh3, Marie-Maxime Bergeron3, Denise Werner3, Angie Nickel3, Ariana Parolini3, Stephana Julia Moss1, Sara Mizen1, Cynthia Sriskandarajah1, Kirsten M. Fiest2, Blair L. Bigham4, Alix JE Carter1, Alis

Author Affiliations: 1Dalhousie University, 2University of Calgary, 3Sepsis Canada, 4Stanford University, 5McMaster University

Abstract

Objectives As part of the collaborative work of a multidisciplinary national research network (Sepsis Canada), we conducted a national survey to assess public knowledge of sepsis, a life-threatening complication of the body's response to infection. Subsequent virtual focus groups explored the lived experiences and perspectives of purposive samples of sepsis survivors and family members. MethodsWe surveyed a representative sample of adults in Canada to assess three sepsis-focused domains: awareness, knowledge, and information access. Descriptive statistics summarized responses and multivariate analyses tested for demographic differences and associations. Focus groups explored four broad topics: circumstances leading to sepsis, impacts on life, interactions with healthcare providers, and raising awareness. We adopted a hybrid deductive-inductive approach to code transcripts and generate themes.Preliminary Results Sixty-one percent of 3,200 adults sampled had heard of sepsis. Awareness differed by respondent region, sex, education, and ethnicity ($p<.001$, all). Knowledge of sepsis definitions, symptoms, risk factors, and prevention were generally low (53.0%, 31.5%, 16.5%, 36.3% respectively). The strongest predictors of knowledge were previous exposure to sepsis, healthcare employment, female sex, and college/university education ($p < 0.001$, all). Post survey, we conducted 11 focus groups with 32 participants. We synthesized three main campaign foci—seriousness of sepsis, signs of sepsis, and healthcare engagement—from participants accounts of profound physical and mental impacts of sepsis and perceived failures in diagnosis and availability of sepsis information. Participants discussed potential barriers (lack of personal relevance, health messaging fatigue) and facilitators (personal stories, partnering with other health campaigns) to campaign uptake.ConclusionsSepsis requires rapid medical intervention, yet few adults sampled knew signs, risk factors, and strategies to lower risk. Our preliminary qualitative results suggest focusing on symptom recognition, personal relevance, and health advocacy, but there are several possible barriers to overcome to establish effective communications in the next phases of this work.

Cancer Incidence Projection in Alberta

Presented by: Jingyu (Vickey) Bu
Submission Authors: Jingyu (Vickey) Bu1, TruongMinh Pham1, Devan Tchir1, Bethany Kaposhi1, Lorraine Shack1
Author Affiliations: 1Alberta Health Services

Abstract
Background: Cancer projection is a crucial component of cancer surveillance. It is used to estimate the future burden of cancer, help with cancer prevention, care planning, and resource allocation.The objective of this study was to project Alberta cancer incidence to 2040 and assess how changes in risk, population aging, and growth contribute to the increasing cancer cases.Methods: The 1998-2018 cancer incidence data was extracted from the Alberta Cancer Registry. The 1998-2040 Alberta population estimates were obtained from the Alberta Health Interactive Health Data Application. The projection was conducted by applying the in-house Canproj R package.In this package, several models are available: the Nordpred model incorporating age, drift, period, and cohort effects; the Age-cohort model; the hybrid models incorporating age and period effects; and the 5-year average model. A defined decision tree is used to select the appropriate models for different cancer types. Results: Comparing to 10,633 cases diagnosed in 1998, an estimated 33,700 new cancer cases are expected in 2040 in Alberta. Out of the 216% increasing in new cases, 98% is due to population growth, 135% is due to population aging and -15% is due to changes in cancer risk. (Work in progress: the projections by sex, year of diagnosis and major cancer types will be included.)Conclusions: The projections suggest that the number of new cancer cases will continue to increase. Changes in demography (population aging and growth) contribute far more new cases than the changes in risk. The decrease due to changes in risk by 15% highlights the potential impact of preventive measures and early detection programs. Cancer projection is important to be conducted regularly. Within Alberta, the Canproj R package has been used for a long time and proved its effectiveness.

Spatiotemporal Variation in The Experience of the COVID-19 Pandemic in Canada: A Cross-Regional Comparison of Local Wave Patterns

Presented by: Ali Bukhari
Submission Authors: Ali Bukhari1, Charles Plante2, Thilina Bandara1, Cordell Neudorf1, Nazeem Muhajarine1
Author Affiliations: 1University of Saskatchewan, 2Saskatchewan Health Authority

Abstract
Objectives: Although SARS-CoV-2 transmission data at provincial and national levels suggests that communities across Canada experienced the COVID-19 pandemic differently, variation between local reporting units themselves is unclear. This study aimed to describe inter-regional variation in the timing and intensity of COVID-19 waves at the local level in Canada.Methods: Discrete waves were identified through an algorithm that used daily cases to calculate the effective reproductive number (Re) for 92 public health units in Canada between March 1st, 2020, and March 1st, 2022. The algorithm identified periods of wave acceleration (Re > 1 for seven or more days), deceleration (Re < 1 for seven or more days), and vigilance (Re neither < nor > 1 for seven or more days); a full wave was defined as the start of an acceleration till the next acceleration. Waves were then described based on the number of active cases at their peak, the average number of active cases, the standard deviation, the median number of active cases, and skewness.Results: Differences between localities were considerable, even within provinces. For example, in Nova Scotia, Northern Zone experienced 3 distinct waves beginning on 13th December, 2021, 24th January, 2022, and 23rd February, 2022, with mean active cases/100k of 255 (SD: 128), 305 (SD: 40), and 195 (SD: 19), respectively. However, during this same time period, Eastern Zone experienced one wave with a mean of 297 (SD: 168) active cases/100k. Similar heterogeneity was observed across Canada.Conclusion: Observed differences between localities in wave onset, intensity, and length may be attributed to population dynamics, adherence to preventive measures, policy timing, variant characteristics, and testing protocols. Unpacking these drivers requires working with a unit of analysis at the lowest level of public health geography with discernible differences--the local region--for facilitating comparability in future public health systems research.

Public health surveillance of changes in attitudes towards cancer risk factors during the COVID-19 pandemic: Sentiment and emotion analysis of Twitter data

Presented by: Nicolette Christodoulakis

Submission Authors: Nicolette Christodoulakis1, Wael Abdelkader1, Cynthia Lokker1, Michelle Cotterchio2, 3, Lauren E. Griffith1, Leigh M. Vanderloo4, 5, Laura N. Anderson1

Author Affiliations: 1Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada , 2Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada, 3Population Health and Value Based Health Systems, Ontario Health, Toronto, Ontario, Canada, 4ParticipACTION, Toronto, Ontario, Canada, 5School of Occupational Therapy, Western University, London, Ontario, Canada

Abstract

BackgroundPublic health restrictions during the COVID-19 pandemic may have had unintentional consequences on cancer risk factors. Our study objectives were to conduct a sentiment and emotion analysis using Twitter data to evaluate changes in attitudes towards four cancer risk factors (physical inactivity, poor nutrition, alcohol, and smoking) during the first year of the COVID-19 pandemic.MethodsTweets during 2020 relating to COVID-19 and the four cancer risk factors were extracted from the George Washington University Libraries' dataverse. We trained and tested a machine learning classifier and applied it to define tweet sentiment (positive, negative, or neutral). A natural language processing package was used to identify the emotions (anger, anticipation, disgust, fear, joy, sadness, surprise, and trust) based on the tweeted words. Sentiments and emotions related to each of the risk factors were evaluated over time and word clouds presented show emerging common key words.ResultsThe sentiment analysis revealed that 57% of tweets about physical activity were positive, 16% negative and 27% neutral (n=90,813 tweets). Similar patterns were observed for nutrition (n=50,396 tweets). For alcohol the proportion of positive, negative, and neutral tweets were 47%, 23%, and 30% (n=74,484 tweets) and for smoking the distribution was 41%, 24% and 35%, respectively (n=28,220 tweets). Results from the emotion analysis suggest that the most common emotion expressed across physical activity and nutrition tweets was trust, whereas for alcohol the most common emotion was joy and for smoking it was fear. Analysis of the word clouds revealed common themes and possible sources of bias.ConclusionDuring the first year of the pandemic, most tweets about cancer risk factors had a positive sentiment, while the emotions varied by risk factor. Future research is needed to understand how social media sentiment data can inform timely public health interventions.

Potentially Unnecessary Surgical Procedures and Preoperative testing in Canada

Presented by: Antony Christy
Submission Authors: Antony Christy1, Xi-Kuan Chen1, Lyricy Francis1, Alexey Dudevich1, Masud Hussain1, Cheryl Chui1
Author Affiliations: 1Canadian Institute for Health Information

Abstract
ObjectiveCanadian health systems are experiencing extensive backlogs in surgery due to the pandemic and shortage of health professionals. As a result, unnecessary surgical procedures and tests that are less beneficial and cause harm to the patients become an issue. This study aimed to examine the trend and jurisdictional variation in select surgical procedures in Canada, including knee arthroscopy among older adults, cesarean section in low-risk deliveries and preoperative testing for low-risk surgeries. Approach
Administrative data between 2014-2015 and 2020-2021 from the Canadian Institute for Health Information, was used for this study. The study population for each measure was different: older adults 60 and above for knee arthroscopy, low-risk deliveries for cesarean section and select low-risk surgeries in adults 18+ for preoperative testing. In addition, we included chest X-ray, stress test, echocardiogram and electrocardiogram for preoperative testing. The trend analysis and provincial comparison were performed using risk-adjusted modelling. Detailed methodology is available in the published methodology notes.ResultsKnee arthroscopy dropped by 46% between 2014 and 2019 in 60 and older. There was a provincial variation ranging from 16 per 100000 in NL to 162 per 100000 in NB. C-section rates among low-risk deliveries were stable between 2015 to 2019, with an increasing rate in some provinces. Low-risk deliveries with fetal distress had a higher C-section rate. Preoperative testing rate declined by 17% between 2015 to 2019. However, 1 in 5 patients with low-risk surgery had preoperative testing. Male and older patients were more likely to have unnecessary preoperative testing.ConclusionsLow-value surgical procedures are commonly performed despite clear evidence that they don't help with patient care. It brings an additional burden to the strained Canadian health system. While the rates are declining for some procedures, others are stable and could be lowered further to manage limited health care resources.

Potentially unnecessary C-section among low-risk deliveries

Presented by: Antony Christy
Submission Authors: Antony Christy1, Xi-Kaun Chen1, Lyricy Francis1, Alexey Dedevich1, Masud Hussain1, Cheryl Chui1
Author Affiliations: 1Canadian Institute for Health Information

Abstract
Objective: Caesarean-section (C-section) can help to avoid maternal or fetal injury or death in complicated births. However, they increase maternal death and illness when they are not warranted. The increase in C-sections among low-risk deliveries is an issue. This study examines the trend and jurisdiction variation in the rate C section among singleton-term cephalic pregnancies for low-risk nulliparous women in spontaneous labour. In addition, we analyzed the C-section rates among deliveries with prolonged labour and fetal distress. Other factors like age and the impact of covid were also examined. Method: Administrative hospitalization data between 2015-2016 and 2020-2021 from the Canadian Institute for Health Information was used for this study. All Jurisdiction was included except Quebec. The study population comprises only singleton-term cephalic delivery among low-risk nulliparous women in spontaneous labour. Trend analysis and jurisdiction comparison were performed using risk-adjusted modelling. Detailed methodology is available in the published methodology notes Results: The C-section rate among low-risk deliveries was 1 in 6 in 2019-2020. The rate remained stable between 2015-2016 to 2019-2020, despite the increase in a few Jurisdictions. British Columbia consistently had the highest rate across the years. C-section rate increased with maternal age; 23% among 35 and over compared to 16% among those aged 20-34. In addition, 40% of low-risk deliveries with prolonged labour and 32% with fetal distress had a C-section. There was a 10% increase in C-section rate during the first year of covid compared to 2019-2020, mainly due to a decrease in low-risk deliveries during COVID. Conclusion: C-sections among low-risk deliveries are linked to increased infection risk and sometimes lead to death. Evidence-based practice and continuous efforts to decrease the rate among the low-risk delivery population could reduce the overall C-section rate.

Examining the impact of inflammatory bowel disease on colorectal cancer risk in Atlantic Canada

Presented by: Livia Clarke
Submission Authors: Livia Clarke1, Derrick Lee2, Ellen Sweeney3
Author Affiliations: 1Dalhousie Medicine NB, 2Associate Professor, Mathematics & Statistics, StFX University, 3Director of Research, Atlantic PATH, Dalhousie University

Abstract
Title: Examining the impact of gut microbiome on colorectal cancer risk in Atlantic CanadaObjective: Colorectal cancer (CRC) is one of the deadliest and most commonly diagnosed cancers in Canada. Despite the indiscriminate nature of CRC, Atlantic Canada is disproportionately affected, with notably higher rates of CRC compared to the rest of Canada. CRC is a multifactorial disease that may also be influenced by chronic inflammation, including inflammatory bowel disease, a condition highly prevalent in Atlantic Canada, which increases CRC risk. This study aims to identify genes associated with IBD to determine if they can help explain the increased risk of CRC in Atlantic Canada.Methods: From a population-based case-control study, data from approximately 400 cases and 2,000 controls was collected from two regional cohorts of the Canadian Partnership for Tomorrow's Health. Preliminary analysis of data from 276 cases and 979 controls from the BC Generation Project cohort, including genotype data from 2,871 single nucleotide polymorphisms across 65 genes, were analyzed to determine their association with CRC.Preliminary Results: Twenty-one SNPS were identified to have significant associations with CRC, including genes from the MUC family, LRRK1 and LRRK2, which are known to be associated with IBD. The majority of the 21 SNPs that remained significant after adjusting for the FDR (p-adjusted < 0.001) were observed to have near perfect classification, with the majority of cases having the homozygous minor genotype while the majority of controls had the homozygous major genotype. Conclusion: This study highlights the contribution of several genes associated with IBD and their potential role in CRC. Inclusion of the data from the Atlantic PATH arm will help further elucidate the relationship between these IBD-associated genes and CRC, as well as help us better understand what factors are contributing to the high rates of CRC in Atlantic Canada.

Substance use and suicidal ideation among adults who sought mental health and addiction specialty services through a centralized intake process in Nova Scotia

Presented by: Matiwos Daba
Submission Authors: Matiwos Daba1, JianLi Wang 1
Author Affiliations: 1Department of Community Health and Epidemiology, Faculty of Medicine, Dalhousie University

Abstract
Objective: The objective of this study is to examine the association between substance use and suicide ideation among adults who sought mental health and addiction specialty services through a centralized intake process in Nova Scotia.Methods: This data is part of the Mental health and Addictions (MHA) intake system of Nova Scotia. Adults aged 19+ who were assessed by the central intake from September 2019 to December 2021 were included (n = 24,878). During the triage assessment, participants were assessed if they had suicidal ideation or not in the last two weeks. Also, participants were assessed for substance use such as alcohol, stimulants, cannabinoids, inhalants, sedatives and anxiolytics, hallucinogens, and opioids. Logistic regression was used to identify the association between substance use and suicidal ideation.Preliminary results: The prevalence of suicidal ideation among the study participants was 28.5%, while the prevalence of alcohol, marijuana, tobacco, powder cocaine, and opioid use was 44.4%, 34.2%, 38.0%, 5.5%, and 4.0% respectively. Many marijuana users reported suicidal ideation (38.6%) followed by powder (35.9%) and crack (35.5%) cocaine users. Alcohol (aOR=1.14, 95%CI=1.07, 1.21), amphetamine (aOR=3.14, 95%=1.13, 8.75), marijuana (aOR=1.50, 95%CI=1.41, 1.59), powder cocaine (aOR=1.37, 95%CI=1.20, 1.57) and crack cocaine (aOR=1.54, 95%CI=1.23, 1.72) use were associated with suicidal ideation adjusting for socio-demographic variables, mood, anxiety, psychosis, and cognitive domains.Conclusion: Substance use was the main predictor of suicidal ideation among adults who were getting services at MHA central intake. Future interventional studies are needed to reduce substance use and suicidal risk among clients of MHA central intake.

Epidemiological Trend of Viral Hepatitis C Infections in Saskatchewan's Northern First Nations Communities from 2004 to 2022

Presented by: Emmanuel Dankwah

Submission Authors: Emmanuel Dankwah1, Grace Akinjobi1, James Piad1, Jessie Depeel1, Richa Tikoo1, Nnamdi Ndubuka1, 2

Author Affiliations: 1Northern Inter-Tribal Health Authority, Prince Albert, SK, 2University of Saskatchewan Department of Community Health and Epidemiology

Abstract

Objectives: The literature does not adequately address the age- and sex-specific variations in HCV incidence among the First Nations people of northern Saskatchewan. This study used joinpoint analysis to examine the most recent trends in hepatitis C virus (HCV) incidence rates by age and gender.Methods: From 2004 to 2022, data on all HCV cases reported in First Nations populations living on reserves in northern Saskatchewan were used. Data sources included MicroStrategy and Panorama, a centralized Investigation and Outbreak Management database. Descriptive statistics and incidence rates were calculated. The average annual percent change (AAPC) and 95% Confidence Interval (CI) for HCV incidence, stratified by age and gender, were estimated using Joinpoint regression analysis.Results: An annual incidence rate of 119.9 per 100,000 people was reported for the 761 HCV cases reported during the study period. The overall incidence rate of HCV infection dropped from 2004 to 2022, a trend that was statistically insignificant (AAPC: -2.5; 95% CI: -5.3 to 0.2; p = 0.07). Nevertheless, the overall rate of HCV infection among older people (40 years and older) increased (AAPC: 5.4; 95% CI: 0.2 to 10.9; p = 0.04). Females experienced a statistically significant decline in the overall rate of HCV incidence over the course of the study (AAPC: -3.0; 95% CI: -5.7 to -0.1; p = 0.04). Further analysis revealed a statistically significant decline in both females aged 0-29 years (AAPC: -6.3; 95% CI: -9.7 to -2.8; p = 0.002) and males aged 30-39 years (AAPC: -7.5; 95% CI: -10.9 to -4.0; p <0.001).Conclusion: This study found that overall HCV infection rates have dropped, albeit there are differences based on gender and age. However, the rate among older adults as a whole is still increasing. The study's findings provide crucial baseline information that can help advance public health initiatives.

Working towards understanding: Exploring the prevalence and characteristics associated with pain-related disabilities among First Nations, Inuit, and Métis peoples in Canada.

Presented by: Astrid DeSouza

Submission Authors: Astrid DeSouza1, 2, Jennifer L. Ward3, Carol Cancelliere 1, 2, Sheilah Hogg-Johnson2, 4, Amanda Sheppard5, 6, Dorothy Taylor7, Pierre Côté 1, 2

Author Affiliations: 1Faculty of Health Sciences, Ontario Tech University, 2Institute for Disability and Rehabilitation Research, 3Natoaganeg, New Brunswick, 4Department of Research and Innovation, Canadian Memorial Chiropractic College, 5Indigenous Cancer Care Unit, Ontario Health, 6Dalla Lana School of Public Health, University of Toronto, 7Sacred Water Circle, Peterborough, Ontario

Abstract

Objective: In 2017, among Indigenous peoples in Canada, 1 in 3 First Nations living off reserve, 1 in 3 Métis, and 1 in 5 Inuit aged 15 years and older experienced disability. Among these groups, pain-related conditions were the leading cause of disability. With previous research focusing on diagnoses of painful conditions, rather than the impact of pain on functioning or participation, understanding the etiology of pain-related disability among Indigenous peoples is often complex, multifactorial and rooted within historical and socio-political contexts. Pursuing this line of inquiry requires a disability model focusing on all four dimensions of health and function (physical, mental, emotional and spiritual). Moreover, the meaning of disability and pain can vary across Indigenous communities. Limited research is available to understand the burden and impact of pain-related disabilities among Indigenous peoples, in integration with Indigenous perspectives. We aim to investigate the burden of, and characteristics associated with pain-related disabilities among Indigenous peoples in Canada.Methods: We will analyze data from the 2017 Aboriginal Peoples Survey (APS). The cross-sectional survey contains self-reported demographic, socioeconomic, health, and disability-related information from approximately 21,000 Indigenous respondents 15 years and older. Disability within the APS was measured using the Disability Screening Questions. We will compute the overall, region, age, and sex-specific prevalence (95% CI) of pain-related disabilities stratifying by First Nations, Inuit, and Métis. We will use multivariable Poisson regression with robust variance estimation to measure the association between environmental and personal characteristics, and pain-related disability, stratifying by First Nations, Inuit, and Métis, sub-stratifying by sex. Final associations will be presented as prevalence ratios.Working with an Indigenous Advisory Committee, elements of integrated knowledge translation guided the co-creation of this research and will guide the interpretation of results and dissemination activities. Collaboratively building meaningful relationships and future strategic priorities relevant to Indigenous communities.

Trajectories and predictors of depressive symptoms among parents of children with a physical illness

Presented by: Gurkiran Dhuga
Submission Authors: Gurkiran Dhuga1, Scott Leatherdale1, Jennifer Yessis1, Mark Ferro1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: Parents of children with a physical illness (e.g., asthma, diabetes, epilepsy) may experience adverse outcomes such as elevated levels of depressive symptoms. Unfortunately, prior research has been cross-sectional, excluded children under 10 years of age, and focused on specific chronic physical illnesses. In response, we delineated trajectories of depressive symptoms among parents of children with a chronic physical illness over 24 months and identified baseline factors predictive of trajectory group membership.Methods: Data are from a longitudinal study of 263 children aged 2 to 16 years and their primary caregiving parents recruited from outpatient clinics at McMaster Children's Hospital. Depressive symptoms were assessed using the Center for Epidemiological Studies Depression Scale for the primary caregiving parent. Latent class growth analysis was used to identify parental depressive symptom trajectories. A sensitivity analysis was conducted to explore if there were differences in trajectories between mothers and fathers. Baseline predictors of trajectory group membership were identified using multinomial logistic regression.Results: Three trajectory groups were identified based on level of symptomatology: low (52.4% [all parents]; 52.7% [mothers only]), subclinical (32.1%; 30.6%), and clinical (15.4%; 16.7%). The sensitivity analysis indicated that depressive symptom trajectories were similar between mothers and fathers. Significant predictors of parental depressive symptom trajectory group membership, with the low class as the reference group, were worse anxiety symptoms (OR=1.52 [subclinical], OR=1.80 [clinical]), more parenting stress (OR=1.07, OR=1.11), poorer physical health (OR=0.95, OR=0.89), and more financial dependency (OR=1.60, OR=2.26).Conclusion: Findings suggest that almost half of parents present with subclinical or clinically-relevant levels of depressive symptoms. The lack of substantive differences in trajectories suggest that depressive symptoms in parents are likely a function of being the primary caregiver, rather than biological sex. The baseline predictors may help to identify parents with an increased susceptibility for poorer mental health outcomes.

How should implementation scientists analyze multicomponent interventions? A proposed framework and application using the "integrated newborn care kit", a package of interventions aimed at reducing neonatal infection and mortality in Pakistan.

Presented by: Michelle Dimitris
Submission Authors: Michelle Dimitris1, Lisa Pell1, Shabina Ariff2, Sajid Soofi2, Zulfiqar Bhutta1, Jay Kaufman3, Shaun Morris1
Author Affiliations: 1The Hospital for Sick Children, 2Aga Khan University, 3McGill University

Abstract
Objectives: In low- and middle-income countries, interventions to improve health are often delivered as multicomponent packages. For example, the integrated newborn kit (iNCK), an intervention aimed at reducing neonatal infection and mortality and evaluated via cluster-randomized trial, included several items: a clean birth kit, chlorhexidine (an antiseptic), sunflower oil emollient, Thermospot, a reflective blanket, and heat pack delivered to participants, and a handheld scale delivered to lady health workers. Evaluation of multicomponent interventions is difficult because: (a) adherence to individual components might vary within intervention groups; and (b) analogous components might be available to control groups from other sources. For example, adherence to the clean birth kit may have differed from that of chlorhexidine among participants in the intervention group, and clean birth kits may have been available at control participants' delivery locations. Our study aims to develop a framework for analyzing multicomponent interventions with these characteristics by using the iNCK as an applied example. Methods: We drew a directed acyclic graph (DAG) to understand the pathways through which iNCK components might impact neonatal outcomes. We are currently using Sankey plots to visualize (a) variability in component usage within the intervention group; (b) variability in component usage between the intervention and control groups (for components or analogues available through external sources); (c) the extent to which variability in components' usage is correlated; and (d) the extent to which variability in components' usage is correlated with neonatal outcomes. This strategy is akin to visualizing the degree of flow (or thickness of arrows) within our DAG. We plan to quantify our observed associations using stochastic mediation, a method that can incorporate multiple mediators and their interactions. This study will address potential complications of these analyses (i.e., incorporating time-varying usage) and provide recommendations regarding data collection that best facilitates analyses of multicomponent interventions.

Trajectories of Psychopathology and Mental Health Service Use Among Youth with Physical Illness

Presented by: Megan Dol
Submission Authors: Megan Dol1, Chris Perlman1, Dillon Browne1, Mark Ferro1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: The objective of this research is to characterize psychopathology and examine its association with mental health service use in a clinical sample of Canadian youth longitudinally. Specific objectives are to (O1) examine 24-month joint trajectories of internalizing and externalizing psychopathology, (O2) model transitions across trajectory groups, and (O3) examine the association of trajectories of youth psychopathology with mental health service use and if family functioning and parent psychopathology mediate this association. Methods: Data come from a longitudinal study of 263 children and youth aged 2-16 years diagnosed with a chronic physical illness and their parents (MY LIFE). Participants were recruited from outpatient clinics at a pediatric hospital in Canada and assessed at baseline, 6, 12, and 24 months. Latent class growth analysis will be used to identify trajectories of psychopathology and predictors of group membership (O1). Latent transition analysis will be used to determine if youth change membership in trajectory groups over time (O2). Associations between trajectory groups and mental health service use indicators will be assessed using generalized linear mixed models (O3). Mediation analyses within a structural equation framework will be used to determine if family factors mediate the association between trajectory groups and service use (O3). Contributions: This research will contribute to the longitudinal evidence on psychopathology and mental health service use and provide novel information on the clinical course of psychopathology that will inform opportunities for preventative intervention. Specifically, findings will have implications for the integration of physical and mental health services to reduce the incidence of mental disorders and promote positive mental health for youth. Finally, exploring mediating factors will identify modifiable targets for intervention within the context of family-centred approaches to care to reduce the impact and severity of psychopathology and, ultimately, improve the health of youth with chronic physical illness.

Trajectories of psychopathology among youth with a physical illness

Presented by: Megan Dol
Submission Authors: Megan Dol1, Dillon Browne1, Chris Perlman1, Mark Ferro1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: The objectives of this study were to characterize 24-month trajectories of psychopathology and identify youth, parent, family, and neighbourhood characteristics associated with each identified trajectory in a clinical sample of Canadian youth with physical illness.Methods: Data come from a longitudinal study of 263 children and youth aged 2-16 years diagnosed with a chronic physical illness and their parents. Participants were recruited from outpatient clinics at a pediatric hospital in Ontario and assessed at baseline, 6, 12, and 24 months. Parents reported on youth psychopathology over the follow-up using the Ontario Child Health Study-Emotional Behavioural Scales (OCHS-EBS). Latent class growth analysis was used to identify trajectories of psychopathology. Baseline predictors of trajectory group membership were investigated using multinomial logistic regression.Results: Three distinct psychopathology trajectories best fit the data; the model had a BIC of -3579.70 and average posterior probabilities of 0.97. The trajectories were classified as, low-stable (LS; 58% of the sample), moderate-stable (MS; 34%), and high-decreasing (HD; 8%). Youth who were older (HD: OR= 1.36), had higher levels of disability (HD: OR= 1.31 and MS: OR= 1.15), had parents with greater psychological distress (HD: OR= 1.11 and MS: OR= 1.04), and came from households with higher incomes (HD: OR= 4.38) were associated with worse psychopathology trajectories (i.e., in the high-decreasing or moderate-stable trajectories).Conclusion: Parent-reported youth psychopathology was generally low over 24 months, though over one-third had symptoms that reflected borderline clinical psychopathology. The findings regarding risk factors for group membership could help to identify youth at increased risk for less favourable trajectories over time. These findings demonstrate the clinical importance of identifying youth that are at risk of higher levels of psychopathology to improve mental health of youth with a chronic physical illness.

Assessing Differential Item Functioning of the 36-item Short Form Health Survey (SF-36) in individuals with immune-mediated inflammatory diseases.

Presented by: Razieh Dorostimotlagh
Submission Authors: Razieh Dorostimotlagh1, Lisa Lix2
Author Affiliations: 1Ph.D student at University of Manitoba, 2Professor at the University of Manitoba

Abstract
Objectives: Patient-reported outcome measures (PROMs) such as the SF-36 provide information about health-related outcomes quality of life (HRQoL) for clinical practice and outcomes research. The validity of PROMs in chronic disease populations is important to assess prior to their use. Differential item functioning (DIF) occurs when patients with the same health status respond differently to the items that comprise PROMs instruments. This study aimed to test for DIF on the SF-36 amongst patients with immune-mediated inflammatory chronic diseases (IMID).Methods: The SF-36 is a general-purpose HRQoL measure; the 36 items are categorized into eight domains. DIF for each item associated with a domain was examined using ordinal logistic regression (OLR) models to test for differences in item response probabilities for demographic variables (i.e., age group, sex), after controlling for domain scores. OLR coefficients estimated the magnitude of DIF effects and statistical significance was evaluated using a likelihood ratio test. Models were stratified by IMID type: multiple sclerosis (MS), inflammatory bowel disease (IBD), and rheumatoid arthritis (RA).Results: The study cohort included 656 adults with diagnosed IMID (38.9% MS, 37.6% IBD, 23.5% RA) in Manitoba, 75.2% were female, and 47.4% were 45 to 64 years. DIF effects were detected in items from the domains of vitality, physical functioning, general physical health, and role limitations due to emotional and physical health. The largest DIF effects were for young (i.e., <45 years) MS patients on vitality domain items. DIF effects were most common for IBD patients; 17 of 36 items were flagged as exhibiting differences in item response probabilities by age or sex.Conclusion: Responses to the items comprising several domains of the SF-36 were differentially sensitive to demographic characteristics of IMID patients, suggesting domain scores may not be comparable across these chronic disease populations.

A Comparison of Deep-Learning Models versus Clinical Judgment for Emergency Visit Prediction in Children and Youth Seeking Outpatient Mental Health Services

Presented by: Laura Duncan

Submission Authors: Ahmad Mauluddin1, Sajjad Rashidiani2, Hirad Daneshvar3, Thomas Doyle2, Reza Samavi3, Paulo Pires2, Roberto Sassi4, Laura Duncan2

Author Affiliations: 1Hamilton Health Sciences, 2McMaster University, 3Toronto Metropolitan University, 4University of British Columbia

Abstract

Objectives: To compare the accuracy and predictive features of a deep-learning model versus clinical judgement prediction of the probability of a child/youth having an emergency department visit 6 months after intake. In mental health outpatient services, young people and their families complete intake assessments to help identify the child/youth's mental health-related needs and the reasons why the child/youth or family is seeking services. Machine learning methods offer a new way to use assessment data to identify individuals at increased risk for negative outcomes. Use of these methods in child and youth mental health services is relatively new.Methods: We used: 1) youth- and parent/caregiver-reported clinical questionnaires and emotional and behavioural symptom scales administered at intake to the outpatient Child and Youth Mental Health Program at McMaster Children's Hospital since 2019; and 2) administrative health data from 2002 to 2021 and developed a predictive model using deep-learning methods. We are now asking clinicians to make the same prediction using the same information features so we can compare the accuracy of clinician versus model predictions.Preliminary Results: Our deep-learning model was able to predict the risk of emergency department visits within 6 months after outpatient intake, with an Area Under the Receiver Operating Curve (ROC AUC) of 0.77.Next Steps: Ten clinicians from our program are rating 10 patients (each clinician will make 10 predictions) on whether they will visit the emergency department in the next 6 months using the same clinical information as the deep-learning model. The findings of this study will help us compare the accuracy of approaches, contrast predictive features between clinical judgement and deep-learning methodologies, and understand the potential utility of our risk prediction algorithms. Early prediction of emergency visits using an AI-assisted decision-making tool could be helpful in clinical decision-making and treatment planning.

Predicting Child/Youth Mental Health Service Utilization Using Deep Learning Models

Presented by: Laura Duncan

Submission Authors: Hirad Daneshvar1, Sajjad Rashidiani2, Reza Samavi1, Thomas Doyle2, Ahmad Mauluddin3, Roberto Sassi4, Paulo Pires2, Laura Duncan2

Author Affiliations: 1Toronto Metropolitan University, 2McMaster University, 3Hamilton Health Sciences, 4University of British Columbia

Abstract

Objectives: To develop and evaluate the effectiveness of deep learning models to predict the probability of a child/youth having an emergency department visit 6 months after intake to mental health outpatient services. Young people and their families complete intake assessments to help identify the child/youth's mental health-related needs. Machine learning methods offer a new way to use assessment data to predict adverse outcomes. While use of these methods in other medical disciplines is increasingly common, their use in child and youth mental health services is relatively new.Methods: We used: 1) youth- and parent/caregiver-reported clinical questionnaires and emotional and behavioural symptom scales administered at intake to the outpatient Child and Youth Mental Health Program at McMaster Children's Hospital since 2019; and 2) administrative health data from 2002 to 2021 about the child/youth's service utilization (outpatient, inpatient and emergency department visits) to develop predictive models using deep-learning methods.Results: We show the effectiveness of deep learning models applied to self-completed questionnaire data and administrative health data in predicting future emergency department visits. We developed three models: 1) using a pre-trained BERT model to extract information from questionnaire and symptom scales to predict emergency department visits within 6 months, achieving an Area Under the Receiver Operating Curve (ROC AUC) of 0.77, 2) a Graph Neural Network (GNN) that uses patient graphs extracted from the administrative health data to predict 30-day readmission with F1-measure of 0.65, and 3) another GNN model that uses self-completed questionnaire data to predict emergency department visits within 6 months achieving ROC AUC of 0.78.Conclusion: Early prediction of emergency visits using an AI-assisted decision-making tool could be helpful in clinical decision-making and treatment planning. Although preliminary, these risk predictive models demonstrate potential clinical usefulness, and may eventually help inform clinical decisions to prevent negative outcomes.

Co-designing usability features of a prototype Child and Youth Mental Health Information system: Establishing a population health approach to improving child/youth mental health

Presented by: Laura Duncan
Submission Authors: Laura Duncan1, Jennifer Mulé1, Ellen Lipman1, Katholiki Georgiades1, Michael Boyle1
Author Affiliations: 1McMaster University

Abstract
Objectives: There is currently a lack of systematic approaches to the collection and use of child/youth mental health data to plan and evaluate the service response in Ontario. To overcome this, we have developed a prototype Child and Youth Mental Health Information system in Hamilton, Ontario. Aligned with person-centred priorities and community-based participatory research approaches, our objectives were to co-develop, with youth, families and service providers, methods for using data that is collected by the Information system, namely: 1) a service provider data dashboard; and 2) a youth and family-facing summary report.Methods: Using co-design methods with a variety of elicitation techniques and qualitative thematic analysis, priorities for system specifications were identified. Data dashboard co-design included service providers and system planners from three partnering service organizations in Hamilton, Ontario, researchers and a representative from a partnering software company. Summary report co-design included youth, family members, service providers, researchers and a software company representative.Preliminary Results: Dashboard co-design activities identified: 1) general design principles; 2) content; and 3) feel and function. The design should be dynamic, customizable/flexible, and exportable. Content should be organized by service pathway/client journey with the possibility to filter, slice and dice within categories. Functions should include slicing/dicing with the ability to create side-by-side static comparisons, layouts tailored to audience, and ability to generate data interpretation/intelligence from reports. The youth/family facing summary report co-design takes place February 25th. Results from this event will be available for the CSEB conference.Next steps: The next steps will be to implement these features into our existing prototype system. Through a mixed methods evaluation of the Child and Youth Mental Health Information System in Hamilton, Ontario, we will evaluate whether the added components of the system are able to meet the identified needs by increasing the meaningfulness and usefulness of data collected.

Trajectoires des perturbations psychologiques et sociales chez des enfants et des adolescents vivant à Montréal au cours de la pandémie COVID-19.

Presented by: Florence Dupont
Submission Authors: Florence Dupont1, Britt McKinnon2, Laura Pierce2, Adrien Saucier2, Kate Zinszer1, 2
Author Affiliations: 1Université de Montréal, Montréal, Québec, Canada, 2Centre de recherche en santé publique, Montréal, Québec, Canada

Abstract
ObjectifsModéliser les trajectoires des perturbations psychologiques et sociales d'une cohorte d'enfants et d'adolescents montréalais au cours de la pandémie de COVID-19. Identifier quels sont les facteurs de risque et les facteurs de protection des différentes trajectoires des perturbations psychologiques et sociales dans cette cohorte durant la pandémie.MéthodologieL'étude EnCORE est une cohorte d'enfants et d'adolescents de 2 à 18 ans ayant comme issue principale la séroprévalence. L'étude a également collecté les résultats de questionnaires comprenant des informations sur les habitudes de vie et la santé mentale des jeunes au moyen du supplément d'impact du Strengths and Difficulties Questionnaire (SDQ).En utilisant les données collectées au cours des 4 vagues de collecte de données qui ont eu lieu d'octobre 2020 à octobre 2022, la prévalence des perturbations psychologiques et sociales sera mesurée à chaque vague de collecte de données. La méthode des modèles de croissance mixte (Growth Mixture Model) sera utilisée afin de modéliser les différentes trajectoires des perturbations psychologiques et sociales observées dans la cohorte EnCORE. Les prédicteurs des trajectoires seront identifiés au moyen de modèles de régression logistique multinomiale.

Examining the relationship and trajectories of parent and child mental illness in children with chronic physical illness

Presented by: Melissa Elgie
Submission Authors: Melissa Elgie1, Jennifer Yessis1, Dillon Browne1, Mark Ferro1
Author Affiliations: 1University of Waterloo

Abstract
The cooccurrence of mental and physical illness, or multimorbidity, is common during childhood and is often associated with significant mental and physical health impairments. Research suggests that the mental health of family members is interrelated, particularly, parental mental illness is thought to have significant implications for their child's mental health. However, little research has explored the intergenerational relationship between parent and child mental illness in children with chronic physical illness, or the mechanisms through which this transgenerational relationship functions.This proposed research will assess the 48-month trajectories of parental anxiety and the presence of multimorbidity, and their association. Important predictors of these trajectories, such as sociodemographic, and mental health features, will be examined. Further, the potential mechanisms of parent stress and family functioning will be explored in the context of this relationship. Data for this work come from a longitudinal study of 263 children with chronic physical illness aged 2 to 16 years and their parents/guardians. Survival analysis and latent class growth analysis will be used to explore predictors of child multimorbidity and trajectories of parent anxiety, respectively. Structural equation modelling will examine the roles of parent stress and family functioning in the relationship between parent anxiety and child mental illness.This research will advance the understanding of the relationship between parent and child mental illness and highlight the importance of considering mental health in the family context. Understanding the intergenerational impact of mental illness will inform opportunities to develop and implement family-centered and evidence-based services, in turn improving the well-being of these children and their families.

The Association between Social Isolation, Functional Social Support, and Memory in Middle-Aged and Older Adults: A Moderated Mediation Analysis of the Canadian Longitudinal Study on Aging

Presented by: Nicole Endresz
Submission Authors: Nicole Endresz1, Colleen Maxwell1, Suzanne Tyas1, Mark Oremus1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: Social support is a widely investigated modifiable factor that may promote memory function and successful aging. However, the impact of objective social isolation and subjective functional social support on memory is less understood. Using data from the Canadian Longitudinal Study on Aging (CLSA) tracking cohort, this project will 1) examine the association between baseline social isolation and changes in memory from baseline to the first (three-year) follow-up period; 2) examine the above association after adjusting for relevant baseline covariates, including sociodemographic factors, health comorbidities, and lifestyle variables; and 3) assess whether functional social support moderates or mediates the above association.Methods: At baseline, the CLSA Tracking Cohort recruited 21,241 individuals between the ages of 45 and 85 years from across the 10 provinces. The collected data include a derived variable for social isolation and a standardized instrument for self-reported functional social support. The data also include raw scores from a modified version of the Rey Auditory Visual Learning Test, which was used to assess immediate (RAVLT I) and delayed (RAVLT II) recall memory. To explore the first objective, separate regression analyses for RAVLT I and RAVLT II will be performed by transforming raw scores into z-scores and regressing changes in z-score (follow-up - baseline) onto baseline z-score and social isolation to yield base models. To explore the second objective, relevant covariates will be added sequentially to each base model. Lastly, Hayes's conditional process analysis will be employed to assess moderated mediation.

Do unemployment rates impact workers compensation claims? Analysis of 10 years of WCB data

Presented by: Samuel Kwaku Essien

Submission Authors: Samuel Kwaku Essien1, Cindy Feng2, Catherine Trask3

Author Affiliations: 1Department of Health Sciences, Faculty of Health and Behavioural Sciences; and Enhancing Prevention of Injury and Disability@ Work Research Institute, Lakehead University, Thunder Bay, Ontario, Canada, 2Department of Community Health and Epidemiology, Faculty of Medicine, Dalhousie University, Halifax, Nova Scotia, Canada, 3Division of Ergonomics, School of Engineering Sciences in Chemistry, Biotechnology and Health, KTH Royal Institute of Technology, Stockholm, Sweden (2) Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Abstract

ObjectivesThere is conflicting evidence that unemployment impacts workplace safety. So-called 'pro-cyclic' patterns link elevated employment to increased injury rates; converse, 'counter-cyclic' links it with reduced injury rates. Prior study of work-related fatalities in Saskatchewan was counter-cyclic; this study investigated traumatic work-related non-fatal injury (WRNFI) claims in Saskatchewan and their association with the unemployment rate over the past decade.MethodsSaskatchewan's retrospective linked workplace claims data were grouped by year, season, and worker characteristics (e.g., industry); total employment, total labor force, and the number of unemployed workers from Statistics Canada Labour Force Survey (LFS) were grouped by year and season. WRNFI rates were calculated as non-fatal injury cases per total employed workers. A negative binomial generalized additive model examined the association between unemployment rates and WRNFI, adjusting for other factors (age, sex and industry).ResultsThe WRNFI rate has been on a declining trend since 2007. On average, workers aged 20-29 years had the highest WRNFI rate (541.6±84.8/100,000). The risk of WRNFI is 3.2 times higher in men than in women (RR=3.2, 95% confidence interval (CI) 3.17-3.22). The construction industry had the highest WRNFI rate (61.0 ± 9.7/100,000), but compared with the business industry, WRNFI risk did not differ between construction (RR=1.67, 95% Cl 1.63-1.72) and manufacturing (RR=1.68, 95% Cl 1.63-1.73) industries. The risk of WRNFI decreased non-linearly with an increasing unemployment rate, indicating a pro-cyclic pattern.ConclusionAnalysis of the same dataset over the same time frame shows a non-linear pro-cyclic relationship between unemployment rates and WRNFI but a counter-cyclic relationship with fatalities. We hypothesize this arises from under-reporting of injury claims. Low employment opportunities may reduce injury reporting through mechanisms that do not impact fatality reporting. This suggests a need to increase prevention strategies and reduce disincentives for under-reporting during an economic downturn.

Usefulness of mental health trials during COVID-19: evidence from an ongoing living systematic review

Presented by: Suiqiong Fan

Submission Authors: Suiqiong Fan1, Kexin Li1, Letong Li1, Amina Tasleem1, Xiaowen Jiang1, Palak Desai1, Yin Wu1, Brett D. Thombs1, 2, 3, 4, 5, 6

Author Affiliations: 1Lady Davis Institute for Medical Research, Jewish General Hospital, Montreal, QC, Canada, 2Department of Psychiatry, McGill University, Montreal, Quebec, Canada, 3Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Quebec, Canada, 4Department of Medicine, McGill University, Montreal, Quebec, Canada, 5Department of Psychology, McGill University, Montreal, Quebec, Canada, 6Biomedical Ethics Unit, McGill University, Montreal, Quebec, Canada

Abstract

Background and Objectives: The COVID-19 pandemic has underlined the need for effective and scalable mental health interventions among the general population and vulnerable groups. However, concerns have been raised about substantial waste due to poorly targeted trials of poor quality and few practice-informing trials. Using data from an ongoing living systematic review, we assessed COVID-19-related mental health trials regarding how well they focused on research questions of need, methodological rigour, and adequate intervention reporting.Methods: We searched 9 databases up to October 3, 2022. We extracted information on research questions and sample sizes. We applied the Cochrane Risk of Bias tool. We assessed reporting of the intervention delivery components using the Template for Intervention Description and Replication checklist. We emailed authors of the included RCTs to verify their trial conduct and reported results.Results: We included 296 RCTs with a median of 86 participants randomized (IQR: 60-132). 80 (27%) focused on COVID-19 patients, 39 (13%) on medical staff, 36 (12%) on the general population. Only 27 (9%) had low risk of bias ratings in ≥ 5 of 7 risk of bias domains. Most of the studies had high risk of bias ratings in blinding of participants and personnel (N = 250, 84%) and blinding of outcome assessments (N = 243, 82%). Only 46 (16%) trials were registered prior to conducting the trial. Few studies reported intervention information in a way allowing reproducibility. Only 46 (16%) of the study authors were able to verify the conduct of the trials and the published results; in many cases, reported effect sizes were implausible.Conclusions: Most mental health trials during COVID-19 did not test interventions that would inform service delivery broadly, and their usefulness was limited by small sample sizes, suboptimal quality, and insufficient reporting. Better coordination between mental health trials and service delivery needs is needed.

Passive smoking in infancy and risk for inflammatory bowel disease : mediation analyses

Presented by: Canisius Fantodji

Submission Authors: Canisius Fantodji1, Prévost Jantchou2, Marie-Claude Rousseau3

Author Affiliations: 11. Epidemiology and Biostatistics Unit, Centre Armand-Frappier Santé Biotechnologie, Institut national de la recherche scientifique (INRS), Université du Québec, Laval, Qc, Canada; 2. Research Centre, CHU Sainte-Justine, Montréal, Qc, Canada, 22. Research Centre, CHU Sainte-Justine, Montréal, Qc, Canada; 3. Department of Pediatric Gastroenterology, Hepatology, and Nutrition, CHU Sainte-Justine, Montréal, Qc, Canada, 31. Epidemiology and Biostatistics Unit, Centre Armand-Frappier Santé Biotechnologie, Institut national de la recherche scientifique (INRS), Université du Québec, Laval, Qc, Canada; 4. School of Public Health, Université de Montréal, Montréal, Qc, Canada

Abstract

Objective: Active smoking is associated with inflammatory bowel disease, but few studies to date have addressed passive smoking. The aim of our study was to estimate the associations of passive smoking in early childhood with ulcerative colitis and Crohn's disease and, if associated, whether active smoking in adolescence or adulthood was a mediator.Methods: This case-control study nested within the Quebec Birth Cohort on Immunity and Health (QBCIH) included subjects born in Quebec in 1970-1974. Cases and controls were identified with validated algorithms using administrative health data (1983-2014). A total of 946 controls, 570 cases of ulcerative colitis and 1212 cases of Crohn's disease participated. Passive smoking in infancy (from birth until 3 years of age), smoking over the life course, and confounding factors were collected by telephone or web questionnaires. Logistic regression models were used to estimate adjusted odds ratios (OR) and 95% confidence intervals (CI), separately for ulcerative colitis and Crohn's disease. Causal mediation analyses were performed to estimate the direct effect of passive smoking and the indirect effect mediated by active smoking later in life.Results:A total of 70% of controls were passive smokers compared with 68% for ulcerative colitis cases and 74% for Crohn's disease. Adjusting for sociodemographic characteristics, no association was found between passive smoking and ulcerative colitis (OR=0.92; 95% CI: 0.73-1.26). Passive smoking was associated with higher odds of Crohn's disease (OR=1.23; 95% CI: 1.02-1.50), especially Crohn's disease diagnosed in adulthood (OR=1.27; 95% CI: 1.04-1.55). This association was entirely mediated by participants' active smoking (Total effect=0.06; 95% CI: 0.005-0.11; Average causal mediation effect=0.06; 95% CI: 0.03-0.09).Conclusion: Passive smoking was not associated with ulcerative colitis. The mediation by active smoking of the association between early life passive smoking and Crohn's disease may reflect an intergenerational transmission of health-related behaviors.

Red meat consumption and risk of colorectal adenomas in a population undergoing screening-related colonoscopy in Alberta

Presented by: Eliya Farah

Submission Authors: Eliya Farah1, 2, Yibing Ruan1, 3, Dylan O'Sullivan1, 2, 3, 4, Winson Y. Cheung1, 2, 3, Robert J Hilsden3, 4, 5, Darren R Brenner1, 2, 3, 4

Author Affiliations: 1Department of Cancer Epidemiology and Prevention Research, Alberta Health Services, Calgary, AB, Canada, 2Department of Oncology, University of Calgary, Calgary, AB T2N 4N1, Canada, 3Department of Community Health Sciences, University of Calgary, Calgary, AB, Canada, 4Forzani & MacPhail Colon Cancer Screening Centre, Alberta Health Services, Calgary, AB, Canada, 5Department of Medicine, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

Abstract

Objectives: The Burden of Proof analyses from the Global Burden of Disease Group have called into question whether unprocessed red meat consumption impacts of colorectal cancer (CRC) risk. In this study, we examined the association different types of red meat intake (processed and unprocessed) and the risk of precancerous colorectal lesions (advanced adenomas (AA)) at the time of initial screening colonoscopy. Methods: Patients who underwent screening-related colonoscopy between 2008-2020 and completed a Diet History Questionnaire were included from the biorepository at the Forzani & MacPhail Colon Cancer Screening Centre in Calgary between The associations between quartiles of red meat consumption and AA and red meat consumption were examined using multivariable logistic regression models adjusted forage, sex, body mass index, ethnicity, smoking, alcohol, physical activity, diabetes, as well as total calories, sugar, fat, and protein intake. Results: 1440 individuals were included in the study, of which 325 (16.3%) had at least one advanced adenoma. The average age at enrollment was 59 and 36.8% of the study sample were women. We observed no significant statistical association between advanced adenomas and the consumption of unprocessed meat [Q4: unadjusted OR: 1.18, 95% CI: 0.79-1.78; adjusted OR: 1.49, 95% CI: 0.68-3.35]. In contrast processed meat was statistically associated with the prevalence of advanced adenomas in unadjusted models [Q4: unadjusted OR: 1.60, 95% CI: 1.06-2.42]. After adjusting for potential confounders, the associations and point estimates were attenuated [adjusted OR: 1.41, 95% CI: 0.60-3.36].Conclusion/Next Steps: In this sample of patients undergoing screening-related colonoscopy, unprocessed red meat did not appear to meaningfully impact the risk of advanced adenomas. While additional analyses are planned, our preliminary results are in alignment with emerging research that the type and preparation of red meat intake may be more relevant for risk of CRC.

Development and Evaluation of a Patient and Family Advisory Council for Cancer Research

Presented by: Christie Farrer
Submission Authors: Christie Farrer1, 2, Winson Cheung1, 2, Darren Brenner1, 2, Colleen Cuthbert1, 2
Author Affiliations: 1University of Calgary, 2Oncology Outcomes

Abstract
Objectives: Recognizing the importance of patient engagement in research initiatives, our team established a dedicated patient and family advisory council (PFAC) in 2021. The council's goal is to improve outcomes and experiences in the cancer care system through patient and family input on research and quality improvement initiatives. Council members provide input through all stages of research and remain involved in program activities through regular communications. Following completion of the first year of PFAC engagement, we conducted an evaluation using a self-report online survey.Methods: The council was developed in consultation with the Alberta Strategy for Patient-Oriented Research team, and recruitment focused on balanced representation of tumor sites, age, race, sex, and location (rural vs. urban). Impact and influence of the engagement initiative were measured at the end of year one via an anonymous online survey comprised of 18 questions based on The Public and Patient Engagement Evaluation Tool1, focusing on communication and supports for participation, sharing views and perspectives, and overall satisfaction.Results: The response rate for the survey was 50% with all respondents agreeing or strongly agreeing that the PFAC achieved its objectives, that they are satisfied with the initiative, that PFAC individuals represent a broad range of perspectives, and are confident the input provided through this initiative will be used to inform research and be clinically impactful. Strengths of the PFAC include member input being highly valued and the two-way exchange of knowledge, with increased communication between meetings as an area for improvement.Next Steps: Recognizing the importance of including the patient voice of marginalized and vulnerable populations, our team continues to explore strategies to improve the recruitment of council members who can offer this diverse perspective. Continued engagement with the PFAC to further refine research impact will remain a priority through regular communications and council meetings.

Comparing the impact of COVID-19 on cancer diagnoses in Manitoba using a descriptive and model-based approach

Presented by: Allison Feely

Submission Authors: Allison Feely1, Oliver Bucher1, Katie Galloway1, 2, Pascal Lambert1, 3, Kathleen Decker1, 2, 3

Author Affiliations: 1Department of Epidemiology and Cancer Registry, CancerCare Manitoba, 2Department of Community Health Sciences, University of Manitoba, 3CancerCare Manitoba Research Institute

Abstract

Objectives: To measure and compare the impact of the COVID-19 pandemic on the number of cancer diagnoses in Manitoba, Canada using a descriptive pre-post design and a model-based interrupted time series (ITS) design.Methods: Cancer diagnoses from the Manitoba Cancer Registry between January 2015 and December 2021 were included. Analyses were conducted for all cancers combined, and separately for breast, lung, colorectal, and prostate. For the pre-post design, the impact of COVID-19 was measured by calculating the percent difference between the 5-year (2015-2019) average number of diagnoses and the number of diagnoses in 2020. The ITS design used linear regression models with a binary intervention term to compare the monthly diagnoses prior to COVID-19 (January 2015-February 2020) and after the start of COVID-19 (April 2020-December 2021). March 2020 was excluded because pandemic-related policies were implemented throughout the month. The estimated cumulative difference between the expected monthly count in the absence of COVID-19 and monthly fitted count was calculated as of December 2020.Results: By the end of December 2020, the pre-post design estimated an overall 1.2% increase in the number of cancer diagnoses compared to 2015-2019, and the percent differences for breast, lung, colorectal, and prostate cancers were -2.0%, 0.4%, -11.0%, and 16.5%, respectively. The ITS design estimated an overall 6.0% decrease in cancer diagnoses as of December 2020 compared to the pre-COVID period; the percent cumulative differences for breast, lung, colorectal, and prostate cancers were -17.9%, -3.7%, -10.2%, and -3.7%, respectively.Conclusion: The pre-post design estimated an increase in the number of cancer diagnoses in 2020, whereas the ITS design estimated a decrease in diagnoses post-COVID. The ITS methodology produces a more accurate estimate of the impact of the COVID-19 pandemic on the number of cancer diagnoses, as it accounts for underlying trends in the historical data.

The Impact of Alcohol Consumption and Single Nucleotide Polymorphisms on the High Rates of Colorectal Cancer in Atlantic Canada

Presented by: Carlee Feinstein
Submission Authors: Carlee A Feinstein1, Derrick G Lee1, Allison Walsh1, Tiffany S Bondoc1
Author Affiliations: 1St. Francis Xavier University

Abstract
Objective Colorectal cancer (CRC) remains one the leading causes of cancer mortality in Canada. Although CRC can affect Canadians of any age, ethnicity, or socioeconomic status, Atlantic Canada has the highest rates of CRC out of any region. This study aims to examine the impact of alcohol consumption and variants of alcohol metabolizing genes on CRC to better explain the high rates in Atlantic Canada.Methods Data from approximately 400 cases and 2,000 controls were collected by two research arms of Canadian Partnership for Tomorrow's Health (CanPath), including data on alcohol consumption and genotype data for over 800,000 single nucleotide polymorphisms (SNPs). In the preliminary analysis, data from 276 cases and 979 controls from the BC Generation Project arm of CanPath were analyzed using multivariable logistic regression models to calculate adjusted odds ratios and 95% confidence intervals to examine associations with CRC. Gene associations among 56 SNPs across 4 genes of interest (ADH1B, ADH7, ALDH2, CYP2E1) were adjusted using the Benjamini-Hochberg method to correct for the false discovery rate (FDR).Preliminary Results Participants that consumed alcohol 6-7 times a week had triple the risk of CRC (OR=2.96, 95% CI:1.22 to 5.54) compared to non-drinkers and, after FDR adjustment, the SNP rs283423 (ADH7) was observed to be significantly associated with CRC, as the majority of cases carried the minor allele while all of the controls had the homozygous major genotype. There was no evidence to suggest any modification of the effects of alcohol consumption by genotype.
Conclusion The results of this study suggest a significant association between rs283423 (ADH7) and the development of colorectal cancer. Inclusion of the data from the Atlantic PATH arm will help further understand the relationship between this SNP and CRC, as well as provide more power to explore potential interactions between this SNP and alcohol consumption.

The Colorectal Cancer Chemoprevention Acceleration and Improvement Platform (CRC-CHAMP) Study

Presented by: Xuanhao (Jonah) Feng
Submission Authors: Xuanhao Feng1, Robert Hilsden1, Darren Brenner1, Linda Rabeneck2, Jill Tinmouth3, Nauzer Forbes1, Dylan O'Sullivan1, Steven Heitman1
Author Affiliations: 1University of Calgary, 2Cancer Care Ontario, 3Sunnybrook Research Institute

Abstract
Objectives: Chemoprevention of Colorectal Cancer (CRC) is a potential approach to prevention that has been gaining interest in recent decades. Chemoprevention may be more sustainable and cost-effective compared to interventions targeting long-term lifestyle modifications. To evaluate the feasibility of a real-world chemoprevention agent (CPA) intervention (3 months of daily low-dose acetylsalicylic (ASA)) in patients at increased risk for CRC (one or more high-risk adenomas removed during colonoscopy) based on patient uptake, adherence (days taking CPA), and adverse events. Additionally, to evaluate factors related to uptake and adherence of ASA using validated surveys and interviews.Methods: During the treatment phase, a sample of 100 participants will receive open-label ASA 81 mg once daily for 90 days. After completion of the treatment phase, subjects will complete a follow-up period of 90 days. Participants will be asked questions focused on patient knowledge, preferences, values, and experiences regarding chemoprevention and CPAs. These will include measures of gastrointestinal symptoms prior to colonoscopy. Quality of life will be assessed using the SF-36. Participants will be asked about their beliefs about medicine in general and about their reasons for accepting or not accepting a CPA.Results or Preliminary Results: Currently, 33 of the expected 100 participants have been enrolled in the study. Of the 4 reported adverse events. 2 of the events were deemed not related to the use of ASA while another 2 were deemed as potentially relating to the use of ASA. Initial results from follow-up visits with participants suggest strong medication adherence.Conclusion or Next Steps: Recruitment is to be continued until 100 participants are enrolled. Monitoring of adherence and potential adverse events to continue during follow-up visits.

Potentially Unnecessary Chest X-rays for Children with Asthma and Bronchiolitis presenting to Emergency Departments

Presented by: Lyricy Francis
Submission Authors: Dennis Christy1, Alexey Dudevich1, Masud Hussain1, Xi-Kuan Chen1, Cheryl Chui1, Lyricy Francis1
Author Affiliations: 1CIHI

Abstract
ObjectivesClinical evidence shows chest X-rays do not provide clinical value and should be avoided in children's typical cases of asthma and bronchiolitis as they rarely help with diagnosis, treatment or outcomes. Chest X-rays expose patients to radiation and the unnecessary use of antibiotics. This analysis aimed to investigate chest X-ray prevalence for children and infants presenting to emergency departments diagnosed with asthma or bronchiolitis.MethodsRecords from emergency departments were used to identify cases of asthma in children and bronchiolitis in infants who had a potentially unnecessary chest X-ray in Ontario, Alberta and Yukon using data from CIHI's National Ambulatory Care Reporting System. The study population was children aged 3 to 17 with asthma and infants younger than 1 year with bronchiolitis. Trend analysis was based on data from 2013-2014 to 2020-2021. In addition, patient and hospital-level factors associated with the risk of chest X-rays were explored, including age, sex, triage level, ambulance use, hospital peer group, visit disposition and urban/rural residence.ResultsBetween 2014-2015 and 2019-2020, chest X-ray rates were stable at about 30% for bronchiolitis and asthma. The rate of X-ray use varied — Ontario's rates were higher than those in Alberta and Yukon for asthma and higher than Alberta's for bronchiolitis. The chest X-ray rates were lower in teaching hospitals compared to community hospitals. Rates were higher for patients who were in more urgent condition on arrival. In the first year of COVID-19, visits for asthma and bronchiolitis dropped but chest X-ray rates rose.ConclusionChest X-rays are not needed for children presenting to the emergency department with uncomplicated asthma or bronchiolitis. While the rates are stable, lower rates in some provinces show further reductions are possible. Quality improvement strategies can be effective in reducing unnecessary chest X-rays.

Potentially unnecessary physical restraints and antipsychotics in long-term care homes

Presented by: Lyricy Francis
Submission Authors: Lyricy Francis1, Dennis Christy1, Alexey Dudevich1, Masud Hussain1, Xi-Kuan Chen1, Cheryl Chui1
Author Affiliations: 1CIHI

Abstract
ObjectivesLong term care homes use various physical and chemical restraints to manage the physical or behavioral activity of residents. Physical restraints include a seatbelt at mealtime, a bed rail or a chair that prevents a person from standing up. Chemical restraints are psychoactive medications like antipsychotics. There are many physical and psychological risks associated with the use of chemical and physical restraints and its use should be limited. MethodsLong-term care residents in physical restraints or taking antipsychotics without a diagnosis of psychosis were analyzed using CIHI's Continuing Care Reporting System from 2014-2015 to 2019-2020 for Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and Yukon. It was calculated by dividing the number of assessments indicating residents who were in daily physical restraints or antipsychotic use without a diagnosis of psychosis by the total number of assessments. The methods are part of CIHI's suite of long-term care quality indicators and published in CIHI's Your Health System. ResultsThere is a declining trend from 2014-2015 to 2019-2020 as the rates of daily physical restraints dropped by 47% and the rate of antipsychotic use dropped by 26%. In 2019-2020, the rate of daily physical restraints was 4.6% and antipsychotic use was 20% with rates varying across jurisdictions. Higher rates were observed when residents had: more depressive symptoms; higher levels of cognitive impairment; lower level of social engagement; and more responsive behaviours. Antipsychotic use declined with age and restraint use was higher with those who needed support with activities of daily living.ConclusionA steady decline is observed, leading up to the pandemic, due to a multitude of efforts. However, lower rates in some provinces show further reductions are possible. Public reporting of long-term care indicators can encourage efforts to improve quality and reduce rates.

Examining the impact of the COVID-19 pandemic on survival rates for individuals diagnosed with cancer in Manitoba, Canada

Presented by: Katie Galloway
Submission Authors: Katie Galloway1, 2, Pascal Lambert1, Allison Feely1, Oliver Bucher1, Grace Musto1, Kathleen Decker1, 2
Author Affiliations: 1CancerCare Manitoba, 2University of Manitoba

Abstract
Objectives: As a result of the COVID-19 pandemic, interventions were developed to reduce the risk of COVID-19 for individuals living with cancer. This study examined the impact of COVID-19 and these interventions on cancer survival for the most commonly diagnosed cancers in Manitoba, Canada.Methods: To examine cancer survival rates prior to COVID-19 (January 2015 to February 2020) and after the start of COVID-19 (April 2020 to March 2021) an interrupted time series study design was used with quarterly survival rates. Royston-Parmar models were used to account for time-varying coefficients. Kaplan Meier (KM) estimates at both 3-months and 1-year were calculated to describe the observed survival. Restricted mean survival times (RMST) were produced at 3-months and 1-year for both the COVID-19 fitted values and the expected counterfactual values during the COVID-19 period. The delta between these two values at 3-months and 1-year, separately, represent the mean survival time lost or gained during the first 3 months and 1 year of follow-up post-diagnosis during the COVID-19 period.Preliminary Results: No changes were found for individuals diagnosed with prostate cancer, colon cancer aged 50 to 74, lung cancer aged 75 and older, and hematologic cancers aged 50 to 74. For individuals diagnosed with breast cancer of all ages, and colon cancer aged 75 and older, survival decreased non-significantly in the first quarter of COVID-19 and then increased. For individuals diagnosed with rectal cancer of all ages, lung cancer aged 50 to 74, and hematologic cancers aged 85 and older, survival decreased non-significantly. For individuals diagnosed with hematologic cancers aged 75 to 84, survival increased non-significantly.Next Steps: These models will be extended to include diagnoses up to December 2021. Models adjusting for age, stage, and sex will be conducted and the delta RMST values will be compared to the unadjusted RMST.

Psychometric Evaluation of a New Visual Analog Scale for Measuring Child/Youth Mental Health

Presented by: Kelsey Gao

Submission Authors: Kelsey Gao1, Laura Duncan2, 3, 4

Author Affiliations: 1Bachelor of Health Sciences (Honours) Program, McMaster University, 2Offord Centre for Child Studies, 3Department of Psychiatry & Behavioural Neurosciences, McMaster University, 4McMaster Children's Hospital, Hamilton Health Sciences

Abstract

ObjectivesMental health challenges are a significant burden for Canadian children and youth, but a simple, valid, and reliable instrument for measuring overall mental health in this population does not yet exist. Problem checklists meet some of these requirements, but can be lengthy to complete, making them less acceptable for use in routine outcome monitoring. A Visual Analog Scale (VAS), a single-item question that asks participants to rate their overall mental health, represents a potential measurement approach due to its simplicity, brevity, and ease of administration. This study evaluates the convergent construct validity, known groups validity, and sensitivity to change of a novel VAS to determine its adequacy as an instrument for measuring overall mental health in children and youth.MethodsData from standardized intake and discharge questionnaires collected from parents/caregivers (of children age 4-11) and youth (age 12-17) at the Child and Youth Mental Health Program at the McMaster Children's Hospital will be used. Convergent construct validity will be assessed by examining the correlations between VAS scores and total scores on the Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS), which provide valid and reliable dimensional and categorical measurement of DSM-5 disorders in children and youth. Known groups validity will be assessed by comparing group differences for both the VAS and OCHS-EBS total score in demographic groups where we would expect differences in mental health scale scores. Finally, the VAS's responsiveness will be assessed to determine the instrument's capacity to measure patient-perceived improvement in managing their feelings and behaviours after mental health treatment. To do this, the extent to which parents/caregivers and youth that reported improvements also displayed increased VAS scores will be evaluated.

Increase in Functional Limitations Among Older Adults with Cancer During the Covid-19 Pandemic: Findings from the Canadian Longitudinal Study on Aging (CLSA)

Presented by: Jordyn Gattie

Submission Authors: Jordyn Gattie1, Margaret de Groh2, Esmee Fuller-Thomson3, Ying Jiang2, Meghan Bird3, Paul J Villeneuve1

Author Affiliations: 1Carleton University, 2Public Health Agency of Canada, 3University of Toronto

Abstract

Objectives: Cancer is a highly prevalent chronic disease, and those diagnosed with cancer may be more vulnerable to pandemic-related impacts. This study sought to investigate and compare changes in functional limitations during the COVID-19 pandemic among older adults with a history of cancer to those without cancer. In addition, we aimed to identify risk factors associated with developing limitations among older adults with cancer and assessed whether associations varied by socio-economic status. Methods: This was a prospective analysis of data collected from participants of the Canadian Longitudinal Study on Aging. Individuals were 45 years of age or older at the time of the baseline interview(2010-2015). As we were interested in studying incident outcomes, we restricted the analysis to those without functional limitations in the first follow-up wave (2015-2018) (n=6063). Our reference group was those with no previous cancer diagnosis at first follow-up. We fit logistic regression models to describe associations between cancer status and functional limitation outcomes. We conducted stratified analyses to evaluate whether these associations varied by socio-demographic indicators. Finally, we evaluated how modifiable health risk factors (i.e., obesity, smoking status) predicted developing functional limitations among those previously diagnosed with cancer. Results: Participants with a history of cancer at first follow-up had a 1% increased odds (OR=1.009; 95%CI=0.818-1.244) of developing a functional limitation during the pandemic compared to those without cancer. We are currently evaluating how socio-demographics, sex, type of cancer, recency of diagnosis, and multimorbidity may be associated with differences in risk.Next Steps: Our findings indicate that older adults with cancer were trending towards an increased risk of developing certain functional limitations during the pandemic. Further analysis will be completed to determine specific risk factors and vulnerable sub-populations.

Does urban greenness reduce loneliness among Canadians? A cross-sectional study of middle-aged and older adults of the Canadian Longitudinal Study on Aging (CLSA)

Presented by: Gagan Gill

Submission Authors: Gagan Gill1, Habibe Dogan2, Susanna Cottagiri1, 2, Daniel Crouse3, Daniel Rainham4, Robert Dales5, Nancy Ross6, Perry Hystad7, Paul Villeneuve1

Author Affiliations: 1Carleton University, 2Queen's University, 3Health Effects Institute, 4Dalhousie University, 5University of Ottawa , 6McGill University, 7Oregon state university

Abstract

Objectives: There is an increased recognition that urban greenness confers several health benefits including reduced risks of depression and anxiety. Similarly, urban greenness may help to reduce loneliness, but empirical support is limited. In this first Canadian study on this topic, we investigated the association between urban greenness and loneliness among community-living adults and evaluated whether income modifies these associations.Methods: This cross-sectional analysis of baseline data from the Canadian Longitudinal Study of Aging (CLSA) was restricted to urban participants who were 45 to 86 years of age. We assigned the Normalized Difference Vegetation Index (NDVI) as a measure of greenness to participants' residences using a buffer distance of 500 m. We evaluated associations between the NDVI and (i) perceived loneliness using the Center for Epidemiological Studies Depression Scale (CES-D-10) instrument, and (ii) whether they reported 'feeling lonely living in the local area.' We fit logistic regression models to estimate associations between greenness and loneliness while adjusting for potential confounders.Preliminary Results: Overall, 9.3% of adults perceived being lonely, while 5.7% reported 'feeling lonely in their local area'. In the adjusted model, we observed no statistically significant difference (Odds ratio (OR = 0.97; 95% CI = 0.92-1.02) in perceived loneliness for an interquartile range increase of NDVI (0.06). However, for the same IQR increase in the NDVI, we found a reduced risk of 'feeling lonely living in the local area' (OR=0.93; 95% CI: 0.88-0.99). Household income did not substantially modify the strength of the association for either of the two loneliness measures. Conclusion or Next Steps: Our findings suggest that urban greenness may play a role in mitigating loneliness among Canadian urbanites.

Keywords: greenness, loneliness, Canadian Longitudinal Study of Aging, urban health

Spatiotemporal Patterns of Mental Health Act Apprehensions in Toronto, Canada

Presented by: Amber Gillespie
Submission Authors: Amber Gillespie1
Author Affiliations: 1University of Guelph

Abstract
Objectives: Despite residents of the City of Toronto having access to a range of mental health services, rates of reported mental health crises, including police-involved Mental Health Act (MHA) apprehensions, continue to climb. Using data collected by Toronto Police Services (TPS), this research sought to address the following questions: (1) What are the estimated annual incidence and spatial distribution of MHA apprehensions by Toronto neighbourhoods between 2014 and 2021? (2) how have rates of MHA apprehensions changed at a neighbourhood level? and (3) do rates of MHA apprehensions exhibit spatial-temporal clustering?Methodology: An exploratory, descriptive analysis of MHA apprehension rates from 2014 to 2021 was completed to investigate spatiotemporal patterns of MHA apprehensions. After adjusting for population growth, the incidence of MHA apprehension was estimated and used to investigate the absolute and biannual change in spatial distribution rates at the neighbourhood level. High-rate cluster detection was then performed using a discrete Poisson model and a circular moving window to detect annual primary and secondary clusters.Results. During the 8-year study period, 81,240 MHA apprehensions occurred across the City of Toronto. Apprehension rates varied substantially between neighbourhoods, with approximately 93% of neighbourhoods experiencing a net positive change during the study period (range: -192.83 to 874.15 apprehensions per 100,000 population). Analysis of individual clusters revealed that populations within each primary cluster experienced 2.61 to 3.16 times higher risk MHA apprehensions than expected.Conclusion: Through Ontario's MHA, police services play a vital role in connecting those in mental health distress or crises with the necessary help they need. These findings confirm that even after adjusting for population growth, MHA apprehensions in the City of Toronto continue to climb. This research provides additional insights that TPS may use to further its strategic efforts in enhancing police response to mental health crises.

Minimal Clinically Important Difference of the fifteen-item Geriatric Depression Scale: Individual Patient Data Meta-Analysis

Presented by: Nadia González Domínguez

Submission Authors: Nadia González Domínguez1, Yin Wu1, 2, Brooke Levis2, Suiqiong Fan2, Ying Sun2, Simon Gilbody3, Sarah Markham4, Roy C. Ziegelstein5, Pim Cuijpers6, Scott B. Patten7, Andrea Benedetti1, 8, Brett Thombs1, 2

Author Affiliations: 1McGill University, 2Lady Davis Research Institute, 3University of York, 4King's College London, 5Johns Hopkins University, 6Amsterdam Public Health Research Institute, 7University of Calgary, 8McGill University Health Centre

Abstract

Objectives: The 15-item Geriatric Depression Scale (GDS-15) is the most commonly used measure of depressive symptoms in older adults; however, estimates of the minimal clinically important difference (MCID), which represents the smallest change that would likely be perceived as worthwhile by patients, are not available. We used individual patient data meta-analysis (IPDMA) to estimate the MCID of the GDS-15 and to examine whether the MCID differs based on age, sex, recruitment setting, or major depression classification.Methods: We included studies of participants recruited from non-mental health settings. We estimated the MCID for each of the studies and generated pooled estimates for one and two standard errors of measurement (SEM), which are commonly used in mental health as benchmarks for MCID, using random-effects meta-analysis. We conducted subgroup analyses for participant characteristics (age, sex) and meta-regression for study-level variables.Results: 6,206 participants (41% male, 29% over 80 years old, 11% with major depression) from 21 studies were included. The overall estimate of the MCID was 1.39 (95% CI 1.32 to 1.46) for one SEM and 2.77 (95% CI 2.63 to 2.92) for two SEMs. In subgroup analyses, differences in one SEM were 0.05 (95% CI 0.00 to 0.10) between <80-year-olds and ≥80-year-olds and 0.05 (95%CI 0.01-0.09) between male and female subgroups. MCID was not associated with recruitment setting and increased by 0.10 points (95% CI 0.06 to 0.13) per 10% increase in proportion of participants with major depression in studies.Conclusion: The proportion of participants in a study with major depression appears to influence MCID, while age, sex and recruitment setting have no or minimal association. These results can be used to assess clinical meaningfulness of GDS-15 outcomes in non-mental health settings. Further research is needed for populations with different baseline characteristics, including mental health patients, and to explore different MCID approaches.

Examining the diagnostic process for ovarian cancer in Nova Scotia: a linked administrative data study

Presented by: Chiara Gottheil
Submission Authors: Chiara Gottheil1, Robin Urquhart1
Author Affiliations: 1Department of Community Health & Epidemiology, Dalhousie University

Abstract
Aim: This study will examine the diagnostic process for ovarian cancer in Nova Scotia to identify barriers toward obtaining a diagnosis. Background and rationale: Unlike other cancers, ovarian cancer is often not diagnosed in a timely manner, resulting in a low survival rate. In Canada, 65-70% of cases are diagnosed at advanced stages. At this point, 3-year net survival ranges from 31.9% in Nova Scotia to 38.6% in Alberta. There is evidence that time to diagnosis (TTD) influences ovarian cancer outcomes such as survival, patient satisfaction, and quality of life. Examining the diagnostic process for barriers to diagnosis will allow us to identify subgroups at higher risk of longer TTD and factors that prolong TTD. No prior study has examined the diagnostic process for ovarian cancer in Nova Scotia. Objectives: 1. To identify patient, tumor, and health system factors associated with longer TTD for ovarian cancer in Nova Scotia. 2. To examine physician contacts during the diagnostic process. Methods: This population-based study will use the Nova Scotia Cancer Registry with linked administrative health and census data. For Objective 1, a logistic regression model will be created to identify factors associated with longer than median TTD. For Objective 2, we will descriptively analyze the number of healthcare visits, number and types of physicians seen, and location of first presentation before obtaining a diagnosis. Results: Analysis will begin in April/May 2023. Next steps: Reducing TTD can improve survival and preserve quality of life for longer. The knowledge gained from this study can be used to develop a tool for primary care providers to streamline the referral/investigation process for patients with suspected ovarian cancer. Identifying groups at risk for longer TTD can provide a basis for interventions to make the diagnostic process more equitable.

Prédiction de l'indice de masse corporelle chez les enfants, comparaison de scores polygéniques basés sur des statistiques sommaires d'adultes vs d'enfants.

Presented by: Danick Goulet
Submission Authors: Danick Goulet1, Michel Boivin2, Lise Dubois1
Author Affiliations: 1University of Ottawa, 2Université Laval

Abstract
Objectifs : L'objectif de l'étude est de mesurer la susceptibilité génétique à l'obésité chez les jeunes et de comparer la performance de scores polygéniques utilisant les données génétiques d'adultes et d'enfants. Méthodes : L'échantillon d'étude comprend 717 participants âgés de 4 à 13 ans provenant de l'Étude Longitudinale du Développement des Enfants du Québec, une cohorte de naissance débutée en 1998. Des mesures anthropométriques ont été collectées à sept reprises de 4 à 13 ans. Deux scores polygéniques sont construits avec la méthode PRS-CS avec les données sommaires d'études d'association pangénomique d'adultes (PGSa) et d'enfants (PGSc). La qualité de prédiction des scores est évaluée en comparant 1) la capacité à identifier les individus obèses avec régression logistique, et 2) l'association linéaire avec la cote z de l'IMC en utilisant la régression linéaire simple. Résultats préliminaires : Globalement, le PGSa explique une plus grande proportion de la variance de cote z de l'IMC (7.2%) comparativement au PGSc (5.4%) de 4 à 13 ans. L'effet d'une unité standardisée du PGSa sur la cote z de l'IMC (β=0.24-0.39) est supérieur à PGSc à tous les temps de mesure (β=0.21-0.30). Le ratio de cote pour l'obésité associé à une augmentation d'une unité standardisée du PGSc est plus élevé (OR = 1.75-2.33) comparativement à PGSa (1.74-2.06) de 4 à 7 ans, alors que le contraire s'applique de 8 à 13 ans (OR = 1.56-1.95 vs 1.78-2.54). Conclusion : Un score polygénique pour la cote z de l'IMC basée sur des données obtenues chez les adultes possède une meilleure prédiction de façon linéaire sur l'étendue de 4 à 13 ans. Les résultats suggèrent toutefois qu'un score basé sur des données provenant d'enfants a une capacité de prédiction comparable, en particulier concernant la capacité à identifier les individus en situation d'obésité de 4 à 7 ans.

Examining the Association between Functional Social Support, Marital Status, and Memory: Protocol for a Mixed Methods Study

Presented by: Paniz Haghighi
Submission Authors: Paniz Haghighi1, Suzanne L. Tyas1, Leilei Zeng1, Mark Oremus1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: Functional social support (FSS), one's perception of whether members of their social network will be available to provide practical and emotional support when needed, has been shown to be positively associated with cognitive function, especially memory. To better understand this association, researchers should consider the impact of marital status, which may modify the association between these variables. According to the 'use-it-or-lose-it' theory, regular interaction with a spouse or common-law partner may promote cognitive stimulation that builds up a reserve capacity of neural networks in the brain, strengthens mental processes, and slows age-related declines in memory. Spouses also serve as a readily accessible source of FSS. We propose to examine whether marital status modifies the association between FSS and memory in middle- and older-aged adults.Methods: In our sequential explanatory mixed-methods study, quantitative data on FSS, marital status, and memory will be obtained from the Tracking Cohort of the Canadian Longitudinal Study on Aging (CLSA), which contains information on 14,810 community-dwelling participants at three timepoints, spread approximately three years apart. Participants were aged 45 to 85 years at baseline. Memory will be measured using continuous z-transformed scores from the Rey Auditory Verbal Learning Test (RAVLT). We will use generalized estimating equations to regress the three timepoints of repeated-measures RAVLT scores onto baseline FSS and several covariates (sociodemographic, physical and mental health, and lifestyle factors), stratified by marital status ([i] married or common-law; [ii] single, never married or lived with a partner; and [iii] divorced, widowed, or separated). In the subsequent qualitative study, data will be collected through semi-structured interviews from a group of middle- and older-aged adults who resemble CLSA participants. Participants will be recruited through community organizations such as Schlegel Villages. Emerging themes from these interviews will be used to inform and enrich our interpretation of the quantitative findings.

Trend-based case definitions for multiple sclerosis: dynamic classification models to estimate the minimum trend needed

Presented by: Naomi Hamm
Submission Authors: Naomi C Hamm1, Ruth Ann Marrie1, Depeng Jiang1, Pourang Irani2
Author Affiliations: 1University of Manitoba, 2The University of British Columbia

Abstract
Objectives: Using multiple years of data to construct case definitions for administrative health data can improve case definition accuracy for episodic diseases such as multiple sclerosis (MS). However, to make efficient use of longitudinal data, the number of years required to construct trend-based case definitions must be established. This study compared the accuracy of trend-based MS case definitions and existing, validated MS case definitions and estimated the minimum trend required for accurate case classification. Methods: Administrative data from 2002 to 2016 were obtained from the Manitoba Population Research Data Repository. MS cases were ascertained from home care records. Trend-based case definitions were constructed using multivariate generalized linear mixed models with five-fold cross validation; the models were applied to annual numbers of general and specialist physician visits, hospitalizations, and MS healthcare contacts or medication dispensations. Model-based case definitions were compared to a deterministic case definition of 3+ MS healthcare contacts or medication dispensations. Dynamic classification models to ascertain cases and non-cases annually were used to estimate mean classification time and to refine case definition observation periods. Results: The cohort consisted of 538 cases and 2,690 non-cases. For the trend-based case definition and deterministic case definition applied to the entire observation period, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) all exceeded 0.95. Dynamic classification models estimated mean classification time of three years. Adopting three-year observation windows decreased trend-based case definition performance only slightly (sensitivity: 0.81-0.91; specificity: 0.96-0.98; PPV: 0.86-0.91; NPV: 0.97-0.98). Adopting a deterministic case definition based on three-year observation windows decreased performance noticeably (sensitivity: 0.57-0.74; specificity: 0.99-1.00; PPV: 0.99-1.00; NPV: 0.92-0.95). Conclusions: Dynamic classification models have value for identifying the minimum trend required to construct trend-based case definitions based on multiple years of administrative data. Further research will investigate this model-based approach for other chronic diseases.

Results from the Commonwealth Fund 2022 Survey of Primary Care Physicians: COVID-19 pandemic and primary healthcare systems

Presented by: Farzana Haq
Submission Authors: Farzana Haq1, Lyricy Francis1, Masud Hussain1, Liudmila Husak1
Author Affiliations: 1Canadian Institute for Health Information

Abstract
Objectives: The Canadian primary care system underwent rapid adaptation and evolved at an unprecedented rate to respond to COVID-19. This survey revealed some opportunities and key challenges from the perspective of primary care physicians (PCPs) in 10 developed countries.Methods: The Commonwealth Fund (CMWF) 2022 International Health Policy Survey of Primary Care Physicians polled PCPs in 10 countries: Australia, Canada, France, Germany, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom, and the United States. In Canada, there were 1,459 respondents. PCPs were randomly selected and were contacted by mail with options to respond by mail or online. T-test was applied to determine whether Canadian results were significantly different from the international average of 10 countries. Results: On average, Canadian PCPs reported working 50 hours and seeing 97 patients/week (CMWF: 44% and 97% respectively). Two-thirds of PCPs across all CMWF countries reported their workload has increased due to the pandemic (Canada: 77%, CMWF: 76%, similar). An increasing proportion of Canadian PCPs find their job stressful, with 59% reporting high levels of stress (CMWF: 56%). This is significantly higher than pre-pandemic times (46% in 2019, 27% in 2015). In addition to this, majority of PCPs felt the quality of care throughout the healthcare system has worsened (Canada: 74%, CMWF: 63%, significant).Adapting to the needs and demands during the pandemic, major improvements were seen in virtual care across all healthcare sectors in Canada. Over 90% of PCPs reported using EMRs in their practice (Canada: 93%, CMWF: 93%, similar) which has increased significantly from pre-pandemic era (73% in 2015, 86% in 2019). About 80% of PCPs felt that implementing a telehealth platform in their practice was easy (CMWF: 68%).Conclusion: International comparisons provide an important perspective on the performance of Canadian primary healthcare system compared with 9 countries and over time.

Model-Based Algorithms to Ascertain Chronic Disease Risk Factors from Electronic Health Data

Presented by: Md Ashiqul Haque

Submission Authors: Md Ashiqul Haque1, Nathan Nickel1, Maxime Turgeon2, Lisa M Lix1

Author Affiliations: 1Department of Community Health Sciences, University of Manitoba, Winnipeg, Manitoba, 2Department of Statistics, University of Manitoba, Winnipeg, Manitoba

Abstract

Objectives: Modifiable risk factors such as smoking, obesity, alcohol use, and substance use increase the risk of having a chronic health condition. Measuring these factors from routinely collected data sources is challenging because the information may be missing/inaccurate. Algorithms to ascertain chronic disease risk factors from electronic health data, such as administrative data, can play an important role in population health surveillance. Our purpose is to assess the validity of electronic health data to ascertain smoking status as a key risk factor for multiple chronic diseases. Our objectives are to 1) develop machine-learning (ML) model-based algorithms to identify smoking status from electronic health data and 2) develop and validate a composite index that includes smoking status and other modifiable risk factors for electronic health data.Methods: The objectives will be achieved using data from 2016 - 2022 from the following linked data sources: administrative data (physician claims, hospital records, prescription drug claims), electronic medical records from the Canadian Primary Care Sentinel Surveillance Network, clinical registries, and social databases. Algorithms will be developed for administrative data using features such as diagnosis codes and medication information and validated using self-reported and clinical measures from clinical registries and social databases. Supervised logistic regression, random forest, and naïve Bayes ML models will be used to construct algorithms, and their accuracy will be compared. One or more models will be subsequently adopted to develop algorithms for multiple modifiable risk factors (e.g., obesity, substance use) to construct the composite index. A semi-supervised cluster-then-label method will impute missing information on risk factor status from clinical and social registries. Validity measures will include sensitivity, positive predictive value, and F-score. The algorithms will be internally validated using 10-fold cross-validation. Logistic regression models will test the predictive validity of the composite index score for selected chronic diseases, such as hypertension.

Patterns of emergency department use for people experiencing homelessness in New Brunswick

Presented by: Jenna Hepburn
Submission Authors: Jenna Hepburn1, Swarna Weerasinghe1, Samuel Campbell1
Author Affiliations: 1Dalhousie University

Abstract
IntroductionHomelessness is a rapidly growing complex issue in the Halifax Regional Municipality and across Canada. People experiencing homelessness (PEH) are less likely to have continuity of care after an emergency department (ED) visit resulting in unmet healthcare needs and these place a significant burden on the ED. ObjectivesThe proposed research objectives are to 1) compare emergency department use patterns in PEH with those who are not experiencing homelessness. 2) To explore experiences of unmet healthcare needs and barriers and facilitators in the continuity of care. MethodsThis mixed-methods research will examine ED use patterns of PEH (identified as no fixed address in ED records) to age, gender and triage acuity scale propensity score matching non-PEH (with a fixed address) to investigate ED use patterns. These patterns of prominent chief complaints, and repeat visits within 12 months, will inform unmet healthcare needs and barriers to continuity of care for these health complaints and conditions requiring repeat visits. Preliminary ResultsInitial results show that PEH are 8.87 times more likely to have a chief complaint of mental health on ED visit compared to housed individuals (p-value < 0.0001; 95% CI = 7.61, 10.33). In particular, PEH are almost 9 times more likely to visit ED for high acuity mental health complaints (OR=8.89; 95% CI: 7.58, 10.41) than others. Additionally, PEH are 4.45 times more likely to have repeat visits to the ED within 12 months compared to housed individuals (p-value < 0.0001; 95% CI = 3.87, 5.12). PEH are less likely to visit the ED for injuries (OR = 0.62; 95% CI = 0.51, 0.74) compared to the general population. Conclusions/SignificanceThe findings emphasize the need for adequate mental health care programs and monitoring high acuity mental health conditions among PEH to meet unmet mental healthcare needs.

Smoking, aberrant DNA methylation of the F2RL3 and AHRR genes, and lung cancer risk

Presented by: Vikki Ho

Submission Authors: Alice Nguyen1, 2, Anita Koushik1, 2, Laura Pelland-St-Pierre1, 2, Michael Pham1, 2, Romain Pasquet1, Sherryl Taylor3, Delphine Bosson-Rieutort2, Vikki Ho1, 2

Author Affiliations: 1University of Montreal Hospital Research Centre (CRCHUM), 2University of Montreal, 3University of Alberta

Abstract

Objective: To determine the associations between smoking and DNA methylation in the F2RL3 and AHRR genes, and lung cancer risk.Methods: A case-control study was nested in the CARTaGENE study, the largest ongoing prospective cohort study in Quebec, Canada. Cases (N=187) consisted of all participants diagnosed with incident lung cancer from baseline to 2016 and who had provided a blood sample at baseline. Controls (N=378) were sampled at a ratio of 2:1 with frequency-matching by age, sex, and timing of blood sampling at the end of the study period. Information on smoking status, average number of cigarettes smoked, duration of smoking and time since cessation was parameterized into a cumulative smoking index (CSI, standardized continuous). Sequenom EpiTYPER® was used to quantify methylation levels in seven and 33 CpG sites of F2RL3 and AHRR, respectively. Unconditional multivariable logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for lung cancer associated with average F2RL3 and AHRR methylation (standardized continuous variable). Least squares regression was used to estimate the association between smoking and AHRR and F2RL3 methylation levels. Potential confounders were identified using directed acyclic graphs. Preliminary Results: A strong inverse relationship between average DNA methylation levels and lung cancer was observed for both F2RL3 (OR per standard deviation (s.d.) increase in methylation=0.65, 95% CI: 0.53-0.80) and AHRR (OR per s.d. increase in methylation=0.66, 95% CI: 0.53-0.80). In both genes, smoking was associated with lower average methylation levels (AHRR: -0.24 per s.d. increase in CSI, 95% CI: -0.34, -0.14; F2RL3: -0.18 per s.d. increase in CSI, 95% CI: -0.28, -0.09).Next Steps: These findings support the role of epigenetic mechanisms in lung cancer etiology. Mediation analysis is underway to estimate the proportion of smoking-mediated lung cancer as explained by aberrant methylation of the AHRR and F2RL3 genes.

The Manitoba Tomorrow Project: A Canadian Cohort

Presented by: Travis Hrubeniuk
Submission Authors: Travis Hrubeniuk1, Sachin Katyal2, 3, 4, Donna Turner1, 5, 6
Author Affiliations: 1Manitoba Tomorrow Project, CancerCare Manitoba, 2CancerCare Manitoba Research Institute, CancerCare Manitoba, 3Manitoba Tumour Bank, CancerCare Manitoba , 4Pharmacology and Therapeutics, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba, 5Population Oncology, CancerCare Manitoba, 6Community Health Sciences, Max Rady College of Medicine, University of Manitoba

Abstract
Objectives: The Manitoba Tomorrow Project (MTP) is a longitudinal population cohort created as part of a nationwide initiative, known as The Canadian Partnership for Tomorrow's Health (CanPath). These cohorts are designed to serve as a platform for evaluating the effect of genetics, lifestyle, and other risk factors on cancer and chronic diseases.Methods: Manitoba residents aged 30-74 years consent to active and passive participation through re-contact and linkage with administrative databases. At enrollment, participants provide their Personal Health Identification Number and complete a baseline questionnaire, supplying information on demographics, ethnicity, socioeconomic status, education, health status, personal and familial medical history, medication use, tobacco use and exposure, food, marijuana and alcohol consumption, physical activity, and self-assessed anthropometric measures. Subsequently, participants have the option to attend the study centre, where anthropometric measures including height, weight, body composition, waist and hip circumference, resting blood pressure, and resting heart rate are recorded. Moreover, 37mL of venous blood and 20mL of urine are collected and stored in the Manitoba Tumor Bank for future analysis.Results or Preliminary Results: To date 12,574 Manitobans have been recruited and 8,096 have completed the baseline questionnaire. Of those with returned questionnaires, 99.4% have agreed to provide biosamples and have physical measurements assessed. Moreover, 76.4% reside in Winnipeg, 10.9% have a history of cancer, and 63.9% have been diagnosed with at least one chronic condition.Conclusion or Next Steps: The MTP cohort will be linked to and harmonized with 330,000 pre-existing participants across the other regional CanPath cohorts. Linkages to a number of administrative databases, including the Manitoba Cancer Registry, Manitoba Health Insurance Registry, and the Vital Statistics database will occur. In doing so, the MTP will become a valuable resource for researchers attempting to investigate the risk factors and causes of cancer and chronic diseases within Manitoban communities.

Using Machine Learning to Identify Colorectal Cancers Based on Alberta Practitioner Claims Data

Presented by: John Hutchinson

Submission Authors: John Hutchinson1, 2, Matthew Warkentin1, 2, Tamer Jarada1, 2, 3, Robert Hilsden1, 3, 4, Winson Cheung1, 2, 3, 4, Darren Brenner1, 2, 3

Author Affiliations: 1Department of Oncology, University of Calgary, 2Oncology Outcomes Initiative, University of Calgary, 3Department of Community Health Sciences, University of Calgary, 4Alberta Health Services

Abstract

Objectives:Cancer research and data-driven healthcare interventions require specific and timely cancer statistics. Detailed cancer registration is a complex and intensive process which prevents rapid delivery of cancer data through registries. Timely data on colorectal cancer (CRC) system metrics have become increasingly important due to interruptions and alterations due to delays from the COVID-19 pandemic. The primary objective of this project was to evaluate methods to estimate CRC incidence from administrative claims data.Methods:We constructed our dataset using the ICD-9-CM codes from the Alberta Practitioner Claims Dataset and each patient's cancer type from the Alberta Cancer Registry for use as the target for predictions.To identify CRC patients, a score-based approach was tested, which used the differing proportion of each code in CRC and non-CRC subjects to find which codes were associated with CRC. Additionally, a set of machine learning (ML) methods, such as XGBoost, logistic regression, neural networks and Random Forest were tested. The hyperparameters of each ML algorithm were tuned to achieve the best predictions.Results:With a sample of 109,343 individuals who developed cancer between 2016 and the beginning of 2022 (11,156 with CRC), our preliminary investigation suggested that the XGBoost model was the top-performing model for discriminating between CRC and non-CRC patients. The XGBoost model achieved an F1 score of 0.971 and an AUC-ROC of 0.965, compared to an F1 of 0.965 and an AUC-ROC of 0.897 from a manual input of CRC-indicating ICD-9 codes.Next Steps: Additional experiments and model validations will be performed using larger datasets which include non-cancer patients. The best-performing model will be used to estimate incidence statistics for the in-development Alberta Colorectal Cancer Activity Dashboard. Future research will evaluate similar models for other cancer types and/or different geographical regions.

Developing the Alberta Colorectal Cancer Activity Dashboard to Analyze Healthcare Procedure Interruptions

Presented by: John Hutchinson

Submission Authors: John Hutchinson1, 2, Tamer Jarada1, 2, 3, Eliya Farah1, 2, 3, Matthew Warkentin1, 3, Ned (Yanbo) Liu1, 2, Barry Stein4, 5, 6, Robert Hilsden1, 3, 7, Heather Bryant1, 3, 8, Colleen Cuthbert1, 2, 3, 7, Timothy Hanna9, 10, Dylan O'Sullivan1, 2, 3, 7, 11, Dan

Author Affiliations: 1Department of Oncology, University of Calgary, 2Oncology Outcomes Initiative, University of Calgary, 3Department of Community Health Sciences, University of Calgary, 4Colorectal Cancer Canada, 5Center for Colon and Rectal Surgery, McGill University, 6Surgery and Oncology, McGill University, 7Alberta Health Services, 8Canadian Partnership Against Cancer, 9Department of Oncology, Queen's University, 10Ontario Institute for Cancer Research, 11Department of Cancer Epidemiology and Prevention Research, Cancer Care Alberta, 12Department of Medicine, University of Alberta, 13Alberta Colorectal Cancer Screening Program, Alberta Health Services, 14University of Alberta

Abstract

Objectives:Access to up-to-date cancer information is essential for clinicians, researchers and the community at-large. Current data sources often suffer lag-times in delivering statistics and therefore are not useful for evaluating current trends and clinical needs as was the case pre and post-pandemic. The objective of this project was to develop the Alberta Colorectal Cancer Activity Dashboard as a solution to current limitations when delivering real-time colorectal cancer (CRC) statistics to a wide audience. Methods:The dashboard will be primarily populated using the Alberta Practitioner Claims database and will be updated quarterly. Procedural codes and machine learning (ML) models will be used to generate aggregated and anonymized statistics in accordance with all privacy regulations. The dashboard will present statistics related to fecal immunochemical tests (FIT), screening colonoscopies, diagnostic colonoscopies, CRC-related surgeries, incidence, and mortality outcomes. The procedural codes and ML models will be validated by stakeholders to ensure the most accurate estimates. CRC statistics will be presented using a variety of visualizations, including maps, time series and bar graphs and will be customizable by sex, age-group, location, and date. The infrastructure and coding pipelines are developed in an open-access framework, to allow for potential use in other Canadian provinces and territories. Preliminary Results:A pilot dashboard has been developed with the necessary functionality required for deployment. The dashboard is highly customizable without writing new code, and can easily be populated with new datasets. Aggregate and temporal statistics for incidence, colonoscopies and surgeries have been constructed from clean data processing pipelines. Next Steps:Further data collection and processing will be conducted to ensure accuracy of the dashboard. A suitable data source and pipeline must be constructed for FIT tests and mortality. The function, appearance and datasets within the dashboard will be reviewed and validated by user testing and input from stakeholders.

Association Between Sleep Disorders and Vision Problems Among First Nations People

Presented by: Bisma Ikram

Submission Authors: Bisma Ikram1, Bonnie Janzen1, Chandima Karunanayake1, James Dosman1, Sylvia Abonyi1, Malcolm King1, Jeremy Seeseequasis2, Marie Neubuhr2, Warren Seesequasis2, Delano Mike2, Larry Burgess3, Carole Naytowhow3, Punam Pahwa1

Author Affiliations: 1University of Saskatchewan, 2Beardy's & Okemasis First Nation, 3Montreal Lake Cree Nation

Abstract

Background: Sleep disorders can affect sleep duration and quality, thus impairing the ability to stay alert and function normally. Recent studies show sleep disorders can also cause vision-threatening conditions; however, most research has not considered the indigeneity of participants or have excluded people living in on-reserve communities. Therefore, current knowledge regarding sleep disorders and vision problems is limited to the general population.Purpose: This study aimed to examine the association between sleep disorders and vision problems among First Nations living on-reserve in rural Saskatchewan. Additionally, we explored potential mediators of the relationship between sleep disorders and vision problems.Methods: This cross-sectional study used baseline data from "Assess, Redress, Re-assess: Addressing Disparities in Sleep Health among First Nations People," an ongoing cohort study. A survey was conducted in 2018-2019 with approximately 588 individuals in two First Nation communities in Saskatchewan. Primary predictors were sleep apnea, clinical insomnia, sleep deprivation, scores on the Epworth sleepiness (ESS) and STOP-BANG questionnaire; and the outcome variable was vision problems. Multivariable logistic regression analysis was employed. Generalized structural equation modelling with nonlinear combinations of estimates was performed to test for mediation.Results: Sleep apnea, clinical insomnia, and ESS were significant after adjusting for other variables. The odds of having vision problems were 2.93 times (95% CI: 1.19 - 7.19) higher among those who self-reported doctor diagnosed sleep apnea and 2.21 times (95% CI: 1.12 - 4.37) higher among participants with clinical insomnia. Similarly, with each unit increase in ESS score, the likelihood of developing vision problems increased by 1.11 (95% CI: 0.97- 1.28). Mediation analysis revealed that depression accounted for approximately 32% of the association between sleep disorders and vision problems.Conclusion: These findings indicate a relationship between sleep disorders and vision problems among First Nations people. Longitudinal studies are needed to determine the nature of this association.

DXA-derived fat-mass and muscle-mass phenotypes and their predictions of mortality.

Presented by: Hanya Ismail
Submission Authors: Hanya Ismail1, Nikolas Argiropoulos1, Lisa Kakinami1
Author Affiliations: 1Concordia University, Montreal, QC, Canada

Abstract
Objectives: Adiposity increases the risk of cardiometabolic abnormalities and premature death. Concomitantly having low muscle mass further exacerbates these outcomes, but is not detectable with most clinically available adiposity measures such as body mass index. Four mutually exclusive phenotypes based on being above the median ("High") or below the median ("Low") compared to their same-age and same-sex peers in fat-mass and muscle-mass measured from dual-energy X-ray absorptiometry (DXA) have been proposed: high adiposity/high muscle mass (HA-HM), high adiposity/low muscle mass (HA-LM), low adiposity/high muscle mass (LA-HM), and low adiposity/low muscle mass (LA-LM). This study investigated whether these phenotypes were predictive of all-cause mortality.Methods: Data were from NHANES, a nationally representative cross-sectional US sample (n=16,998; 1999-2006 cycles). Analyses incorporated the complex sampling design and survey weights. Multivariable proportional hazards regressions with the phenotype as the primary predictor of all-cause mortality by 2018 were adjusted for gender, age, ethnicity, US citizenship status, and history of heart disease. Multiple imputations (MI) were used to account for missing data; estimates were pooled across five MI datasets. Results: In the sample (Mage=44.5 years; 51% male), 37.60% were in the HA-HM group, 13.34% were in the HA-LM group, 11.95% were in the LA-HM group (the reference group), and 37.11% were in the LA-LM group. The average duration to follow-up was 7.25 years, at which point 16.1% of the sample had died. In the adjusted analyses, compared to the LA-HM group, participants in the HA-LM, HA-HM, and LA-LM groups were 1.52 (CI: 1.33-1.75), 1.35 (CI: 1.18-1.54), and 1.25 (CI: 1.25-1.66) times at higher risk of dying, respectively (all $p<0.0001$). Conclusion: The HA-LM and LA-HM phenotypes represent the highest and lowest risks for mortality, respectively. Results suggest DXA-derived phenotypes could play an important role in preventative healthcare, but further research is needed.

Arsenic in drinking water and urinary tract cancers: a systematic review update

Presented by: Alpamys Issanov

Submission Authors: Alpamys Issanov1, Betty Adewusi2, Trevor Dummer1, Nathalie Saint-Jacques2, 3

Author Affiliations: 11School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada, 22Nova Scotia Health Cancer Care Program, Nova Scotia Health Authority, Halifax, Nova Scotia, Canada, 33Department of Medicine and Community Health and Epidemiology, Dalhousie University, Halifax, Nova Scotia, Canada

Abstract

Objectives: There remains uncertainty around cancer risks at low levels of arsenic in drinking water. This study updates evidence from our previous systematic review on the relationship between long-term exposure to low-level arsenic in drinking water and urinary bladder and kidney cancers.Methods: A search of electronic databases was conducted to identify epidemiological studies reporting on exposure to arsenic in drinking water and urinary tract cancer, published from January 2013 until February 2023. The search focused on information contained in MEDLINE, Embase, Web of Science, Scopus, Google Scholar and three other grey literature bibliographic databases. Screening (title, abstract, and full-text) and data extraction were performed using the Covidence review platform by two independent reviewers. The review is ongoing: risk of bias will be assessed independently by two reviewers using the ROBINS-E tool. Risk estimates for incidence and mortality will be analysed separately using a generalized linear model, with a gamma-distribution and a log link function. A least squares linear regression analytical approach will also be applied for studies reporting standardized mortality ratios. Bootstrap randomizations will be used to assess the robustness of effect estimates.Preliminary Results: From 5,556 identified reports, 2,728 duplicate were removed. The remaining 2,872 abstracts were screened, and 139 studies were retained for the full-text screening. In total, 34 studies were included in the review: six ecological, 21 case-control, and seven cohort studies. Arsenic water concentration ranged from 0.5-870 µg/L across studies. Overall, 16 studies reported on bladder cancer, nine on kidney cancer, and nine on both cancers and other urinary tract cancers. Nine studies met criteria to be included in the meta-analyses. Next Steps: Studies retained for meta-analyses will be pooled with those included in our previous review, to examine associations in a larger range of studies.

Applying a gender lens to tobacco use among Canadian youth

Presented by: Ryan Iverson
Submission Authors: Ryan Iverson1, Gabriella Luongo1, Christine Czoli1, Daniel Dubois1, Trevor Mischki1
Author Affiliations: 1Tobacco Control Directorate, Controlled Substances and Cannabis Branch, Health Canada

Abstract
Objectives: Transgender and other gender minority youth are at higher risk for substance use relative to cisgender youth, in part due to unique stressors associated with their social identity. This study aims to explore the relationship between self-reported gender identity and tobacco use among Canadian students.Methods: We will analyze data from the Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS), a cross-sectional survey measuring substance use among students in grades 7 to 12. A gender identity variable will be derived using a two-step measure of sex assigned at birth (female, male) and current gender (woman/girl, man/boy, or other gender). The validity of open-text responses will be determined by two analysts. Students will be categorized as a man/boy, woman/girl, or transgender, gender diverse and/or questioning. The latter group will include the following: students whose gender differs from their sex assigned at birth; students whose gender is neither exclusively man/boy nor woman/girl; and students who indicate some degree of uncertainty related to their gender identity (questioning). Multiple logistic regression will be used to examine the independent associations between gender identity and past-30-day use of any tobacco product (cigarettes, cigars and little cigars, smokeless tobacco, water-pipe tobacco, and heated tobacco products) and cigarettes, adjusting for potential confounders such as grade, province, ethnicity, past-30-day e-cigarette, alcohol and cannabis use, access, and risk perceptions.Results: The results will be weighted to represent over 2 million Canadian students. We hypothesize that students who identify as transgender, gender diverse, and/or questioning will have higher odds of any tobacco use and cigarette use relative to students who identify as men/boys or women/girls.Conclusion/Next Steps:The analysis will be completed by May 2023. This study will contribute to our understanding of tobacco use among youth and inform efforts to reduce disparities among sub-populations experiencing social inequities in health.

Examining the role of COVID-19 pandemic income supplementation on the prevalence and severity of household food insecurity in Canada and the impact on the social gradient of food insecurity.

Presented by: Laura Jimenez
Submission Authors: Daniel Dutton1, Laura Jimenez1
Author Affiliations: 1Dalhousie

Abstract
Objectives:1: To examine if income supplementation through Canada Emergency Response Benefit (CERB) and other subsequent pandemic related forms of government income support such as the Canada Recovery Benefit (CRB) impacted the prevalence and severity of food insecurity compared to pre-pandemic levels.2: To determine how the association of income supplementation through CERB on food insecurity levels differed across income deciles and among those most at risk for food insecurity, such as female led lone parent households.Methods: The dataset used will consist of the Canadian Income Survey (CIS) which includes an assessment on food insecurity, which will be linked to CERB receipt data and other related supports. Typically, CIS survey data is collected yearly in June, but due to pandemic-related disruptions, there were two data collection periods in 2020: one in January/February and another in July/September. This disruption provides a clear divide for a pre- and post- income supplementation comparison analysis. The repeated cross-sectional nature of the data from lends itself to a difference-in-differences approach to measure how income supplementation changed food insecurity likelihoods, and whether that relationship changed across income deciles. Data for this project is currently being requested from the Statistics Canada Research Data Centre (RDC) in Halifax, meaning that final analysis strategies will depend on available data. Without seeing the data, it is difficult to predict exactly what variables will be confounders, but we have candidate variables based on the literature. The data will be stratified by sex, while age, rural/urban status, disability, and province/territory of residence will be included as potential confounders within the analysis.

Le risque de cancer du sein post-ménopausique en relation avec les expositions professionnelles aux fibres textiles.

Presented by: Maymouna Myriam Ka

Submission Authors: Maymouna Myriam KA1, 2, France Labrèche3, 4, Mark S. Goldberg5, Vikki Ho1, 2

Author Affiliations: 11. Health Innovation and Evaluation Hub, University of Montreal Hospital Research Centre (CRCHUM), Montréal, Québec, Canada, 22. Department of Social and Preventive Medicine, University of Montréal, Montréal, Québec, Canada, 33. Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST), Montréal, Québec, Canada, 44. Department of Environmental and Occupational Health, École de santé publique de l'Université de Montréal (ESPUM), Montréal, Québec, Canada, 55. Department of Medicine, McGill University Health Center, Montréal, Québec, Canada

Abstract

Objectif : Estimer les associations entre l'exposition professionnelle aux fibres textiles et le risque de cancer du sein post-ménopausique, pour l'ensemble des tumeurs et selon leur classification biomoléculaire.Méthodes : Nous utilisons les données d'une étude cas-témoins populationnelle du cancer du sein post-ménopausique menée à Montréal (2008-2011). Les cas incidents et confirmés histologiquement (N=693) ont été identifiés dans 17 hôpitaux de Montréal. Les témoins ont été choisis aléatoirement sur la liste électorale (N=604) et appariés en fréquence aux cas par l'âge. Des questionnaires sur les antécédents professionnels, les habitudes de vie et les caractéristiques démographiques ont été recueillis par entrevue. Deux hygiénistes du travail ont évalué chacun des emplois occupés en carrière, pour chaque sujet, afin de leur attribuer des expositions professionnelles aux fibres textiles naturelles (lin, coton, soie et laine) et synthétiques (rayonne, polyester et nylon). L'indice d'exposition cumulative a été calculé en additionnant, pour chaque emploi, fréquence moyenne (heures/semaine) x concentration moyenne (valeurs de 1=faible à 25=élevée) x durée (années), le tout divisé par la durée d'exposition en carrière (années). Une régression logistique est utilisée pour calculer les rapports de côtes (OR) et les intervalles de confiance à 95 % (IC95%), tout en ajustant pour les facteurs de confusion identifiés.Résultats préliminaires : Des associations nulles ont été observées entre le risque de cancer du sein et l'augmentation d'une unité d'exposition professionnelle cumulative aux fibres de lin (OR=1,00, IC95% 0,97-1,02), coton (OR=1,00, IC95% 0,99-1,01), soie (OR=1,01, IC95% 0,99-1,03), laine (OR=1,01, IC95% 0,99-1,02), rayonne (OR=1,00, IC95% 0,99-1,02), polyester (OR=1,00, IC95% 0,99-1,01) et nylon (OR=1,00, IC95% 0,99-1,02).Prochaines étapes : Comme les facteurs étiologiques peuvent varier selon le type de récepteur hormonal des tumeurs, une analyse basée sur cette typologie est en cours. Ensuite, les analyses de sensibilité considéreront également la latence de l'exposition et les périodes de sensibilité hormonale.

Association between impaired sleep and four domains of health based on the Indigenous Medicine Wheel. Findings from two Saskatchewan First Nation Communities

Presented by: Shirmin Bintay Kader

Submission Authors: Shirmin Bintay Kader1, Sylvia Abonyi1, James Dosman2, 3, Chandima Karunanayake2, Malcolm King1, Jeremy Seeseequasis4, Marie Neubuhrarie Neubuhr 4, Warren Seesequasis 4, Delano Mike 5, Larry Burgess5, Carol Naytowhow5, Punam Pahwa1, 2

Author Affiliations: 1Department of Community Health & Epidemiology, College of Medicine, University of Saskatchewan, 107 Wiggins Road, Saskatoon, SK S7N 5E5, Canada, 2Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan, 104 Clinic Place, Saskatoon, SK S7N 2Z4, Canada, 3Department of Medicine, University of Saskatchewan, 103 Hospital Drive, Saskatoon, SK S7N 0W8, Canada, 4Beardy's & Okemasis Cree Nation Band, P.O. Box 340, Duck Lake, SK S0K 1J0, Canada, 5Willow Cree Health Services, Beardy's & Okemasis Cree Nation, P.O. Box 96, Duck Lake, SK S0K 1J0, Canada

Abstract

Background: Limited research has examined the relationship between impaired sleep, social determinants of health, and the interconnected four domains of health (physical, mental, emotional, and spiritual) based on the Indigenous Medicine Wheel. Purpose: This study aims to find the association between impaired sleep and the four domains of health and the role of chronic conditions as mediators between impaired sleep and the four domains of health among First Nations people.Methodology: We used data (n=588) from the First Nations Sleep Health Project, which was collected from two Cree First Nation communities in Saskatchewan. Impaired sleep was addressed by Insomnia Severity Index (ISI) & Pittsburgh Sleep Quality Index (PSQI). A multivariable logistic regression model was fitted, and the strength of significant predictors was presented as odds ratio (OR) and 95% confidence interval (CI). By generalized structure equation modeling we assessed the mediational effect of chronic diseases after adjusting the confounders. Result: Most of the participants had good or better physical (69.09%), mental (77.07%), emotional (71.48%), and spiritual (78.03%) health. Impaired sleep was significantly associated with poor or fair health in all four domains. After adjusting for potential risk factors, we found that the probability of having poor or fair health was higher among people who had moderate to severe insomnia [OR=3.08 (CI:(1.72-5.52)), 2.49 (1.33-4.68), 2.49 (1.39-4.46), and 1.68 (0.90-3.15) for physical, mental, emotional & spiritual health respectively]. Additionally, the total effect of ISI on physical, mental, emotional & spiritual health was significantly mediated by the number of chronic diseases by 37.99%, 27.11%, 23.87% & 22.30%, respectively. Poor quality of sleep also showed similar findings.Conclusions: The impact of impaired sleep on four domains of health and the mediation effect of chronic disease on this path are unique findings. It indicates early diagnosis and treatment of these conditions might improve health.Conflict of Interst: None

Development of children's sex- and age-specific fat-mass and muscle-mass phenotypes and their associations with cardiometabolic risk factors

Presented by: Lisa Kakinamu
Submission Authors: Stephanie Saputra1, Lisa Kakinami2, Simone Brugiapaglia3, Andraea Van Hulst3
Author Affiliations: 1Graduate Student, 2Supervisor, 3Collaborator

Abstract
Objective: Body mass index cannot distinguish between fat-mass and muscle-mass resulting in obesity misclassification. A dual-energy x-ray absorptiometry (DXA)-derived phenotype classification based on fat-mass and muscle-mass has been proposed for adults (>18 yo). We extend this research by (1) developing fat-mass and muscle-mass reference curves and their corresponding phenotypes for children and (2) determining their utility in identifying cardiometabolic risk. Methods: DXA data from children (≤17 yo) in NHANES, a nationally representative sample of the general US population (n=6,120) were used to generate the sex- and age-specific decile groups of appendicular skeletal muscle index (kg/m2) and fat mass index (kg/m2) with a curve fitting procedure known as the Lambda Mu Sigma (LMS) method. The final curves were selected based on goodness of fit (AIC, Q-tests, and detrended Q-Q plot). Four phenotypes (high [H] or low [L], adiposity [A] and muscle mass [M]: HA-HM, HA-LM, LA-HM, LA-LM) were identified using the literature's guidelines above/below the median compared to same-sex and same-age peers. Next, data from QUALITY, a longitudinal cohort (n=630, 8-10 yo at baseline in 2005) with two follow-up time points (10-12 yo and 15-17 yo), were used to test the phenotypes' validity in describing cardiometabolic risk using multiple linear regression adjusted for age, sex, and Tanner's stage. Results: In QUALITY, 29.6% of participants were in the HA-HM group, 13.1% were in the HA-LM, 15.5% were LA-HM, and 41.8% were LA-LM. Compared to LA-HM, LA-LM was not associated with cardiometabolic risk factors except for lower glucose at baseline; HA-HM with lower HDL-c and higher LDL-c, triglycerides, and HOMA-IR; and finally, HA-LM with elevated triglycerides and HOMA-IR at all timepoints (all $p<0.05$). Conclusion: Sex-specific fat-mass and muscle-mass reference curves for children using DXA-data were developed. Their phenotypes allowed for discrimination of cross-sectional cardiometabolic risks, but further longitudinal exploration is recommended.

The combined effects of social isolation and loneliness on memory: A study based on the Canadian Longitudinal Study on Aging

Presented by: Ji Won Kang
Submission Authors: Ji Won Kang1, Mark Oremus1, Suzanne Tyas1, Joel Dubin2, Charity Oga-Omenka1
Author Affiliations: 1University of Waterloo, School of Public Health Sciences, 2University of Waterloo, Statistics and Actuarial Science

Abstract
This study used two waves of data from the Tracking Cohort of the Canadian Longitudinal Study on Aging (CLSA) to examine how social isolation (SI) and loneliness (LON) are individually and jointly associated with memory in middle-aged and older community-dwelling adults. LON was assessed with the question: "In the last week, how often did you feel lonely?". Response options (1: 5-7 days, 2: 3-4 days, 3: 1-2 days, 4: <1 day) were dichotomized into 1-2: lonely and 3-4: not lonely. SI was a dichotomous variable (isolated: yes/no) derived from marital/cohabiting status, retirement status, social-activity participation, and social-network contacts (within six months). SI and LON were combined into the following four-level exposure variable (SI/LON): only socially isolated, only lonely, both, neither (reference category). Memory was assessed using z-transformed raw scores from two administrations of a modified Rey Auditory Verbal Learning Test (RAVLT-I: immediate-recall, RAVLT-II: delayed-recall). In separate models for each RAVLT administration (n: 17051), we used linear mixed models to regress longitudinal z-scores (baseline, three-year follow-up) on baseline SI/LON, sociodemographic, health, functional ability, and lifestyle variables. Relative to being neither lonely nor isolated, being both lonely and isolated had the greatest inverse effect on memory (RAVLT-I estimate: -0.19 [95% confidence-interval: -0.31, -0.07], RAVLT-II: -0.20 [-0.31, -0.08]), followed by SI alone (RAVLT-I: -0.18 [-0.22, -0.13], RAVLT-II: -0.17 [-0.22, -0.13]), and followed by LON alone (RAVLT-I: -0.15 [-0.20, -0.11], RAVLT-II: -0.15 [-0.19, -0.10]). Distinguishing memory differences across SI/LON subgroups can help develop better-targeted interventions/policies. One-size-fits-all interventions may not effectively address each group's unique needs. For instance, interventions that simply increase one's social contacts may not confer optimal benefits to persons who are only lonely, compared to those who are both isolated and lonely. Our next step will be to employ qualitative methods to enrich interpretation of the quantitative results and inform further analyses.

Comparing Integrative medical care and Standard medical care in the management of depression: A Quasi-Experimental Design

Presented by: Amanjot Kaur

Submission Authors: Amanjot Kaur1, Chrysanthus Henry1, Shirley (DeeDee) Maltman2, Punam Pahwa1, Marcus Ilesanmi1, Wendy Verity1, Anne Leis1

Author Affiliations: 1Department of Community Health and Epidemiology, College of Medicine, University of Saskatchewan, Saskatoon, 2Family Physician Practice, Saskatoon, Saskatchewan

Abstract

Introduction: Depression is a major contributor to the global burden of disease. Despite the availability of various treatment methods, the management of depression is still a concern. Integrative medical care (IMC) may be an additional strategy in treating depression compared to standard medical care (SMC) alone. The objective of this study is to compare the effectiveness of IMC to SMC in managing depression at 3 months and 12 months. Methods: In this quasi-experimental study, a cohort of 130 participants with depression symptoms was recruited at baseline, and followed over 12 months in Saskatoon (SK). The primary outcome of interest was the change in the Beck Depression Inventory-II (BDI) mean scores. Participants receiving IMC and SMC for depression were compared at 3 months and one year from the baseline using descriptive statistics. Results: At 3 months 105 completed the BDI. At baseline, BDI mean scores (±SE) for the IMC group were 22.29±1.31 and 19.86±1.02 for the SMC group (p=0.154). At 3 months, the BDI mean scores (±SE) for the IMC group were 18.08±1.32 and 15.58±1.21 for the SMC group. (p=0.170) Change in BDI scores from baseline to 3 months was 4.20±0.89 (IMC) and 4.28 ±0.66 (SMC), p=0.95. Only 90 participants completed the study at 12 months. The BDI mean scores (±SE) at baseline were 21.08±1.26 in the IMC group and 19.70±1.03 in the SMC group (p=0.513). At 12 months, BDI mean scores were 12.92±1.49 in IMC, and 16.00±1.23 in SMC (p=0.037). Change in BDI mean scores after one year was 8.13±1.03 (IMC) and 3.63±1.11 (SMC), p=0.005. Conclusion: At 3 months, the 2 arms showed equipoise, while the change in BDI mean scores at 12 months showed the IMC intervention was superior. Results suggest that IMC is an effective approach for managing depression for the longer term.

Patterns and Associated Factors of COVID-19 Vaccine Uptake and Hesitancy in Bangladesh: A Multilevel Analysis by Divisions using secondary analysis of RaMMPS data

Presented by: Tahsin Shahrin Khan

Submission Authors: Tahsin Shahrin Khan1, Swarna Weerasinghe1, Dustin G Gibson2, Golam Muhammad Al Kibria2, Iqbal Ansary Khan3

Author Affiliations: 1Dalhousie University, 2Johns Hopkins University, 3Institute of Epidemiology, Disease Control & Research (IEDCR), Bangladesh

Abstract

Objectives: The World Health Organization (WHO) identified that vaccine hesitancy is a significant obstacle to fighting COVID-19, caused by various factors including safety concerns, confusion, perceived risks, poor health literacy, and misinformation. However, there is a scarcity of knowledge on vaccine uptake and hesitancy in Bangladesh. During the pandemic, the Rapid Mortality Mobile Phone Survey (RaMMPS), a project collected nationwide epidemiologic data through mobile phone surveys using a random digit dialing method from December 22, 2021 to July 31, 2022. The RaMMPS dataset contains demographic data, death-related data, Covid-19 vaccination-related data, and phone ownership data of the respondents and their families.Using the RaMMPS data, this proposed study aims primarily to estimate the vaccine uptake status, analyze patterns of vaccine hesitancy, and secondarily to compare mobile phone survey estimated rates with WHO and the Directorate General of Health Services, Bangladesh (DGHS) reported rates.Methods: The outcome variables for this study are: willingness to get vaccinated for COVID-19, vaccination status, type of vaccine product, number of vaccine doses, advisors for vaccination, and, reasons behind not getting vaccinated. A multivariable analysis by divisions will be done to measure the vaccine uptake status and the patterns of vaccine hesitancy adjusting for the effects of age, sex, education level, occupation, and area of residence (urban or rural). Phone-based collected vaccine uptake rate will be then validated with WHO/DGHS reported data for the whole country.Preliminary results: The study surveyed 22,731 respondents, of which 62.8% were from an urban setting. About 31.6% of the respondents had a primary level of education, while only 9.1% had graduate or equivalent degrees. COVID-19 vaccine acceptance rate was higher in the urban area (around 97% with a confidence interval of 96.7-97.8). Sinopharm (13.20%), Pfizer (11.9%), Moderna (9.9%), and AstraZeneca (6.4%) were the most common vaccine products received.

Psychotropic prescription drug use during the COVID-19 pandemic: A scoping review

Presented by: Wajih N. Khan
Submission Authors: Wajih N. Khan1, Swarna Weerasinghe1, 2
Author Affiliations: 1Dalhousie Medical School , 2Department of Community Health and Epidemiology

Abstract
Objectives: This scoping review aims to synthesize research-based evidence on psychotropic drug dispensing/prescription patterns before and during the COVID-19 pandemic, as well as to identify knowledge gaps in the field.Methods: PUBMED, EMBASE, PsycInfo, and SCOPUS were searched for publications that reported psychotropic medication prescribing patterns published in 2019 and after. The first phase includes organizing evidence by country, demographics, medication type, and study design for preliminary analysis. This abstract includes data regarding antidepressant prescribing rates in Canada.Results: Of the 61 studies that met inclusion criteria, there were 8 Canadian studies, 7 of which included data on antidepressant usage. A Manitoba study stated that females and those > 40 years of age had a significantly higher incidence of antidepressant prescribing in the final quarter of 2020. Significant (male p-value 0.009; female p-value 0.004) decline in antidepressant prescribing incidence post-lockdown for males (4.09/1000) and females (6.08/1000) were reported. Similar observed incidence rate (OIR per 1000) declines occurred in Ontario post-lockdown, both sexes and several age groups, ages 10-18, OIR=5.3 and expected incidence rate (EIR, assuming pre-COVID trend) 8.4 ages 19-34, OIR= 4.1 to EIR 5.31/1000; ages 35-49, OIR=3 to EIR=3.5; ages ≥ 65, OIR=2.17 to EIR=2.85/1000. In Alberta, a significant increase in several antidepressant incidence rates in the 13-months following the pandemic: escitalopram (174/1000 to 201/1000), venlafaxine (143/1000 to 153/1000) and 5 others.Conclusions: Results show both expected and increasing antidepressant drug dispensing in Canada, depending on the province studied. Public health restrictions affected patients' ability to access healthcare and medication refills, resulting in post-lockdown dispensing declines across provinces. In case of future pandemics, access to medication prescriptions and refills via. telehealth or other means is critical. Females and seniors were disproportionally affected, suggesting that public health policy should acknowledge age/sex disparities and create interventions that address issues specific to demographic categories.

Assessing the Prevalence of Chronic Conditions and Impact of Pandemic Measures on Access and Care Management in Black Communities.

Presented by: Anna Koné

Submission Authors: Dr. Anna Koné1, Helen Gabriel1, Dr. Notisha Massaquoi2, Wangari Tharao3, Dr. Lana Ray4, Dr. Elaine Wiersma1

Author Affiliations: 1Department of Health Sciences, Lakehead University, ON, CA, 2Health and Society, University of Toronto, ON, CA, 3Research and Programs at Women's Health in Women's Hands, ON, CA, 4Indigenous Learning, Lakehead University, ON, CA

Abstract

Objective: Multimorbidity is an increasingly challenging issue that is understudied in racialized groups who often face health inequalities. The COVID-19 pandemic has likely worsened the situation. This cross-sectional study aims to examine how the pandemic has impacted the health and care of African/Afro-Caribbean community members, particularly those living with chronic conditions (cc). Methods: Data were collected from November 2022 to February 2023 using a community-based survey designed with francophone and anglophone Black community members. The prevalence of cc and participants' perceptions and experiences with healthcare before and during the pandemic were assessed through descriptive and bivariate analyses. Results: 98 people participated.; majority were francophone (⅔), female (67%), average 40 years old, and university graduate immigrants living in Canada for an average of 7.5 years. The COVID-19 vaccination rate was 89%, 37.5% were diagnosed with COVID-19, with 3% requiring hospitalization. Perceived health status and quality of life declined for over half of respondents (mostly females, adults 40+, and those with cc) since the pandemic. 28.6% reported having at least one cc (33% females, 39% adults 40+), mostly hypertension, mental health problems, and diabetes. Of those, 61% were diagnosed since the pandemic started, mainly with mood disorders and depression. During the pandemic, 75% had difficulties getting an appointment, and 61% used alternative healing approaches. 38.5% felt their condition was poorly managed during the pandemic, compared to 12.5% before the pandemic. Most (>70%) were satisfied with health services before the pandemic, but fewer (<27%) were satisfied afterward, with some reporting facing discrimination.Next Steps: This study provides much-needed data on Black communities, highlighting the additional challenges brought about by pandemic measures. Ongoing data collection with a targeted sample of 500 will allow for regression analyses to assess the impact of pandemic measures on health status, access, and care management, using an intersectionality lens.

Monitoring Cardiovascular Disease in Métis Citizens of Ontario

Presented by: Sabastian Koprich
Submission Authors: Sabastian Koprich1, 2, Stephanie Tobin1, Sarah Edwards2, 3, 4, Abigail Simms2, 3, Noel Tsui2, 3, Shelley Gonneville2
Author Affiliations: 1Trent University, 2Métis Nation of Ontario, 3Institute for Clinical Evaluative Science, 4University of Toronto

Abstract
Objectives: Population-based analyses of Métis health in Canada are limited. The Métis are a distinct group of Indigenous peoples recognized in section 35 of the Canadian Constitution Act. Métis people are identified by their ancestral linkage to verified family lines that descend from First Nations women and European fur traders. This study aimed to examine cardiovascular disease outcomes in Citizens of the Métis Nation of Ontario over 9 years.Methods: Under a data governance and sharing agreement between the Métis Nation of Ontario (MNO) and ICES, registered MNO Citizens 20 years and older were linked to administrative health data in Ontario. Existing algorithms were used to determine the prevalence of acute myocardial infarction, arrhythmia, congestive heart failure, coronary artery disease, hypertension, and stroke. In the most recent year, prevalence rates were compared for all outcomes across income quintiles, age, and sex for MNO Citizens.Results: Prevalence rates across six cardiovascular outcomes increased in MNO Citizens between 2009 and 2018. The most significant increase was seen in congestive heart failure, which more than doubled from 0.86 per 100 (CI: 0.73-1.01) in 2009 to 1.98 per 100 (CI: 1.79-2.18) in 2018. The smallest increase was the prevalence rate of coronary artery disease, increasing from 6.16 per 100 (CI: 5.80-6.54) in 2009 to 8.42 per 100 (CI: 8.02-8.83) in 2018. An income gradient was evident with MNO Citizens across most outcomes, as were differences by age and sex.Conclusion: This is the first study in more than 10 years to understand trends in cardiovascular outcomes among Métis Citizens of Ontario. Rates up to 2021 will be calculated. Understanding the burden of cardiovascular disease in MNO Citizens is critical for the MNO to guide program and policy planning, as well as advocacy with the health system for Métis-specific needs.

Wiiji peer support app and Indigenous workplace mental health

Presented by: Vicki Kristman
Submission Authors: Vicki Kristman1, 2, Mannila Sandhu3, Audrey Gilbeau4
Author Affiliations: 1Department of Health Sciences, Lakehead University, 2EPID@Work Research Institute, 3EPID@Work Research Institute, Lakehead University, 4Nokiiwin Tribal Council

Abstract
Background/objectives: E-health interventions have shown success for several mental health related conditions. There are currently no culturally appropriate e-mental health approaches for Indigenous workers. In partnership with the Nokiiwin Tribal Council, we used an e-mental health application (app) for Indigenous workers titled "Wiiji". The app was designed to provide workplace mental health (WMH) resources and a peer-support network. The primary objective of our study was to determine the association between access to the app and Indigenous workers' WMH.Methods: We used a multi-community, quasi-experimental design. Working members from Nokiiwin Tribal Council communities, aged 15 years and older were invited to participate. We collected self-reported WMH measures and workplace factors at baseline in two groups of communities: those who received the app immediately (intervention) and those who did not (control). After 6 months follow-up we compared WMH measures between the intervention and control communities using mixed effects regression model, controlling for up to two workplace factors.Results: Of 226 participants completing the baseline assessment, 172 (76.5%) were followed up at 6 months. There were no differences in WMH measures between the intervention and control groups at both baseline and 6-months follow-up. Modelling results controlling for important workplace factors indicated no significant differences in WMH measures: general mental health (β=1.56, 95% CI: -0.73, 3.85); depressive symptomatology (β=-0.12, 95% CI: -3.72, 3.48); job tension (β=-0.24, 95% CI: -1.02, 0.54); psychological distress (β=-0.50, 95% CI: -1.85, 0.84); and workplace bullying (β=-0.73, 95% CI: -7.03, 5.57). Conclusion: There was a slight non-statistically significant trend towards a positive impact of the app on general mental health. Future longitudinal studies should include a larger sample size to confirm this trend.

Changes in COVID-19 border test positivity after lifting of pre-entry test requirement for travellers qualified as fully vaccinated

Presented by: Elizabeth Kunkel
Submission Authors: Elizabeth Kunkel1, Shirley Bryan1, Elizabeth Rolland-Harris1, Rachel Rodin1
Author Affiliations: 1Public Health Agency of Canada

Abstract
ObjectivesThe Canada Border Testing Program (CBTP) monitored COVID-19 prevalence among travellers entering Canada. On April 1, 2022, pre-entry test requirements were lifted for fully vaccinated travellers (FVT). Prior to this, all non-exempt travellers were required to submit proof of a negative test taken shortly before arrival; this requirement remained for partially/unvaccinated travellers (P/VT) after April 1. The objective of this study is to investigate whether pre-entry tests reduced COVID-19 importation into Canada.MethodsUnder CBTP, all P/VT were required to undergo testing on arrival, and a subset of FVT were randomly selected for mandatory arrival testing. Data for the 203,840 tested travellers arriving by air between February 28 and April 23, 2022 were included (184,995 FVT and 18,845 P/VT). Weekly arrival test positivity was calculated as: positive tests/(positive + negative tests).Preliminary ResultsPreceding April 1, 2022, weekly test positivity was higher for P/VT than FVT, but both groups followed a similar trend: between the weeks of February 28-March 5 and March 27-31, FVT positivity increased from 1.3% (95%CI: 1.2-1.5) to 2.2% (95%CI: 2.0-2.4) and P/VT positivity increased from 1.7% (95%CI: 1.2-2.2) to 2.5% (95%CI: 1.8-3.3).In the first week after pre-entry tests were lifted for FVT, positivity increased in both groups, to 3.3% (95%CI: 3.1-3.5) for FVT and 4.2% (95%CI: 3.5-4.9) for P/VT. In the two following weeks (April 10-23), positivity continued to increase for FVT but decreased for P/VT, reversing the historical relationship between FVT and P/VT positivity. Positivity was significantly higher for FVT the week of April 17-23 (3.7% vs 2.3%, p=0.01). The results suggest that pre-entry tests reduced COVID-19 importation into Canada.Next StepsWe will quantify the estimated effect of pre-entry tests on FVT positivity using difference-in-differences regression. The P/VT trend will inform what the FVT trend may have been without the policy change.

The Burden of New-Onset Psychiatric Disorders Following Traumatic Brain Injury

Presented by: Nelofar Kureshi
Submission Authors: Nelofar Kureshi1, Abraham Nunes1, David B. Clarke1, Cindy Feng1, Syed Sibte Raza Abidi1
Author Affiliations: 1Dalhousie University

Abstract
Background: Psychiatric disorders are one of the common sequelae of traumatic brain injury (TBI). The objective of this study was to describe new-onset psychiatric disorders (NPDs) in patients who sustain TBI.Methodology: Data on all TBIs between 2003-2019 were obtained from the Nova Scotia Trauma Registry. Patients were linked to the provincial Physician Billing Database using a unique health card number. Age, sex, injury mechanism, injury severity, and psychiatric comorbidities in the two years preceding TBI were collected. Encounters for psychiatric conditions were recorded up to 24 months after injury. An NPD was defined as the onset of a psychiatric disorder not present in the individual in the two years prior to injury. Associations of demographic and injury-related characteristics with NPDs were assessed using chi-square and independent t-tests. A p-value of <0.05 was considered statistically significant.Preliminary Results: There were 3,422 TBI patients identified; the majority were males (70%), with a mean age of 51±25 years. In the 24 months following TBI, 43% reported at least one psychiatric disorder. Most patients reported single disorders (61%); psychiatric comorbidity for 2 or ≥ 3 disorders was less common (26% and 13%, respectively). Anxiety (30%), mood (22%), and organic disorders (20%) were the most common post-injury diagnoses. NPDs were observed in 36% of patients. Significant demographic and injury-related differences were present in those who developed NPDs: females (44% vs. 27%; $p<0.001$), older patients (56±24 vs. 48±26 years; $p<0.001$), those with greater head injury severity (3.98±0.82 vs. 3.86±0.88; $p=0.001$), and those with extended length of hospital stay (25±41 vs. 15±32 days; $p<0.001$).Next Steps: This study highlights the significant burden of new-onset psychiatric disorders experienced by TBI patients. Ongoing work includes the development of multivariate regression models to facilitate the early identification of NPDs and prompt early interventions for optimal recovery of TBI patients.

Les niveaux prédits de vitamine D sérique et la récidive du cancer de l'ovaire chez les survivants.

Presented by: jerome laforme
Submission Authors: Jérôme Laforme1, 2, Vikki Ho1, 2, Marie-Pierre Sylvestre1, 2, Anita Koushik1, 2
Author Affiliations: 1Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Montréal, Québec, , 2Département de médecine sociale et préventive, Université de Montréal, Montréal, Québec, Canada

Abstract
Objectif : le faible taux de survie au cancer de l'ovaire nous pousse à approfondir les connaissances sur les facteurs pronostiques modifiables. Ainsi, nous avons examiné la relation entre l'exposition à la vitamine D et la récidive du cancer de l'ovaire chez les femmes atteintes du cancer de l'ovaire épithélial de haut grade.Méthodes : dans le cadre d'une étude de cohorte prospective, 99 survivantes en rémission du cancer épithélial de l'ovaire de haut grade ont été recrutées entre 2016 et 2018, 6 mois après la fin de leur traitement. Les données liées au mode de vie et à l'exposition à la vitamine D ont été collectées par entrevue téléphonique à ce moment. L'exposition à la vitamine D fût estimée via un modèle de prédiction des niveaux de 25(OH)D sériques (un biomarqueur de la vitamine D). Les variables de confusion ont été identifiées à l'aide d'un graphe orienté acyclique basé sur la littérature. Les rapports de risques instantanés (HR) et intervalles de confiance (IC) à 95% ont été estimés à partir du modèle à risques proportionnels de Cox.Résultats préliminaires : à la fin de l'étude, 48 femmes avaient récidivé. Le niveau moyen prédit de 25(OH)D à la baseline était de 71.2 nmol/L. Pour une augmentation de la concentration sérique de 25(OH)D de 20 nmol/L, nous avons observé une diminution du risque de récidive de 11% (HR : 0.89; IC 95% CI: 0.58, 1.37).Conclusion : bien qu'imprécis dû à la faible taille échantillonnale, nos résultats suggèrent que les femmes ayant une concentration sérique de 25(OH)D plus élevé ont une meilleure survie au cancer de l'ovaire.Prochaines étapes : étant donné que les mécanismes immunomodulateurs et/ou inflammatoires liés à l'adiposité peuvent modifier l'action de la vitamine D, nous allons examiner la modification d'effet causée par l'indice de masse corporelle.

Scaled Brier score performs better than other measures for class predictions: Simulations and review of case ascertainment studies

Presented by: Pascal Lambert
Submission Authors: Pascal Lambert1, Harminder Singh1, 2, Kathleen Decker1, 2
Author Affiliations: 1CancerCare Manitoba, 2University of Manitoba

Abstract
Objectives: Many measures are available to evaluate the performance of algorithms and model predictions. However, limitations such as improperly accounting for incidence can lead to overestimating performance. Recently, the Matthews correlation coefficient (MCC) has been recommended over other performance metrics. The purpose of this study was to evaluate the performance of commonly and uncommonly used measures with categorical (class) predictions of simulated binomial and multinomial data. Published studies developing administrative data algorithms for case ascertainment were reviewed and reassessed using the best performing metric from the simulations performed.Methods: Scenarios where incidence of events and accuracy of predictions varied were generated and analyzed using accuracy, adjusted Rand Index, area under the curve, Brier score (scaled and unscaled), F1 score, Kappa, MCC, normalized mutual and normalized variation of information, and Youden index. In addition, twenty studies published in 2021 that developed administrative data algorithms for case ascertainment were randomly selected. Study output was reassessed using the best performing measure from the simulations.Results or Preliminary Results: The scaled Brier score was the only measure to properly account for incidence and provided better results than other measures, including the MCC. When output from the reviewed studies were converted into scaled Brier scores, authors' assessments of algorithms did not correlate with scaled Brier scores. Algorithms with the highest scaled Brier scores had similar assessments of accuracy as algorithms with scaled Brier scores indicating random agreement.Conclusion or Next Steps: This study demonstrates that the scaled Brier score was the most accurate measure and should be preferred for measuring agreement. Although the scaled Brier has previously been used for continuous predicted probabilities, it can be extended to categorical (class) prediction for binomial and multinomial variables. Application of administrative data algorithms should be used with caution, as substantial misclassification may occur.

Capturing the substance-related harms landscape in Nova Scotia during the COVID-19 pandemic period (2019-2022)

Presented by: Hannah Landry
Submission Authors: Hannah Landry1, 2, Kathryn McIsaac2, Emily Cranston2
Author Affiliations: 1PHAC, 2NS Department of Health & Wellness

Abstract
Objectives: In 2020, the COVID-19 pandemic collided with the ongoing epidemic of addiction and exacerbated an already dire situation; many provinces in Canada recorded unprecedented levels of substance-related morbidity and mortality. Even as restrictions eased, substance-related harms continued to surpass pre-pandemic levels. Analyses to better understand the current situation have been undertaken in jurisdictions such as British Colombia, Alberta and Ontario. To our knowledge, similar explorations of the Nova Scotia substance-related harms landscape during this same period have not been presented.It is important to monitor trends in substance related harms to inform health policy and practice. The objective of this work is to describe substance related harms in NS between 2020 and 2022.Methods: Data will be abstracted from Nova Scotia's Department of Health and Wellness's 'Drug Use and Harms' public health surveillance tool. This public health surveillance tool presents data from a variety of sources, allowing users to explore the most recent morbidity and mortality data related to opioids, stimulants as well as other substances. This tool will be used to structure the discussion of substance-related harms in Nova Scotia.We will describe the frequency and rates of acute toxicity deaths, substance-related harms emergency department visits, hospitalizations, EHS calls and suspected opioid overdoses between 2019 and 2022. The following data sources will be used:· Nova Scotia Medical Examiner's Service (MES)· National Ambulatory Care Reporting System (NACRS)· Emergency Department Information System (EDIS)· Discharge Abstract Database (DAD)· Emergency Health Services (EHS) databaseThese data sources align with those in other Canadian jurisdictions. Interpretation of our results will focus on expanding our understanding of the provincial experience and centering this experience within the context of other jurisdictions, both nationally and internally.

Pharmacists as Immunizers in Nova Scotia, Canada: Identifying Immunization Prescribing Trends and Patient Characteristics

Presented by: Rebecca Lawrence
Submission Authors: Rebecca Lawrence1, Jennifer Isenor1, Joanne Langley1, Samuel Stewart1, W. Dominika Wranik1
Author Affiliations: 1Dalhousie University

Abstract
Pharmacists are one of the most accessible healthcare providers in Canada and now provide more services than ever, including immunization services. In Nova Scotia, literature published to date on pharmacists as immunizers has mainly focused on influenza vaccines and the characteristics of patients receiving pharmacist-prescribed vaccines have not been previously described. Therefore, the objectives of this project are 1.) To describe patterns in age, sex, geographic location, and relative deprivation of patients receiving immunizations prescribed in community pharmacies in Nova Scotia, compare characteristics of these patients pre-COVID-19 versus during COVID-19, and compare the characteristics of these patients to the general provincial population, and 2.) To describe immunization prescribing activity (influenza and non-influenza vaccines, excluding COVID-19 vaccines) of community pharmacists in Nova Scotia and compare this activity pre-COVID-19 versus during COVID-19.A retrospective time-series analysis using administrative health data from existing databases will be conducted to identify changes in pharmacist prescribing of vaccines, both before and during the COVID-19 pandemic. Included data sources are the Nova Scotia Drug Information System, the MASTER Patient Registry, the DOCTORS Licensed Provider Registry, the Postal Code Conversion File, and the Canadian Index of Multiple Deprivation.Descriptive statistics will be calculated for patient age, sex, geography, and deprivation. Comparisons will be made over time and against the general provincial population using simple t and chi-square tests. Multivariable negative binomial regression models including time-varying covariates will be built to characterize immunization prescribing activity over time.The results of this project will identify successes in pharmacist immunization prescribing as well as potential gaps in access and opportunities to improve immunization through community pharmacists. This may include increased advertising of immunization prescribing services, increased support allocated to pharmacies in areas of low prescribing, or supports for those with low access to immunization services due to social or financial barriers.

Screening and Treatment (Paroxetine versus Cognitive Behavioural Therapy) of Post-Traumatic Stress Disorder (PTSD) in Canadian Wildfire Evacuees: A Cost-Utility Analysis

Presented by: Michael Lebenbaum
Submission Authors: Michael Lebenbaum1, S. Ahmed Hassan2
Author Affiliations: 1University of Wisconsin-Madison, 2University of Toronto

Abstract
Objectives. Global climate change is resulting in dramatic increase in wildfires. Individuals exposed to wildfires experience a high burden of post-traumatic stress disorder (PTSD) and the cost-effectiveness of the treatment options to address PTSD from wildfires has not been studied. The objective of this study was to conduct a cost-utility analysis comparing screening in combination with paroxetine or cognitive behavioural therapy (CBT) versus no screening in Canadian adult wildfire evacuees.Methods. Using a Markov model, quality adjusted life years (QALY) and costs were evaluated over a 5 year-time horizon. All costs and utilities in the model were discounted at 1.5%. Deterministic and probabilistic sensitivity analyses were performed to elucidate the uncertainty in the incremental cost-effectiveness ratio (ICER) and incremental net monetary benefit (INMB) at willingness to pay (WTP) threshold (λ) of $50,000. Results. No screening was dominated by screening in combination with Paroxetine (incremental cost: $-2,484.53, incremental effect: 0.395) while screening and CBT was cost-effective in relationship to no screening (incremental cost: $9,061.31, incremental effect: 0.56, ICUR: $16,180.91) but not in relationship to screening and Paroxetine (incremental cost: $11,545.84, incremental effect: 0.165, ICUR: $69,974.79). The probability of remission over time, initial prevalence of PTSD and discount rate had the largest impact on the INMB comparing Paroxetine to the no screening arm. Conclusion. Screening with Paroxetine was found to be cost saving while providing additional QALYs in wildfire evacuees. CBT was only cost-effective relative to no screening. Screening programs targeted at wildfire evacuees should be considered in regions at high risk of wildfires.

Higher-order interactions among metabolism genes and polycyclic aromatic hydrocarbon exposure and modified breast cancer susceptibility

Presented by: Derrick Lee
Submission Authors: Derrick G Lee1, Angela Brooks-Wilson2, Rachel Murphy3, Kristan J Aronson4, Igor Burstyn5
Author Affiliations: 1St. Francis Xavier University, 2Michael Smith Genome Sciences Centre, 3University of British Columbia, 4Queen's University, 5Drexel University

Abstract
Objective: Breast cancer is a multifactorial disease, and previous research has highlighted the role gene-environment interactions have on breast cancer risk, including how the carcinogenic effects of polycyclic aromatic hydrocarbons (PAHs) can be modified by metabolism genes. However, given the complex pathways involved in the activation of PAHs to their carcinogenic form and, their eventual detoxification, gene-gene interactions (i.e. epistasis) interactions may have non-additive effects that may help further explain the heterogenous effects of low-penetrant genetic susceptibilities. Our objective is to examine the role of epistasis among genes associated with PAH metabolism and breast cancer risk in women.Methods: From a population-based case-control study in British Columbia and Ontario, 627 cases and 788 controls were genotyped for 138 single nucleotide polymorphisms (SNPs) in genes involved in the metabolism of xenobiotics, including PAHs. Multifactor-dimensionality reduction, a nonparametric method for collapsing high-dimensional data, was used to examine second through fifth-order gene-interactions, examining over 402 million combinations. Results: No evidence of epistasis was observed among the 138 SNPs; however, a third-order interaction between PAH exposure and two SNPs associated with breast cancer was identified. One SNP, rs2854461 (EPHX1), which had no statistically significant independent main effect after adjusting for the false discovery rate, was observed to have a statistically significant higher-order interaction with rs3812617 (AKR1C4) and prolonged PAH exposure. Conclusion: Given that activated PAHs are transformed by EPHX1 into dihydrodiols that can be oxidized by AKR1C4 to form catechols, which can induce DNA damage, this study highlights a complex metabolic pathway across two loci that may affect breast cancer susceptibility, particularly as it relates to PAH exposure. These results provide supporting evidence of the need to examine the effects of multi-loci epistasis and their role in breast cancer.

RESILIENCE PROFILES IN MENTAL WELLBEING: A LONGITUDINAL ANALYSIS IN A COMMUNITY-BASED SAMPLE OF GENERAL POPULATION

Presented by: Muzi Li

Submission Authors: Muzi Li1, 2, Jean Caron1, 2, Yingying Su1, 2, Carl D'Arcy3, Marie-Josee Fleury1, 2, Aihua Liu2, Xiangfei Meng1, 2

Author Affiliations: 1Mcgill University, 2Douglas Research Centre, 3University of Saskatchewan

Abstract

ObjectivesThere is little research conducted to examine the longitudinal effects of multiple resilient factors in the changes of mental wellbeing, and even less triangulating the combined effects of stress in this relation. This study aims to investigate resilient profiles based on social support, coping strategies, and mastery and explore their longitudinal relationships with mental wellbeing when facing different stressors.MethodsData analyzed were from a large-scale, longitudinal community-based cohort. Latent profile analysis was used to identify latent profiles of chronic stress. Multivariate linear regression was used to examine the cross-sectional association between resilience, stress, and mental wellbeing. Multivariate ordinal logistic regression was applied to identify how mental wellbeing was affected when resilience factors changed.ResultsChronic stress was classified as low, moderate, and high stress groups. Social support, adaptive coping strategies, and mastery buffered the effect for those exposed to the moderate and/or high stress to maintain a good mental wellbeing. Mental wellbeing was mitigated with improved social support under moderate (β=0.05, 95% CI=0.02-0.08) and high stress (β=0.23, 95% CI=0.18-0.28), coping strategies under high stress (β=0.23, 95% CI=0.09-0.36), and mastery under moderate stress (β=0.18, 95% CI=0.08-0.28). The longitudinal analysis found that the improvements of social support and coping strategies significantly enhanced mental wellbeing.ConclusionThis present study provides further evidence to support the stress-buffering effects of social support, coping strategies, and mastery. The findings of the study also add to the literature on the contribution of improved resilience factors to mental wellbeing. The practice and research implementations of the study directly link with mental health promotions for a multi-sectoral approach to provide a warm supportive community and familial environment, as well as promoting problem-solving skills to maintain good positive mental health, even when going through some dark times of the life.

Predictive Factors of Gender Positivity and Gender Distress in Transgender and Gender-Nonbinary People in Canada

Presented by: Lux Li
Submission Authors: Lux Li1, Greta Bauer1, 2, Ayden Scheim1, 3
Author Affiliations: 1Western University, 2University of Minnesota, 3Drexel University

Abstract
Objectives:Transgender (trans) healthcare has been centering on gender dysphoria, a psychiatric diagnosis that is historically a prerequisite for accessing gender-affirming medical services. However, gender dysphoria is far from reflecting the full range of gender experiences of trans and gender nonbinary (TGNB) people. The dysphoria-centred view carries pathologizing connotations and overlooks a crucial aspect of trans well-being: gender positivity. Gender positivity (a.k.a. gender euphoria) - the positive feelings related to one's gender - is commonly discussed within the TGNB communities but has received little attention in health research. Most existing research on gender positivity is qualitative, and there is a lack of quantitative assessment tools for gender positivity. The proposed quantitative study aims to expand the dysphoria-centered clinical viewpoint to include gender positivity for a community-informed, balanced, and multifaceted understanding of TGNB gender experiences.Methods:Data were collected via Trans PULSE Canada, the largest community survey of TGNB people in Canada (N=2873). The survey included the newly developed Gender Positivity Scale (GPS) and Gender Distress Scale (GDS). The GPS measures gender positivity (GP) as a multifaceted construct instead of the mere opposite or reduction of gender dysphoria. The GDS captures broader manifestations of gender distress (GD) instead of a clinical diagnosis. Both scales consist of two subscales related to the body and social gender.The study will (1) examine the correlation between GP, GD, and their body- and social-subscales, (2) perform factor analyses of the scales, (3) analyze healthcare and social predictors of GP and GD using structural equation modelling, with a focus on GP, and (4) explore whether the healthcare and social effects and the GP-GD correlations differ across gender identities (trans women, trans men, nonbinary). The results can inform TGNB healthcare to benefit from resilience-based approaches and nurture gender positivity as a protective factor for health.

Examine the construct validity of the PHQ-9 in the general population before and after the COVID-19 pandemic using Rasch modelling

Presented by: Ze Lu
Submission Authors: Ze Lu1, Seens Malakouti-Nejad 2, Joy MacDermid2, James Fraser3
Author Affiliations: 1McMaster University, 2Western University, 3University of Waterloo

Abstract
Objectives: The aim of this study was to examine the construct validity of the PHQ-9 in the general population before and after the COVID-19 pandemic using Rasch modeling. Dimensionality, internal consistency, differential item functioning (DIF), and ceiling/floor effects of PHQ-9 were also evaluated.Methods: The PHQ-9 was administered via an online survey platform to participants to assess the pre- and post-pandemic level of depressive symptoms. Rasch analysis by RUMM 2030 professional suite evaluated test of fit, item threshold ordering, targeting, dimensionality, differential item functioning (DIF), local independence, and person separation index (PSI). A Kappa statistic was calculated to assess the inter-rater agreement between the PHQ-2 and PHQ-9.Results: The current analysis comprises 1359 patients. Significant misfit to the Rasch model was identified at both time points, especially in Item 2 (feeling gloomy, despondent, or despairing). PHQ-9 showed significant flooring before the pandemic. DIF was discovered in multiple items regarding child, marriage, or employment status. The kappa value was rated as fair between the PHQ-9 and PHQ-2.Conclusion: The current study applied Rasch analysis to PHQ-9 based on a large worldwide sample of the general population. Divergent Rasch fit statistics, such as the test of fit, DIF, and targeting were discovered both before and after the pandemic. Item 2 remains a misfit across two time points. Our analysis of the PHQ-9 before and after the pandemic does not support the model fit by Rasch. In addition, PHQ-2 and PHQ-9 should not be used interchangeably, according to our Kappa statistics.

Do depressive symptoms mediate the association between perceived social support and executive function? A moderated mediation analysis in the CLSA

Presented by: Laura Lupoi
Submission Authors: Laura Lupoi1, Mark Oremus1, Colleen J. Maxwell2, Suzanne L. Tyas1
Author Affiliations: 1School of Public Health Sciences, University of Waterloo, 2School of Pharmacy, University of Waterloo

Abstract
OBJECTIVES: Canada's population is rapidly aging, meaning efforts to address age-related illnesses, such as cognitive disorders, are imperative. Social support and depression are modifiable factors that can affect cognition in older adults. However, gaps remain in our knowledge of the complex and intertwined relationships between social support, depression, and key domains of cognition, such as executive function. This study will help address these gaps by: 1) exploring whether depressive symptoms mediate the association between perceived social support (overall and subtypes) and executive function, and 2) ascertaining if this mediation is moderated by age and sex. Our study will inform program development by suggesting whether social support interventions to promote executive function might yield better results by targeting depressive symptoms in certain age and sex groups.METHODS: Analyses will be based on baseline (T1) and follow-up (T2) data from the Comprehensive cohort (n=30,097) of the Canadian Longitudinal Study on Aging, a population-based study of adults aged 45-85 years. Perceived social support (exposure) is measured using the Medical Outcomes Survey-Social Support Survey (MOS-SSS), which assesses overall levels of perceived social support and four subtypes: emotional/informational, tangible, affectionate, and positive social interactions. Perceived social support will be analyzed as both a continuous and categorical variable. Executive function (outcome), a continuous variable, is based on the combined z-scores of five cognitive tests. Depressive symptoms (mediator) is a continuous variable measured using the 10-item Centre for Epidemiological Studies Depression Scale. Moderated mediation will be assessed using conditional process analysis, a regression-based framework that will adjust for moderators (age and sex) and relevant covariates (sociodemographic, health, lifestyle). Reported results will include path I effects (exposure to mediator) and path II effects (mediator to outcome), as well as the proportion of the association between perceived social support (T1) and executive function (T2) mediated by depressive symptoms (T2).

Patterns of delinquent behaviours and experiences of victimization: a latent class analysis among youth in Ontario, Canada.

Presented by: Alex Luther
Submission Authors: Alex Luther1, Mark Ferro1, Scott Leatherdale1, Joel Dubin1
Author Affiliations: 1University of Waterloo

Abstract
Background: Delinquent behaviours and victimization among youth harms health and social trajectories, and public health broadly. Despite evidence that engaging in and being victimized by delinquent behaviours often cluster, most studies have examined the clustering of delinquent behaviours or victimization experiences independently. Information on patterns of co-occurrence is crucial to design appropriate interventions. Objectives: The primary purpose was to identify latent classes of delinquency and victimization among youth from the general population. The secondary purpose of this study was to examine associations of covariates on latent class membership. Methods: The sample consisted of 1,948 youth aged 4-14 from the 2014 Ontario Child Health Study. Latent class analysis was performed to identify patterns of delinquent behaviours and experiences of victimization, while multinomial regression was conducted to examine how covariates were associated with likelihood of class membership. Results: The analysis identified four classes of youth in the OCHS sample: 1) low victimization and low delinquency (75.4%), 2) moderate victimization & moderate school delinquency (7.8%), 3) high victimization & moderate home delinquency (11.8%), and high victimization & high home and school delinquency (5.0%). Youth sex, household income, ethnicity, parental education, and parental depression were associated with differences in class membership. Conclusions: Approximately one quarter of youth engaged with delinquent behaviours, with patterns of co-occurrence suggesting these youth are both perpetrators and victims across environments. Interventions should approach youth delinquency and victimization as a spectrum of clustered behaviours and experiences in these environments.

Examining associations between patterns of delinquency and victimization and mental health among youth in Ontario using multinomial regression.

Presented by: Alex Luther
Submission Authors: Alex Luther1, Mark Ferro1, Scott Leatherdale1, Joel Dubin1
Author Affiliations: 1University of Waterloo

Abstract
Background: Despite evidence that engaging in and being victimized by delinquent behaviours often cluster, previous research has historically evaluated these items independently when determining associations with mental health. Objectives: This study aimed to delineate associations between latent classes of delinquency and victimization and mental disorder and explore the moderating effects of relationships, mental health services, and demographic variables on associations between latent classes and mental disorders. Methods: The sample consisted of 1,948 youth aged 4-14 from the 2014 Ontario Child Health Study. Latent class analysis was performed to identify patterns of delinquent behaviours and experiences of victimization. Multinomial regression was conducted to examine the relationship between mental disorders and latent classes while exploring if social relationships, school mental health service, and sociodemographic variables were moderators. Results: Controlling for the effects of other variables, youth with mental disorder were 4.6 to 5.5 times more likely to be members of high to moderate victimization and delinquency classes than the low victimization and delinquency class. None of the variables examined displayed a moderating effect on the associations between mental disorder and latent classes. Male sex and lower income increased the likelihood of high to moderate victimization and delinquency class membership, while strong peer and family relationships decreased the likelihood of high to moderate victimization and delinquency class membership. Conclusions: Differences exist between youth with mental disorders and those without in their patterns of delinquency and victimization. Interventions that improve social relationships offer opportunities to address the nexus of delinquency, victimization, and mental health.

Sex differences in opioid prescribing practices: Do differences exist in therapeutic treatment between male and female patients presenting to the emergency department with low back pain?

Presented by: Alanna MacDonald
Submission Authors: Alanna MacDonald1, Mark Asbridge1, Jill Hayden1, Yukiko Asada2
Author Affiliations: 1Dalhousie University, 2National Institutes of Health

Abstract
Objectives The primary objective of this study is to investigate sex/gender differences in the experiences of patients seeking pain management from the healthcare system through the comparison of their presentation, diagnosis, and treatment in and after the Emergency Department (ED). The focus was patients experiencing low back pain, a frequently occurring condition, with a high likelihood of pain management treatment through opioids. Methods This study is a retrospective cohort design using health administrative data. Study data was drawn from two existing datasets. Sex and gender were considered using the concept of entanglement. Outcomes include differences in the nature of the diagnosis, and treatment in and after urgent care. Descriptive statistics were conducted to describe demographic and clinical differences in women and men attending the emergency department. Inferential analyses were conducted including logistic and linear regression modelling with clustering. Preliminary Results A total of 4077 men and women attended the ED (49.1% vs 50.9%) and data was available for 548 on prescriptions given in ED. Baseline characteristics were similar between men and women. Women had a longer average stay than men, while men were more likely to be diagnosed with mechanical back pain. There were no significant differences in the likelihood of receiving opioids in ED. After running adjusted logistic regression, men were found to be more likely to fill a prescription than women (aOR: 1.38 [1.10, 1.74]). There were no significant differences in doses between men and women. Conclusion This study provides information on sex differences in treatment of low back pain. Understanding sex differences in prescribing practices of opioids may lead to a better understanding of sex differences in the risk of developing prolonged and problematic use of opioids. This research may help to inform policy when creating sex-specific prescribing practices for opioids in urgent care.

Examining factors associated with Nova Scotians' self-perceived mental health

Presented by: Megan MacGillivray
Submission Authors: Megan MacGillivray1, Derrick Lee1, Maureen O'Brien2
Author Affiliations: 1St. Francis Xavier University, 2University of Calgary

Abstract
Objectives: Nova Scotians have consistently reported lower levels of self-perceived mental health (SPMH); therefore, this study aimed to explore factors associated with negative SPMH to enable strategic public health efforts in Nova Scotia.Methods: An exploratory analysis of 12,814 participants from the Engage Nova Scotia's 2019 Quality of Life Survey was conducted to examine the relationship between select variables identified from a literature review and negative SPMH (i.e. fair or poor). Chi-squared tests of independence and t-tests were used to explore associations between negative SPMH and categorical and continuous variables, respectively, while multivariable logistic regression models were used to estimate odds ratios and 95% confidence intervals while adjusting for confounding variables, including age, sex, income, education, and household status (e.g., single parent, adult living alone).Results: Several variables related to social connection were observed to have strong relationships with SPMH. Participants who "very strongly agreed" with the statement 'I often feel isolated from others in the community' were nearly 10 times more likely to report negative SPMH (OR=9.8, 95% CI: 6.5-14.7) compared to participants that "very strongly disagreed". Moreover, participants that "very strongly agreed" with the statement 'I feel left out' were almost 12 times more likely to report negative mental health (OR=11.8, CI=8.0-17.4) compared to those that "very strongly disagreed". Conclusions: Negative SPMH appears to be strongly related to social isolation and loneliness. By better understanding factors related to social isolation, strategies and policies may be developed to address these challenges on a community level, which may ultimately help to improve the mental health of Nova Scotians.

A deep learning model for diabetes risk prediction from unstructured clinical notes

Presented by: Hassan Maleki Golandouz
Submission Authors: Hassan Maleki Golandouz1, Lisa M. Lix1
Author Affiliations: 1University of Manitoba - Department of Community Health Sciences (CHS)

Abstract
Objectives: Diabetes mellitus (DM) is associated with substantial morbidity, healthcare utilization, and mortality. Prior studies have developed DM risk prediction models using structured information contained in electronic medical record (EMR) data, such as diagnosis and medication codes. The potentially valuable information in the unstructured text of clinical notes has been largely untapped for risk prediction. Unstructured text may contain previously-diagnosed conditions, medical interventions, symptoms, and behavioral risk factors. They may have temporal dependencies and patterns that are absent in structured data due to the ordering of words, phrases, and sentences. We propose to develop a DM risk prediction model using unstructured data and compare it to a predictive model based on structured data.Methods: This retrospective cohort study will utilize unstructured text in clinical notes from primary care physicians who are part of the Manitoba Primary Care Research Network (MaPCReN). The MaPCReN data are housed in the Manitoba Centre for Health Policy Population Research Data Repository and represent more than 450,000 patients from urban and rural Manitoba. The study cohort will consist of adults (18+ years), including cases ascertained using a validated definition of DM and non-cases; selected in equal numbers. This study will use word embedding techniques to transform clinical note words into numerical vectors, which will serve as inputs to a bidirectional Long Short-Term Memory (bi-LSTM) deep learning model to predict DM case status. Bi-LSTM uses memory cells and forward/backward recurrent neural networks to learn from past and future data in a sequence. The model will be trained and tested using an 80:20 split with 10-fold cross validation. Model performance will be evaluated using area under the receiver operating characteristic curve to assess discrimination and the Brier score to evaluate calibration. Visualizations of DM-related keywords and phrases importance will facilitate interpretability.

Sociodemographic factors associated with vaccine hesitancy in the South Asian community in Canada

Presented by: Baanu Manoharan

Submission Authors: Baanu Manoharan1, Rosain Stennett1, Russell de Souza1, 2, Shrikant Bangdiwala1, 2, Shelly Bolotin3, 4, Dawn Bowdish5, Rahul Chanchlani6, Dipika Desai1, 2, Sujane Kandasamy1, Farah Khan2, Zainab Khan2, Scott Lear7, Mark Loeb1, 8, Lawrence Loh4, Rochelle

Author Affiliations: 1 Department of Health Research Methods, Evidence and Impact, McMaster University, 2Population Health Research Institute, 3Public Health Ontario, 4Dalla Lana School of Public Health, 5Department of Medicine, McMaster University, 6Department of Pediatrics, McMaster University, 7Faculty of Health Sciences, Simon Fraser University, 8Department of Pathology and Molecular Medicine, McMaster University

Abstract

Objectives: This study aims to identify sociodemographic factors associated with vaccine hesitancy in a cohort of South Asians living in British Columbia (BC) and Ontario (ON), Canada.Methods: A cross-sectional analysis of vaccine hesitancy from the baseline assessment of a prospective cohort study was conducted. Participants (18+ years) were recruited from BC and ON from April through November 2021. Demographics and vaccine attitudes measured by the Vaccine Attitudes Examination (VAX) scale were collected. VAX consists of 12 items scored on a 6-point Likert scale, and higher scores are interpreted as more hesitant. Sociodemographic factors associated with vaccine hesitancy were identified using a linear regression model adjusting for multiple respondents per household.Results: A total of 1384 people enrolled (mean age = 38.6±15.4y), of which 52.3% were women. The overall mean VAX score was 38.4 ± 10.4 [range: 12.0-72.0]. Age, education level, immigration status, and employment status were associated with lower vaccine hesitancy, whereas self-reported previous COVID infection and marital status were associated with higher vaccine hesitancy in univariable analysis. In a multivariable model, being married (vs. never married; $p<0.01$), a newer immigrant (0-5 years in Canada) (vs. born in Canada; $p<0.01$) or reporting a previous COVID infection (vs. no previous infection $p<0.01$) were associated with higher vaccine hesitancy.Conclusion: In South Asian communities in urban BC and ON, new immigrants, those who were married, or reported previous COVID infection, were more vaccine hesitant. These findings identify sociodemographic factors associated with vaccine hesitancy in South Asians, which can improve public health initiatives and vaccine acceptance.

Trends in Infectious Syphilis in Nova Scotia: 2013-2021

Presented by: Emily Cranston
Submission Authors: Kathryn McIsaac1, Jennifer Liang1, Jennifer Cram1, Emily Cranston2
Author Affiliations: 1Department of Health and Wellness, Government of Nova Scotia, 2Department of Health and Wellness, Government of Nova Scotia.

Abstract
Objectives: Cases of infectious syphilis have been increasing in Canada in recent years. The objective of the current work is to describe trends in infectious syphilis in Nova Scotia between 2013 and 2021.Methods: We performed a descriptive study of trends in infectious syphilis in Nova Scotia. Syphilis is a notifiable disease in Nova Scotia. Data on confirmed cases of infectious syphilis between 2013 and 2021 were abstracted from Panorama, Nova Scotia's digital health solution to manage and track notifiable diseases. Incidence rates were calculated over time and across sociodemographic characteristics. Statistics Canada population estimates were used for the denominator.Results: The rate of infectious syphilis fluctuated over time. Incidence was highest in 2013 at 8.9 per 100,000 population, declined to 1.9 per 100,000 in 2016, and increased by 200% between 2016 and 2019 to 5.67 per 100,000 (2019). Over the pandemic (2020-2021), the incidence declined and was at its lowest point in 2021 (1.5 per 100,000 population). Infectious syphilis was significantly higher in men than in women - between 6.5 times to 42.4 times - across all time points and age groups. One case of congenital syphilis was identified. The incidence also varied by geographic location: a higher incidence was noted in the Central Zone (includes the Halifax Regional Municipality) than in other areas of the province. Due to data quality and completeness issues, we were unable to explore trends in select high-risk populations (e.g. men who have sex with men, people who use injection drugs).Conclusions: These data provide some insight to infectious syphilis trends in Nova Scotia. The data do suggest the incidence of syphilis is lower in Nova Scotia than in other areas of Canada. Continued surveillance using high quality data are needed to monitor infectious syphilis in Nova Scotia, particularly among high risk groups.

Canadian Partnership for Tomorrow's Health (CanPath): Celebrating Completing the Provincial Map and Cross-Province Data Linkage

Presented by: John McLaughlin

Submission Authors: John McLaughlin1, Riaz Alvi2, Philip Awadalla1, 3, Parveen Bhatti4, Trevor Dummer1, Jason Hicks5, Vikki Ho6, Grace Shen-Tu7, Kimberly Skead1, Ellen Sweeney5, Donna Turner8, Robin Urquhart5, Jennifer Vena7

Author Affiliations: 1Canadian Partnership for Tomorrow's Health, 2Healthy Future Sask, 3Ontario Health Study, 4BC Generations Project, 5Atlantic PATH, 6CARTaGENE, 7Alberta's Tomorrow Project, 8Manitoba Tomorrow Project

Abstract

Objectives: To link harmonized data from the Canadian Partnership for Tomorrow's Health (CanPath) to the provincial cancer registries, data and hospitalization and ambulatory care data from the Canadian Institutes of Health Information (CIHI). Methods: CanPath is Canada's largest longitudinal population health study with seven regional cohorts representing all ten provinces. CanPath has captured questionnaire data from over 330,000 participants, including personal and family health history, lifestyle and behaviours, medication use, environmental exposures, as well as biological samples and non-invasive physical measures. The Healthy Future Sask (HFS) cohort will soon expand on this rich data, as they complete the CanPath provincial map. All CanPath participants have been linked to CIHI's data for inter-provincial data sharing and a centrally held linked data platform.Preliminary Results: Completing the provincial map enables CanPath to be the first platform in Canadian history to centrally combine a wealth of national-scale health data with cancer registry and administrative health data. Biostatisticians and epidemiologists will greatly benefit from the novel linkage between CanPath and CIHI, as they can efficiently access a ready-made dataset that would otherwise take many years to bring together.Conclusion: Adding HFS to the CanPath team represents a critical step for CanPath. The team continues to connect with new leadership to recruit additional participants and enhance the representation of the Canadian population in the partnership. This project provides a unique resource for biostatisticians and epidemiologists alike to investigate the causes and determinants of the full range of diseases that concern Canadians.

Identification of the key psychosocial attributes that are related to clinical frailty: a mixed-methods study of institutionalized older adults

Presented by: Xiangfei Meng

Submission Authors: Xiangfei Meng1, 2, Muzi Li1, 2, Gabriel Caron2, Sophie Alarie2, Anne-Marie Saucier2, Yingying Su1, 2, Donald Vinh1

Author Affiliations: 1McGill University, 2Dougals Research Centre

Abstract

Objectives Frailty has been taken as an important indicator to support clinical decision-making during the pandemic. However, little is known about what specific psychosocial attributes during the pandemic are associated with frailty among institutionalized residents. This present study aimed to articulate the relationships between psychosocial issues and clinical frailty among institutionalized older adults aged 65 and older during the Covid-19 pandemic. Methods Data analyzed are from the DISCoVER: Determining Infection Severity of Cov-2 in Elderly Residents study. A total of 116 residents were recruited in the great Montreal area from September 2021 to August 2022, through a non-probability sampling strategy. A total of 31 participants were invited to participate in an open-ended interview once they completed the questionnaires. We adopted a sequential explanatory mixed methods study design. Results Compared to those without frailty, individuals with frailty tended to be older adults, females, have cognitive decline (p=0.01), more neuropsychiatric symptoms, reported poorer self-rated health, and experienced more loneliness (p=0.02) during the pandemic. The qualitative findings highlighted the exacerbated experiences of Covid-19 and public health control measures on aging with frailty, ranging from unmet need of healthcare services, social connection, technological challenges, social support, freedom, and quality of life, to coping strategies. Conclusion Frailty was associated with loneliness and cognitive decline among institutionalized residents aged 65 and older during the pandemic. The qualitative insights helped explain lived experiences among these vulnerable populations. Overall, frailty prevention measures could focus on these identified psychosocial attributes to address the frailty issue among institutionalized populations. Healthcare providers and institutions working with institutionalized residents should prioritize the assessment of these psychosocial attributes and timely adjust their procedures to prevent deterioration of frailty.

Oral Health Misbeliefs During Pregnancy- A Systematic Review

Presented by: Yasaman Mohammadi kamalabadi
Submission Authors: Yasaman Mohammadi Kamalabadi1, M.Karen Campbell2, Natalie Zitoun1, Abbas Jessani3
Author Affiliations: 1Department of Epidemiology & Biostatistics, Schulich School of Medicine and Dentistry, Western University, 2Departments of Epidemiology & Biostatistics, Obstetrics & Gynecology, and Pediatrics, Schulich School of Medicine and Dentistry, Western University, 3Departments of Dentistry, Epidemiology & Biostatistics Schulich School of Medicine and Dentistry, Western University

Abstract
ObjectivesThe aim of this systematic review was to investigate misbeliefs that are commonly held by expecting or new mothers regarding oral health and the safety of dental care during pregnancy. MethodsA comprehensive literature search was conducted on four databases including PubMed, Scopus, CINAHL, and MEDLINE (Ovid) in May 2022 and was updated in January 2023. All English studies regardless of the study design and year of publication were reviewed. Two reviewers independently extracted data on the misbeliefs about oral health and dental care during pregnancy expressed by women who were pregnant or were mothers of children under 6 years of age. Risk of bias assessment was performed utilizing the CLARITY tools. ResultsOut of 5766 records identified from databases and forward and backward citation tracing, a total of 45 studies met the inclusion criteria. Both qualitative and quantitative as well as mixed methods studies were included and analyzed. There were commonly held misbeliefs regarding the adverse impacts of pregnancy on oral health status, the safety of dental treatments during pregnancy, and the necessity of dental visits and oral hygiene practices during this period. The most reported misbeliefs included “pregnant women lose their teeth because of pregnancy (18 studies)”, “dental treatments are harmful to the fetus (n=17)”, “the developing baby absorbs calcium from the mother’s teeth (14 studies), and “dental radiography is hazardous to the baby and/or mother (12 studies)”. ConclusionPregnant women and new mothers commonly hold misbeliefs regarding oral health and the safety of dental care during pregnancy. The literature suggests that misbeliefs can originate from social networks and can also be attributed to a lack of oral health knowledge. This has implications for health promotion.

Self-perceived Oral Health Status and Oral Healthcare Services Utilization among Pregnant Women in London, Ontario.

Presented by: Yasaman Mohammadi Kamalabadi
Submission Authors: Yasaman Mohammadi Kamalabadi1, M.Karen Campbell2, Robert Gratton3, Abbas Jessani4
Author Affiliations: 1Department of Epidemiology & Biostatistics, Schulich School of Medicine and Dentistry, Western University, 2Departments of Epidemiology & Biostatistics, Obstetrics & Gynecology, and Pediatrics, Schulich School of Medicine and Dentistry, Western University, 3Department of Obstetrics & Gynaecology Schulich School of Medicine & Dentistry, Western University, 4Departments of Dentistry, Epidemiology & Biostatistics Schulich School of Medicine and Dentistry, Western University

Abstract
ObjectivesThe objectives of this exploratory study were to investigate self-reported oral health conditions and factors associated with dental visit patterns within a sample of pregnant women in London, Ontario. The Andersen & Newman model of health service utilization was adapted as a framework for this purpose. MethodsA 33-item self-administered questionnaire was completed by a convenience sample of pregnant women attending the Family Medicine and Obstetrics Clinic in London, Ontario from November to December 2022. This clinic provides prenatal care to pregnant persons who do not have access to a family physician. The survey included questions adapted from the Canadian Community Health Survey (CCHS), Survey of Maternal Health, and Canadian Health Measures Survey (CHMS). Preliminary ResultsIn total, 76 pregnant women were approached and 67 (88.2%) agreed to participate. Oral health status was self-rated as poor or fair by 16 (23.9%) and as good, very good, or excellent by 51 (76.1%). The most prevalent self-reported oral symptoms were gum bleeding (53.0%), tooth sensitivity (36.4%), and swollen gums (21.2%). Although 55 (82.1%) visited a dentist during the last two years, only 16 (23.88%) utilized dental care services during their pregnancy for reasons including regular check-ups (13 (81.3%)), emergency care (4 (25.0%)), and non-emergency care (2 (12.5%)). The main barriers to dental care utilization during pregnancy were cost (18 (36.7%)), considering it unnecessary (12 (24.5%)), and having a recent dental visit prior to pregnancy (10 (20.4%)). Dental appointments for 17 (25.8%) of the participants had been impacted by COVID-19. Next steps:Bivariate analyses will be performed to investigate the unadjusted association between predictor variables (predisposing, enabling, and need factors) and outcomes of interest (dental visit pattern and oral health status) using a Chi-square and t-test. Data from this exploratory study will provide pilot data for a future study of a larger sample.

Variations in time to breast cancer treatment initiation and survival across ethnoracial groups: a DAGs based approach to review evidence in a systematic review

Presented by: Parisa Mokhtari Hesari
Submission Authors: Parisa M. Hesari1, Daniel J. Lizotte1, Greta R. Bauer1
Author Affiliations: 1Department of Epidemiology and Biostatistics, Schulich School of Medicine and Dentistry, Western University

Abstract
Objectives: While many social determinants of health associated with racial disparity are well-known, they do not act in isolation, and the causal structure of their influence on outcomes has not been established in breast cancer. The aim of this review is to apply causal analysis to systematically review the existing evidence on racial/ethnic disparities in initiation of treatments and their impact on breast cancer patients' survival in the U.S. Methods: A comprehensive systematic search of databases including PubMed, Ovid, Web of science, and the Cochran library was performed. Studies of cohorts of female breast cancer patients who were diagnosed with stage I-III in the US were included. Time to treatment initiation (TTI) and overall survival (OS) were the outcomes. A modified checklist for applying the Evidence synthesis for constructing directed acyclic graphs (ESC-DAGs) method was used to describe the causal relationships between ethnoracial group membership, other study variables, delays to treatment, and survival. Two DAGs for TTI and OS (TTI is included in this graph) will be drawn. Unmeasured covariates (e.g., confounders) will be included in the graphs. Preliminary results: Almost 42 studies met the inclusion criteria. Of these 22 studies addressed differences across ethnoracial groups and delays in receiving surgery. The interim findings of included studies showed a significant effect of TTI on survival. Studies found a significant differences in time to treatment initiation between ethnoracial groups. Three main covariate groups were identified and reflected in the graphs: individual and social characteristics, tumor characteristics, and health care services. Conclusion: This review will apply causal analysis to understand this complexity and create actionable knowledge that supports efforts to redress health inequity in breast cancer.

Preprocessing of clinical notes when detecting health conditions and de-identifying protected health information

Presented by: Md Moniruzzaman Moni
Submission Authors: Md Moniruzzaman Moni1, Alan Katz1, Noman Mohammed2, Lisa M. Lix1
Author Affiliations: 1Department of Community Health Sciences, Max Rady College of Medicine, University of Manitoba, Winnipeg, Manitoba, Canada, 2Department of Computer Science, University of Manitoba, Winnipeg, Manitoba, Canada

Abstract
Objectives: Unstructured text data (UTD) are increasingly used in health research, but a lack of standardization and noise may affect their utility. Data preprocessing can improve data quality, defined as fitness for use. The objectives are to: (1) assess the effect of the order and number of preprocessing methods for UTD on the correct detection of health conditions, and (2) assess the effect of the order and number of preprocessing methods on the accurate de-identification of UTD.Methods: Study data are clinical notes from the Informatics for Integrating Biology and the Bedside (i2b2) Clinical Challenges for 2008 and 2014. Preprocessing methods include defining tokens, removing stop words and punctuation, correcting spelling errors, expanding abbreviations, tagging parts of speech, chunking, lemmatization, and stemming words. The order and number of preprocessing methods will be applied to the study data using a nested experimental design. Random forest and artificial neural networks methods will be used for Objectives 1 and 2, respectively. Evaluation metrics, including accuracy, sensitivity, and specificity, will be compared amongst different orders and number of preprocess methods using analysis of variance.Preliminary Results: The 2008 and 2014 i2b2 datasets contain 1235 and 1304 clinical notes, respectively. The 2008 i2b2 dataset had a mean of 1,139.1 (standard deviation [SD] 506.9) tokens (i.e., words/phrases) per note, and a total of 443,800 stop words, 277,131 punctuations, 105,092 spelling errors, and 142,504 abbreviations. The 2014 i2b2 dataset had a mean of 617.4 (SD 353.5) tokens per note, and a total of 261,254 stop words, 165,969 punctuations, 86,836 spelling errors, and 100,894 abbreviations.Next Steps: We will apply machine-learning methods to ascertain health conditions and de-identify the i2b2 datasets. This research will provide new information about the systematic effect of data preprocessing on common analyses applied to UTD for chronic disease and health services research.

The Fecal Immunochemical Test for Post-Polypectomy Surveillance to Reduce Unnecessary Endoscopy (FIT2RUN) Study: A Work in Progress

Presented by: Rey Nambayan
Submission Authors: Rey Nambayan1, Robert Hilsden1, Steven Heitman1, Andrew Schell1, Darren Brenner1, Catherine Dube1
Author Affiliations: 1University of Calgary

Abstract
OBJECTIVEColonoscopy is an effective tool for detecting and reducing colorectal cancer (CRC) incidence. Although it is a useful resource in the surveillance of patients at increased risk of developing CRC, it is an expensive and limited procedure. Polyp detection rate is low on follow-up surveillance procedures among patients with an advanced colorectal lesion removed. The Fecal Immunochemical Test (FIT) is an alternative method of interest to reduce costs for screening and post-polypectomy surveillance and improve colonoscopy accessibility for other patients.The objectives of the current project are to investigate advanced colorectal neoplasia (ACN) incidence, examine the applicability of the FIT as a post-polypectomy surveillance test, and develop a predictive model that will help determine which groups of patients will benefit from colonoscopy and FIT.METHODSIndividuals with polyp or CRC history referred to the Colon Cancer Screening Centre (CCSC) in Calgary are targeted for enrollment to the study. Eligible individuals invited to participate in the study sign a consent form, providing access to their contact and clinical information. Upon completion of the informed consent form, participants complete a Health & Lifestyle Questionnaire and perform a FIT 3 to 42 days prior to colonoscopy. The data obtained from the questionnaire, FIT, and colonoscopy are organized in a dashboard for future statistical analysis.PRELIMINARY RESULTSCurrently, 122 eligible patients have consented to enroll in the project. A total of 330 participants expressed interest in the study. Over the next 3 years, we aim to recruit 3,000 patients into the study and obtain complete colonoscopy, FIT, and questionnaire data.NEXT STEPSWe will continue data collection and participant recruitment to gather substantial information that will help determine the effectiveness of the FIT and develop a robust predictive model to identify which type of surveillance test best fits particular cohorts of patients.

Statistical Investigation of Prevalence of High Blood Pressure among Rural Residents of Saskatchewan

Presented by: Shiva Naseri
Submission Authors: Shiva Naseri1, Shahedul Khan1, Chandima Karunanayake1, James Dosman1, Punam Pahwa1
Author Affiliations: 1University of Saskatchewan , Canada

Abstract
Objective: The purpose of this research is to investigate principal risk factors of the prevalence of high blood pressure (HBP) and longitudinal changes in the prevalence of high blood pressure among rural residents of Saskatchewan.Methods: The Saskatchewan Rural Health Study (SRHS) was a prospective cohort study conducted in the Canadian province of Saskatchewan between 2010 and 2014. 8261 participants (≥ 18 years) (4624 households) answered the questionnaires mailed at baseline and 4867 participants (2797 households) completed the mailed questionnaires at follow-up. Statistical analyses were implemented using R, SPSS, and SAS. We conducted descriptive statistics at both baseline and follow-up. The crude prevalence of self-reported doctor diagnosed HBP for participants was calculated using SAS PROC FREQ. Marginal logistic regression models based on the generalized estimation equations (GEE) were used to calculate the adjusted prevalence of HBP and explore predictors associated with the prevalence of HBP over the four years. By using GEE, the effect resulting from two layers of clustering (number of individuals within each household) were controlled and jackknife robust variance estimation was used to account for within-subject correlation resulting from repeated measurements. An analysis of changes in the prevalence of HBP over time will be conducted.Results: The prevalence of HBP was 33.63% at baseline and 41.50% at follow-up. The prevalence of HBP was associated with residence type (farm vs. non-farm, OR=0.8,95%CI: 0.71-0.89); sex (female vs. male, OR=1.15,95%CI:1.02-1.29); reported sleep apnea (OR=1.62,95%CI:1.34-1.96); diabetes (OR=2.95,95%CI:2.44-3.57); and stroke (OR=3.88,95%CI:2.57-5.87). Also, education level; exercise duration; family history of HBP (parents); being exposed to insecticides; body mass index (BMI); number of people living in a household, and age were other variables associated with the prevalence of HBP.Conclusion: Prevalence of HBP is associated with combination of individual and contextual factors and comorbidities.Key Words: baseline, high blood pressure, follow-up, longitudinal, prevalence, rural population

The Association between Religious Participation, Depression and Memory in Middle-Aged and Older Adults: A Moderated Mediation Analysis of the Canadian Longitudinal Study on Aging

Presented by: Bonita Nath
Submission Authors: Bonita Nath1, Mark Oremus1, Yeying Zhu1, Colleen Maxwell1, Charity Oga-Omenka1
Author Affiliations: 1University of Waterloo

Abstract
Objectives:Persons who engage in religious practices often possess greater resilience, positivity, strength and hope, compared to persons who do not engage in religious practices. These psychosocial factors help explain why religious participation has been shown to be protective against memory decline. However, a dearth of literature exists to examine the effects of depressive symptoms on this association in middle-aged and older adults. We will use the Canadian Longitudinal Study on Aging (CLSA) to examine whether depressive symptoms mediates or moderates the association between baseline religious participation and repeated measures of memory across three time points (baseline, three-year follow-up, and six-year follow-up).Methods:Religious participation will be measured as the frequency of participating in religious activities such as services, committees or choirs over the past 12 months. Immediate- and delayed-recall memory will be assessed using a modified version of the Rey Auditory Verbal Learning Test. Raw Rey scores will be converted into standardized z-scores and analyses will be run separately for immediate- and delayed-recall outcomes. SAS and R software will be used for all statistical analyses. Regression analyses will be adjusted for baseline values of sociodemographic, health, and lifestyle covariates. Conditional process analysis, implemented through the conditional process macro in SAS, will be utilized to assess whether depressive symptoms mediates or moderates the association between religious participation and memory.

Occupational risk of asbestosis and silicosis in the Ontario workforce

Presented by: Tanya Navaneelan

Submission Authors: Tanya Navaneelan1, Jeavana Sritharan1, 2, Paul A Demers 1, 2

Author Affiliations: 11. Occupational Cancer Research Centre, Ontario Health, 22. Dalla Lana School of Public Health, University of Toronto

Abstract

Objectives: Occupation is the key risk factor in the development of asbestosis and silicosis, which are caused by asbestos and silica exposure, respectively. Identifying high-risk populations can help target prevention efforts, increase recognition of the risk to workers and improve compensation.Methods: A cohort of 1,974,967 workers were followed from 1983 to 2020 in the Occupational Disease Surveillance System (ODSS). This system was established through linkage of former compensation claimants to administrative health data. Diagnosis of asbestosis and silicosis were determined using hospitalization, ambulatory and physician billing data. Cox proportional hazard models were used to estimate sex and age-adjusted hazard ratios (HRs) and 95% confidence intervals (CIs). Standardized incidence ratios (SIRs) were calculated to compare the ODSS to the Ontario population.Results: A total of 2,862 cases of asbestosis and 745 cases of silicosis were identified in the cohort. The incidence of asbestosis (SIR: 2.1; 95% CI: 2.0-2.2) and silicosis (SIR: 2.2; 95% CI: 2.0-2.4) among males was twice as high in the ODSS compared to the general Ontario population. Compared to other workers in the ODSS, workers in construction (HR: 2.6; 95% CI: 2.3-2.8) and mineral, metal and chemical processing (HR: 1.3; 96% CI: 1.1-1.6) occupations had a significantly higher incidence of asbestosis. Workers in mining and quarrying (HR: 12.6; 95% CI: 9.7-16.5), mineral, metal and chemical processing (HR: 1.8; 95% CI: 1.3-2.4) and machining (HR: 1.4; 95% CI: 1.2-1.8) occupations had a higher incidence of silicosis. Both diseases showed a decreasing incidence trend over the follow-up period.Next steps: These findings confirm the increased risk of asbestosis and silicosis among workers who may have been exposed to asbestos or silica. Further analyses will be undertaken to better understand the differences between the ODSS and Ontario populations, including explorations of the female population and other health outcomes.

Linear Combination Test reveals new regulatory signatures in umbilical cord blood mononuclear cells of COVID-19-infected mothers

Presented by: Fatemeh Nezarat
Submission Authors: Fatemeh Nezarat1, Sara Khademioureh1, Asim Thapa1, Morteza Hajihosseini2, Saumyadipta Pyne3, Irina Dinu 1
Author Affiliations: 1School of Public Health, University of Alberta, 2School of Medicine, Stanford University, 3School of Statistics and Applied Probabilities, University of California

Abstract
ObjectivesSevere acute respiratory syndrome coronavirus 2 (SARS-CoV-2) affects critical molecular signaling pathways to trigger COVID-19 symptoms in pregnant mothers and further complications. We used Linear Combination Test (LCT) to investigate altered molecular signaling pathways in Umbilical Cord Blood Cells (CBMCs) of infected pregnant mothers at the gene set level. MethodsPreviously published single-cell RNA-sequencing (scRNAseq) data from CBMCs of infected and healthy mothers were analyzed.LCT uses a shrinkage covariance matrix estimator to address both the high dimensionality problem, as well as the expression measurements across sets of genes. It is superior in terms of power and computational efficiency when compared to other gene-set analysis methods, in both simulations and real data analysis.We analyzed 36,597 genes and 457 gene sets (previously identified human embryonic stem cell gene signatures) between cases vs. controls. In cases, univariate analyses were done on GATA2, GATA2-AS1, GATA3, and GATA3-AS1. GATA2 and GATA3 are hallmarks of asthma involved in airway inflammation, one of the mechanisms behind respiratory symptoms of COVID-19. The role of GATA2-AS1 in gestational diabetes and GATA3-AS1 in the pathology of breast cancer and endometrial carcinoma prompted us to consider them as outcomes. ResultsComparing cases vs. controls, nearly 94% of gene sets were differentially expressed (p and q-value <0.001). Fourteen gene sets overlapped between the four univariate analyses in cases (p-value <0.05 and q-value <0.25). Further, we identified fourteen new markers in the form of transcriptome factors regulated by these sets with previously demonstrated roles in critical pathways of acute respiratory distress syndrome (ARDS), one of the most important hallmarks of COVID-19.ConclusionIdentifying affected molecular signaling pathways during maternal COVID-19 can promote knowledge of the disease and drug discovery, and decrease the long-term complications in both women and newborns.

An exposure study measuring air quality and noise at Ottawa's International Airport: Implications for health of nearby residents

Presented by: Ben Nikkel
Submission Authors: Ben Nikkel1, Ryan Kulka2, Paul Villeneuve1, Keith Van Ryswyk2
Author Affiliations: 1Carleton University, 2Health Canada

Abstract
In most major cities around the world, airports are in close proximity to residential areas. Plane landings, take offs, and taxiing activity as well as the operation of other ground equipment produce substantial emissions of ambient pollution. According to a recent review, these emissions are likely to impact the health of nearby residents through effects on inflammatory processes, and exacerbation of pre-existing respiratory illnesses. Air pollution from airplane emissions has also been linked with increased risks of preterm birth. In addition, noise from aircraft has also been identified as a possible risk factor for hypertension, cardiovascular disease, and adverse birth outcomes.This has prompted the need for additional exposure research to better understand the dispersion of pollutants near airports and the exposure profile of nearby residents. To date, few studies have evaluated spatiotemporal variations in air quality and noise around Canadian airports. The purpose of this exposure study is to evaluate the impacts of air traffic at the Ottawa International Airport on air quality and noise. We established a fixed site monitoring 590m to the east and downwind of the Ottawa International Airport. Three pollutants (ultrafine particles (UFP), fine particulate matter (PM2.5), and black carbon (BC)) and noise were measured from June 2022 to January 2023. Measurements were taken at least every 10 minutes depending on the pollutant.Preliminary analysis showed that for hours between 6am and 11pm and windspeeds greater than 5km/h, the mean UFP count was 1.53 times higher for wind from airport directions compared to non-airport directions. This increase is consistent with research involving other airports. Further wind direction analysis will include bivariate polar plots and polar annulus. Secondary analysis will then involve flight track data from NavCanada.

Association between Sexually Transmitted Infections and Prostate Cancer: A Scoping Review

Presented by: Rodrigo Noorani

Submission Authors: Rodrigo Noorani1, George Kas Barsoum2, Sarah Botting-Provost1, Cassandra Laurie1, Mariam El-Zein1, Eduardo L. Franco1

Author Affiliations: 1Division of Cancer Epidemiology, McGill University, 2Department of Oncology, McGill University

Abstract

Objective: The association between sexually transmitted infections (STIs) and prostate cancer has been extensively researched, with STI-specific results differing across studies. We performed a scoping review to map the extent of research on STIs-prostate cancer associations, identify knowledge gaps and provide future directives.Methods: The scoping review protocol was registered with the Open Science Framework Registries. Four databases (MEDLINE, Scopus, Embase, and Cochrane) were searched on March 19th, 2022 for all study types except editorials, case reports, non-human studies, book chapters and abstracts on the association between STIs (human papillomavirus [HPV], herpes simplex virus [HSV], human immunodeficiency virus [HIV], N. gonorrhea, C. trachomatis, M. genitalium/hominis, U. parvum/urealyticum, T. pallidum, T. vaginalis) and prostate cancer. Two reviewers independently screened titles and abstracts for relevance and full-text articles for inclusion.Preliminary Results: We identified 7,295 records, of which 3,811 were unique after deduplication. Title/abstract screening captured 412 articles; 244 (published 1971-2022) were included after full-text screening. The 171 empirical studies were cross-sectional (n=65), case-control (n=52: 22,887 cases and 31,739 controls), registry-linked (n=19), nested case-control (n=13), retrospective cohort (n=10), prospective cohort (n=8), one ecological, one case-cohort, one longitudinal and one time-series. The age range of participants was 15-104 years old. The STIs were HPV (n=77), HIV (n=37), HSV (n=27), N. gonorrhea (n=25), T. pallidum (n=17), T. vaginalis (n=17), C. trachomatis (n=14), M. genitalium/hominis (n=7), U. parvum/urealyticum (n=5), and unspecified STIs (n=28). Detection methods/sources for STIs were self-report (n=75), laboratory-based (n=133), claims data (n=12), registries (n=23) and chart reviews (n=7). The 73 review articles included 48 narrative reviews, 19 meta-analyses and 6 systematic reviews.Next Steps: Data extraction of study characteristics, effect estimates, exposure/outcome-related variables is ongoing. This will be the first scoping review to compile the epidemiologic evidence underlying the involvement of many STIs in prostate carcinogenesis.

Increase in Invasive Group A Streptococcal (iGAS) Disease in Island Health, British Columbia, 2022

Presented by: Andrea Nwosu
Submission Authors: Andrea Nwosu1, 2, Island Health Communicable Disease Program2, Dee Hoyano2, Sandra Allison2, Pamela Kibsey2, Angela Reid2, Maritia Gully2, Carl Swanson2
Author Affiliations: 1Canadian Field Epidemiology Training Program, Public Health Agency of Canada, Ottawa, Ontario, 2Island Health, Victoria, British Columbia

Abstract
Objectives: In 2022, an increase in Invasive Group A streptococcal infections (iGAS) in pediatric populations in Europe and the United States along with consistent disease alerts for increased iGAS activity in Island Health, British Columbia (BC) prompted further investigation into local trends. This study aims to describe epidemiological trends of iGAS in Island Health in 2022.Methods: In BC, iGAS is a reportable disease; local laboratories report cases to the regional and provincial health authority. Island Health cases from January 1 to December 31, 2022 were retrieved and described. We compared these cases with historical cases from January 1, 2017 to December 31, 2021. Results: In 2022, the incidence rate was 11.8 cases per 100,000 population (n=104): the highest observed incidence in the last 6 years. The median age of cases was 53 years, range 0 to 96 years, and 64% of cases were male. The distribution and risk of infection was the highest in men (64%, incidence 15.5 cases per 100,000 population) and individuals 40 years of age and older (73%, incidence 14.7 cases per 100,000 population). The most common emm types were emm49, emm83 and emm92. The most common reported risk factors were having a skin infection, 46%, and having a wound, 45%. Overall, 83% of cases were hospitalized, 20% were admitted to ICU and 6% died.Conclusion: This study highlights that the incidence of iGAS in Island Health continued to increase throughout the COVID-19 pandemic reaching its highest annual rate in 2022. In contrast to reports from Europe and the US, there was no notable increase in infections in the pediatric population. The findings of this report contribute to the epidemiological characterization of iGAS in Canada. Given the increase, it is imperative that we continue to monitor and describe the epidemiology, annually, to inform public health practice.

The association between self-reported gestational weight gain by pre-pregnancy BMI, and moderate to late preterm birth; a cross-sectional study from the TARGet Kids! research network

Presented by: Alexandra Palumbo

Submission Authors: Alexandra Palumbo1, Charles Keown-Stoneman2, 3, Giulia Muraca1, 4, 5, Anne Fuller1, 6, Catherine Birken2, 7, 8, 9, 10, Jonathon Maguire2, 3, 8, 9, 10, 11, Laura Anderson1, 7

Author Affiliations: 1Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada , 2Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada , 3Applied Health Research Centre, Li Ka Shing Knowledge Institute, Unity Health Toronto, Toronto, Ontario , 4Department of Obstetrics and Gynecology, Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada , 5Clinical Epidemiology Unit, Department of Medicine, Solna, Karolinska Institutet, Stockholm, Sweden , 6Department of Paediatrics, McMaster University, Hamilton, Ontario, Canada , 7Child Health Evaluative Sciences, The Hospital for Sick Children Research Institute, Toronto, Ontario, Canada , 8Division of Pediatric Medicine, The Hospital for Sick Children, Toronto, Ontario, Canada , 9Department of Pediatrics, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada , 10Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada , 11Department of Pediatrics, St. Michael's Hospital, Unity Health Toronto, Toronto, Ontario, Canada

Abstract

Background: Inadequate and excessive gestational weight gain (GWG) defined by the Institute of Medicine (IOM) has been associated with preterm birth (PTB; gestational age <37 weeks), a leading cause of neonatal mortality and morbidity. However, the association between GWG and moderate to late PTB (32-<37 weeks) in Canada is not well understood.Objective: To evaluate the association between adherence to GWG recommendations as defined by the IOM, by pre-pregnancy BMI, and moderate to late PTB.Methods: We conducted a cross-sectional study of children participating in TARGet Kids! in Toronto from June 2011 to March 2020. Parents of children <6 years of age were asked to recall pre-pregnancy weight, end-of-pregnancy weight, and gestational age on questionnaires. GWG was categorized according to the IOM guidelines as inadequate, recommended, or excessive for each pre-pregnancy BMI category. Adequacy of GWG was adjusted for gestational ages <38 weeks. Adjusted odds ratios (aOR) were calculated from GEE binomial logistic regression models to evaluate the association between GWG and moderate to late PTB.Preliminary Results: Of the 4,527 participants, 8.2% delivered preterm. 30.9% of parents met the GWG recommendations; 40.9% had excessive GWG and 28.2% had inadequate GWG. More than 60% of participants with overweight or obesity had excessive GWG. Compared to parents with recommended GWG, those with excessive GWG had increased odds of moderate to late PTB (10.3% vs. 6.3%; aOR= 1.68; 95% CI= 1.27, 2.22). The association between inadequate GWG and moderate to late PTB had an aOR of 1.08 (95% CI= 0.80, 1.47).Conclusions/Next Steps: Excessive GWG was strongly associated with increased odds of moderate to late PTB among our sample of parents with healthy children in the Toronto area. These findings are based on self-reported data, which is subject to misclassification bias. The potential impact of this bias will be evaluated.

The contributions of avoidable causes of death to gender gap in life expectancy and lifespan in the US and Canada: 2001-2019

Presented by: Sujita Pandey
Submission Authors: Sujita Pandey1, Mohammad Hajizadeh1, Ali Kiadaliri2
Author Affiliations: 1Dalhousie University, 2Lund University

Abstract
Objectives: Intersectoral public health policies and healthcare systems aim to improve population health through premature death prevention and health disparities reduction. This study measures health policies' and healthcare system's influence, by assessing the contributions of avoidable deaths, on gender gap in life expectancy (GGLE) and gender gap in life disparity (GGLD) in the United States (US) and Canada from 2001 to 2019.Methods: We estimate GGLE and GGLD using annual data, retrieved from the World Health Organization's mortality database, on age- and sex-specific causes of death. By employing the continuous-change model, we decompose GGLE and GGLD by age and cause of death for each year using women as the reference group. Additionally, we estimate the change in age-specific contributions to GGLE and GGLD over time.Results: During the study period, GGLE narrowed by 0.85 years in both countries whereas GGLD increased by 0.17 and 0.33 years in Canada and the US, respectively. The largest contributor to widening GGLE was non-avoidable deaths in Canada and preventable deaths in the US. Preventable death had the largest contribution to widening GGLD in both countries. Among avoidable causes, ischemic heart diseases, drug related deaths, injury related deaths and lung cancer accounted for the largest contribution to life expectancy advantage in women over men and had the largest contribution to more lifespan variability in men compared to women in both countries. Furthermore, the contributions of ischemic heart diseases and lung cancer to GGLE and GGLD decreased over time, whereas the contributions of drug related deaths to GGLE and GGLD increased over time in Canada and the US.Conclusion: Our results suggest both Canada and the US should pay attention to public and health policies' role in alleviating the contributions of avoidable causes of death to gender gap in life expectancy and lifespan disparity.

Associations between Physical Distancing Behaviours and Changes in Alcohol Use among Older Canadians During the COVID-19 Pandemic from the Canadian Longitudinal Study on Aging

Presented by: Kiara Pannozzo

Submission Authors: Kiara Pannozzo1, Lauren E. Griffith1, Aaron Jones1, Vanessa De Rubeis1, Jayati Khattar1, Margaret De Groh2, Ying Jiang2, Laura N. Anderson1

Author Affiliations: 1Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada, 2Applied Research Division, Center for Surveillance and Applied Research, Public Health Agency of Canada, Ottawa, Ontario, Canada

Abstract

Background: The COVID-19 pandemic brought many changes to Canadian lives, as public health measures were introduced to limit disease transmission, possibly leading to changes in substance use patterns.Objectives: To evaluate the association between adherence to public health measures and both self-reported recall and prospective measurement of changes in alcohol use during the first year of the COVID-19 pandemic among older adults in Canada.Methods: A longitudinal study was conducted using the Canadian Longitudinal Study on Aging Baseline, Follow-Up 1, and COVID-19 Questionnaires (n = 23,972). Multinomial logistic regression was used to examine associations between public health measure adherence (measured using a summary score of levels of adherence, including self-quarantine, public gathering attendance, leaving home, and mask-wearing) and 1) self-reported alcohol consumption changes since the pandemic's onset and 2) prospectively measured changes in alcohol use from 2015-2018 to early pandemic (2020).Results: Since the onset of the pandemic, 12.5% of participants reported increased alcohol use, while 13.4% reported decreased use. Prospectively measured changes, from before to during the pandemic, suggested 18.7% increased and 34.0% decreased alcohol use. Increased public health adherence was associated with greater odds of self-reported decreased alcohol use (OR = 1.07; 95% CI = 1.01, 1.14) and lower odds of increased alcohol use (OR = 0.87; 95% CI = 0.82, 0.93). Increased public health adherence was also associated with decreased (OR = 1.11; 95% CI = 1.06, 1.16), but not with increased (OR = 0.96; 95% CI = 0.91, 1.01) prospectively measured changes in alcohol use.Conclusion: Increased adherence to public health measures during the COVID-19 pandemic was associated with both self-reported recall and prospectively measured decreases in alcohol use. Such findings may inform public health interventions throughout crises responses. Further research may examine risk factors for increased alcohol intake.

Comparing responses from proxy and self-respondents in a population-based case-control study of prostate cancer

Presented by: Marie-Elise Parent
Submission Authors: Marie-Élise Parent1
Author Affiliations: 1Institut national de la recherche scientifique

Abstract
ObjectivesUsing proxy respondents can improve response rates and reduce potential selection bias. However, possible differences in reporting by type of respondent have rarely been documented. We compared information collected from proxies and self-respondents, including interview duration, quality and extent of missing data for different sections of a questionnaire used in a study conducted by our team.MethodsData from the Prostate Cancer & Environment Study, a population-based case-control study conducted in 2005-2012 in Montreal, Canada were used. 1931 incident prostate cancer cases aged ≤75 years, and 1994 age-matched (±5 years) population controls were interviewed in-person to elicit socio-demographic, lifestyle and environmental factors. Linear regression estimated the association between respondent status (proxy/self) and interview duration, adjusting for age and interviewer, and group differences were assessed for other variables.ResultsAnalyses included 3,790 self-respondents and 135 proxy respondents; 72% of proxies were spouses. The main reasons for using proxies were refusal for controls and death of index subject for cases. Interview duration for proxies was on average 25.1 minutes shorter than for self-respondents (95% confidence interval (CI) = -29.7; -20.5). Interview quality was judged by interviewers as doubtful/poor for 11% of proxies and 5% of self-respondents. The proportion of missing data in all questionnaire sections was higher for proxies than self-respondents, including the section on birth-related characteristics (59% vs 37%), body size during childhood and adolescence (20% vs 3%), food consumption in the past (9% vs 1%), personal medical history (19% vs 4%) and information about sexual habits (51% vs 2%). Differences in reporting between proxies and self-respondents were more pronounced for cases than for controls.ConclusionFindings suggest that the quantity and quality of general information elicited from proxies may be inferior to that of self-respondents, and that differences in reporting may be differential according to disease status.

The influence of occupational risk factors on DNA methylation in the AHRR and F2RL3 genes

Presented by: Laura Pelland-St-Pierre

Submission Authors: Michael Pham1, 2, Laura Pelland-St-Pierre1, 2, 3, Alice Nguyen1, 2, Romain Pasquet1, Sherryl Taylor4, Delphine Bosson-Rieutort2, Anita Koushik1, 2, Vikki Ho1, 2

Author Affiliations: 1University of Montreal Hospital Research Centre (CRCHUM), 2University of Montreal, 3Centre de recherche en santé publique (CReSP), Université de Montréal and CIUSSS Centre-Sud, Montréal, Québec, Canada, 4University of Alberta

Abstract

Objective: To determine the association between occupational exposures and DNA methylation in the AHRR and F2RL3 genes.Methods: A nested case-control study on smoking, AHRR and F2RL3 methylation and lung cancer risk in CARTaGENE, the largest prospective cohort study in Quebec, is currently in progress (200 cases; 400 controls). In CARTaGENE, information on participants' longest-held occupation was obtained at baseline. Exposure to 13 occupational agents commonly found in cigarette smoke, was estimated by linking the Canadian Job Exposure Matrix (CANJEM) to participants' longest-held job. From CANJEM, the frequency-weighted intensity (FWI) of exposure to each agent was estimated and categorized as unexposed (FWI=0), low exposure (FWIResults: For AHRR, compared to those never exposed, high exposure to aromatic amines, benzene and formaldehyde and low exposure to cadmium, formaldehyde, lead, nickel and vinyl chloride was associated with hypomethylation. For F2RL3, compared to those never exposed, high exposure to aromatic amines and benzene, and low exposure to benzene, lead and nickel was associated with hypomethylation.Conclusion: Seven of our selected thirteen occupational agents were found to be associated with hypomethylation of the AHRR and/or F2RL3 genes. As accumulating evidence supports a role of aberrant methylation of these two genes in lung cancer etiology, occupational exposure to these agents warrants further research for lung cancer prevention.

Burden of Unhealthy Behaviours on Period Lifetime Healthcare Costs of Ontarians in 2000-2004, 2005- 2009, and 2010-2014

Presented by: Richard Perez

Submission Authors: Richard Perez1, 2, 3, Claudia Sanmartin4, Kevin Brand2, Monica Taljaard2, 5, Doug Manuel2, 3, 4, 5

Author Affiliations: 1McMaster University, 2University of Ottawa, 3ICES, 4Statistics Canada, 5Ottawa Hospital Research Institute

Abstract

OBJECTIVESUnhealthy behaviours -- such as smoking, leisure physical inactivity, non-active transport, leisure sedentary activity, and poor diet -- simultaneously impact mortality and healthcare costs. It is unclear whether unhealthy behaviours result in greater or lower lifetime healthcare costs. This study estimated the burden of these unhealthy behaviours on period lifetime healthcare costs for the Ontario population in 2000-2004, 2005-2009, and 2010-2014. METHODS40- to 89-year-old Ontario respondents from multiple cycles of the Canadian Community Health Survey were pooled and linked to health administrative data within a 2-year observation window. The follow-up was divided into three phases based on proximity to death (>18 months from death, 18 to > 6 months, and last 6 months of life). ICES-derived costing methodologies were applied to the different types of utilization within each phase to generate phase-specific healthcare costs (inflation-adjusted to 2018). Predicative algorithms for total healthcare costs within each phase were developed and calibrated to corresponding phase-specific total healthcare costs in the general population for different time periods (2000-2004, 2005-2009, and 2010-2014). Using a cause-deleted approach, these calibrated algorithms were applied in conjunction with previously derived period-specific predictive mortality algorithms to weighted linked Ontario subsamples. This process generated baseline and counterfactual period life tables with corresponding period lifetime healthcare costs. The difference between baseline and counterfactual estimates provided measures of burden for unhealthy behaviours on period lifetime healthcare costs. RESULTSUnhealthy behaviours increased period lifetime healthcare costs across all time periods: 10.2% in 2000-2004, 11.6% in 2005-2009, and 12.9% in 2010-2014. Smoking and poor diet reduced period lifetime healthcare costs, while non-active transport and leisure sedentary activity increased period lifetime healthcare costs.CONCLUSIONThe impact of unhealthy behaviours on lifetime healthcare costs is complex and can vary drastically. Further research is needed to improve our understanding of how unhealthy behaviours influence lifetime healthcare costs.

Introduction to a novel measure of average lifespan shortened (ALSS): Real-world examples from selected cancers in Alberta, 2000- 2020

Presented by: Truong-Minh Pham
Submission Authors: Truong-Minh Pham1, Jingyu Bu1, Devan Tchir1, Mohammadreza Pakseresht1, Maeve Wickham1, Xiaoming Lu1, Allison Scott1, Xiaoyi Tian1, Bethany Kaposhi1, Emily Walker1, Lorraine Shack1
Author Affiliations: 1Surveillance and Reporting, Cancer Care Alberta, Alberta Health Services, Alberta

Abstract
Objectives: We recently proposed a new measure of average lifespan shortened (ALSS) to quantify how much earlier deaths occurred than expected. In the present study, we applied the new measure to examine changes of lifespan of patients who died of selected cancer in Alberta.Methods: From the Alberta Cancer Registry database, we retrieved any deaths due to malignancies of the lung, colorectum, prostate and breast cancer from 2000 to 2020. Years of life lost was estimated using Canadian life tables. The ALSS was calculated as a ratio of years of life lost relative to the expected lifespan.Results: Over a 20-year period, the ALSS measure showed that men with colorectal and lung cancer lost around 16 to 18 % of their lifespan, whereas men with prostate cancer lost the smallest portion of around 10% lifespan over the study. We observed modest improvements of lifespan among women with lung and breast cancer whereby they lost about 20% of their lifespan for lung cancer and 25% for breast cancer in the 2000s, whereas they lost about 18% for lung cancer and 23% for breast cancer in 2020.Conclusion: We briefly introduced our novel ALSS measure, which could quantify the life loss of patients in relation to the general population. The ALSS measure is an addition to the literature, and its results may be useful for clinicians and health decision-makers.

Zika first epidemic in Colombia and related environmental and sociodemographic factors: an application of a zero-state space-time Markov switching model

Presented by: Laís Picinini Freitas

Submission Authors: Laís Picinini Freitas1, 2, Dirk Douwes Schultz3, Alexandra Schmidt3, Mabel Carabali3, Gloria I. Jaramillo-Ramirez4, César García Balaguera4, Berta N. Restrepo5, Brayan S. Ávila Monsalve4, Jorge Emilio Salazar Flórez5, Kate Zinszer1, 2

Author Affiliations: 1School of Public Health, University of Montreal, Montreal, Canada, 2Centre de Recherche en Santé Publique, Montreal, Canada, 3Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Canada , 4Faculty of Medicine, Universidad Cooperativa de Colombia, Villavicencio, Colombia, 5Instituto Colombiano de Medicina Tropical, Universidad CES, Medellín, Colombia

Abstract

ObjectivesTo study how environmental and socioeconomic factors were associated with the emergence, re-emergence, persistence, and transmission intensity of Zika, a viral vector-borne disease, in Colombia.MethodsWe fitted a zero-state Markov-switching space-time model to the weekly Zika case counts of 1,121 municipalities of Colombia, obtained from the National Public Health Surveillance System (SIVIGILA). We assume that the disease switches between periods of presence and absence in each of the municipalities according to spatially and temporally varying probabilities of Zika (re)emergence and persistence. These probabilities are assumed to follow a series of mixed multivariate logistic regressions. When Zika is present, we estimate the transmission intensity assuming that the cases follow a Negative Binomial distribution. We explored whether covariates were related to the probabilities of emergence, re-emergence, and persistence, and to the transmission intensity of Zika during a period of 70 weeks. ResultsBetween epidemiological weeks 22/2015 and 39/2016 there were 72,031 Zika cases recorded in Colombia. Zika (re)emerged sooner in more densely populated municipalities (OR 1.42, 95%CI 1.28;1.58), with higher weekly maximum temperatures (OR 1.56, 95%CI 1.26;1.93, lagged one week), and with less weekly accumulated rain (OR 0.75, 95%CI 0.64;0.85, lagged four weeks), less vegetation cover (OR 0.89, 95%CI 0.81;0.99), and/or lower altitude (OR 0.75, 95%CI 0.61;0.92). When Zika was present, transmission was more intense in areas with higher population density (RR 1.47, 95%CI 1.29;1.69), lower altitude (RR 0.35, 95%CI 0.27;0.45), and/or less vegetation cover (RR 0.85, 95%CI 0.73;0.97). Zika persisted for longer in more densely populated areas (OR 1.51, 95%CI 1.31;1.75). ConclusionThe environmental factors (temperature, rain, vegetation cover and altitude) found to be associated with the (re)emergence of Zika may be proxies for the presence of the vector. Our results suggest that the population density was the main driver of the first Zika epidemic in Colombia.

Emergency Department Visit Time Trends for High Acuity Level Conditions in Older Adults: Analysis across Chief Complaints in Urban and Rural Nova Scotian Areas

Presented by: Hannah Price
Submission Authors: Swarna Weerasinghe1, Hannah Price1, Sam Campbell1
Author Affiliations: 1Dalhousie University

Abstract
Objectives: With Canada's steadily growing population, emergency departments (EDs) are under considerable strain. Our fastest-growing population group is that over 65. While previous studies on ED use have focussed on low acuity ED visits, older patients are often triaged as high acuity. This research aims to analyze time trends of high acuity chief complaints that bring older patients to the ED.Methods: A retrospective study explored ED visit data from 2015-2019 at four EDs (3 urban and one rural) in Central Nova Scotia, Canada. The study population comprised of all adults above 50, who were assigned a high acuity triage score (CTAS 2 or 3). ED visits were categorized by chief complaint: cardiac, abdominal pain, back pain, other pain, weakness, mental health, shortness of breath, trauma, urinary complaints, ED referrals, and other. Visit counts were standardized by age and gender census figures.Results: An increase in visits over time was found in all urban EDs (1384/year, 95%CI:690-2079, per 100,000 population), while visit rates to the rural ED remained stable. An increase in back pain (78/year, CI:6-150, per 100,000) and other pain visits (260/year, CI:146-374, per 100,000) occurred in urban sites compared to a decreasing trend at the rural site (-80/year, CI:-8--152, and -121/year, CI:-47--194, per 100,000). ED visits for trauma, referrals, and other complaints increased at all urban EDs (251/year, CI:133-168; 256/year, CI:57-455; and 294/year, CI:192-397, per 100,000).Conclusion: Our results suggest that patients are more likely to select larger hospitals with more diagnostic resources when they have back pain, other pain, or trauma. The use of referrals to the ED from other areas (including scheduled return visits) is increasing. The analysis of these trends can help predict resource utilization and inform future ED planning to better serve the aging population in urban and rural areas.

Economic costs of medical evacuation and transportation of Indigenous Peoples who travel for obstetric care in Canada: A Systematic Review

Presented by: Majd Radhaa

Submission Authors: Majd Radhaa1, Jennifer Leason2, Aisha Twalibu1, Erin Davis2, Claire Dion Fletcher3, Karen Lawford4, Elizabeth Darling5, Ava John-Baptiste1

Author Affiliations: 1Western University, 2University of Calgary, 3National Aboriginal Council of Midwives (NACM), 4Queen's University, 5McMaster University

Abstract

ObjectivesFirst Nations and Inuit pregnant people living on reserves or in rural and remote areas of Canada are required to travel to urban centres once their pregnancy reaches 36 - 38 weeks gestation, then await labour and birth. Research has demonstrated the harms of this approach causing emotional, physical, and financial stress.MethodsWe conducted a systematic review of the literature to identify costs of evacuation and transportation for obstetric care. We searched PubMed, Embase, CINAHL, Healthstar ScienceDirect, PROSPERO, and Cochrane Database of Systematic Reviews up to September 12 2022. Two reviewers independently assessed citations for inclusion. We abstracted costs in the following Canadian Agency for Drugs and Technologies in Health guideline categories: costs to the publicly funded health care payer, government payer, patients and informal caregivers, and productivity costs. All costs were converted to 2022 Canadian dollars using the Consumer Price Index.Preliminary Results891 unique citations were assessed during level 1 screening and 49 studies assessed during level 2 screening. Of the 4 studies included thus far, 3 provided estimates of costs to the government payer. Travel cost estimates ranged from $90 to $17,000, with medical evacuation in Northern communities being especially costly. Only 1 of 4 studies estimated costs to patients and informal caregivers, with partner's travel expenses reaching $2,300. No studies provided estimates of productivity costs.ConclusionDespite the tremendous burden of obstetric evacuation on First Nations and Inuit people, the costs to patients and caregivers are poorly understood

Applying the Met Need Index as a performance measure in Ontario's community mental health sector

Presented by: Kamalpreet Rakhra
Submission Authors: Kamalpreet Rakhra1, Frank Sirotich1
Author Affiliations: 1CMHA - Toronto

Abstract
Objective Ontario currently lacks common performance measures within the community mental health sector to measure service outcomes. However, the introduction of the Ontario Common Assessment of Need (OCAN) instrument affords an opportunity to leverage standardized data collected in the community mental health sector to pilot common performance measures to support quality improvement efforts. The objective of this study was to examine the utility of applying the Met Need Index (MNI) to OCAN data as a performance measure for community mental health services.Methods Originally developed for the Camberwell Assessment of Need, the MNI is a ratio of positive transitions in care needs to total (positive or negative) transitions in need status across needs assessments. The MNI was applied to provincial OCAN data for 1015 individuals enrolled in assertive community treatment (ACT) teams. The OCAN tracks the change in care needs over 24 need domains and includes both a clinician- and a client-reported assessment of needs. Multilevel linear models were used to compute observed and adjusted MNI scores for both clinician- and client-reported needs.ResultsThe overall clinician (N=1015) and client (N=675) reported MNI for the province was 0.66 (0.59-0.72) and 0.78 (0.73-0.84) respectively, indicating that clinician-identified needs were met 66% of the time, while client-identified needs were met 78% of the time. However, the MNI scores for individual need domains ranged between a minimum of 0.15 (0.1-0.21) for Sexual Expression to a maximum of 0.89 (0.87-0.91) for Accommodations for clinician-identified needs. Similarly, the client-reported MNI scores ranged between 0.41 (0.33-0.50) for Sexual Expression and 0.89 (0.85-0.94) for Safety to Others.ConclusionsThe MNI appears to be a versatile and parsimonious clinician- and client-reported outcome measure that has potential applications for performance monitoring and quality improvement initiatives at the organizational and provincial level in Ontario's community mental health sector.

Covariate measurement error in spatial analysis of count data

Presented by: Masud Rana
Submission Authors: Masud Rana1, Shahedul Khan1, Punam Pahwa1
Author Affiliations: 1University of Saskatchewan

Abstract
Objectives: Measurement error arises whenever we fail to observe precisely one or more variables of interest. Covariate measurement error violates the standard assumption that covariates are fixed and accurately measured, resulting in biased parameter estimates and inflated variance estimates in a regression model. Adjustment to address this data limitation is necessary; otherwise, covariate effects might be underestimated or undetected in regression models. Methods: The primary objective of this study is to investigate the impact of misspecified covariate measurement error in spatially correlated data. To achieve this objective, we formulated Bayesian hierarchical Poisson regression models with the error-prone covariates described by the classical error model, the Berkson error model, and no consideration of measurement error. We also considered three types of correlation structures to describe the random variability in each model: no random effect assuming homogeneous responses, unstructured random effect to capture the extra Poisson variability from the observed data, and the BYM2 model (an extension of the well-known Besag-York-Mollie (BYM) model) combining the unstructured and structured random variation from the observed data. We presented comparative studies, illustrated via both real and simulated data. Results: The simulation results revealed that ignoring measurement error and conducting naive analysis for spatially correlated count data using the BYM2 model attenuates the regression coefficient towards the null hypothesis of no effect. We illustrated the application of the proposed method for estimating socioeconomic and environmental factors' effect on obesity counts using aggregated data for 117 health regions of Canada.Conclusion: The classical and Berkson measurement error assumptions over the no measurement error assumption in the BYM2 model provided better parameter estimates and better overall model performance for spatially correlated count data.

Prospective Cohort of Pre- and Post-diagnosis Modifiable Lifestyle Behaviour on Second Primary Cancer Risk: an Alberta Endometrial Cancer Cohort Study

Presented by: Renee Kokts-Porietis

Submission Authors: Renee Kokts-Porietis1, Dylan O'Sullivan1, 2, 3, Gregg Nelson2, Linda Cook3, 4, Kerry Courneya5, Christine Friedenreich1, 2, 3

Author Affiliations: 1Department of Cancer Epidemiology and Prevention Research, Cancer Care Alberta, Alberta Health Services, Calgary, Alberta, Canada, 2Department of Oncology, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada, 3Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada, 4Department of Epidemiology, Colorado School of Public Health, University of Colorado, Aurora, Colorado, USA, 5Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Alberta, Canada

Abstract

Objectives: To examine the associations between modifiable lifestyle behaviours and the risk of developing a second primary cancer (SPC) among endometrial cancer survivors.Methods: We abstracted all SPCs in our cohort of 540 endometrial cancer survivors from the Alberta Cancer Registry who were initially diagnosed between 2002 and 2006. We collected pre- and post-endometrial cancer diagnosis physical activity, cigarette smoking, alcohol, diet and medical histories and direct anthropometric measurements during in-person interviews at endometrial cancer diagnosis and three-year follow-up. Cox proportional regression was used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for the associations between pre- and post-diagnosis modifiable behaviours and SPC. All models were adjusted for age, endometrial cancer stage, grade and treatments, Amsterdam Criteria II family history of cancer, residency, parity, and the other exposures as appropriate for each model. Preliminary Results: Ninety participants developed a SPC, excluding non-melanoma skin cancer, during the median 16.7 years of follow-up (IQR=12.3-17.9 years). Compared with the lowest pre-diagnosis dietary glycemic load, greater intakes were associated with a two-fold increased risk of SPC after adjustment. Maintaining a consistently low dietary glycemic load at both timepoints was associated with a reduced risk of SPC (HR=0.42, 95% CI=0.22-0.79). We found dose-response relationships between an increased risk of SPC and higher pre-diagnosis lifetime smoking pack years as well as a high Charlson Comorbidity Index at follow up. A >5% change in waist circumference between diagnosis and follow-up was associated with nearly twice the risk of a SPC (HR=2.20, 95% CI=1.08-4.34).Conclusion: Among endometrial cancer survivors in this cohort, modifiable factors measured at endometrial cancer diagnosis and follow-up timepoints were both associated with the development of a SPC. Further investigation of dietary intakes, smoking habits, elevated chronic condition burden and substantial weight loss should be considered for prevention and risk-adapted follow-up and surveillance.

Occupational exposure to low-dose ionizing radiation and ischemic heart disease: a systematic review and meta-analysis

Presented by: Laura Rodriguez Villamizar

Submission Authors: Cheryl Peters1, Emma Quinn1, Laura Rodriguez-Villamizar2, Heather MacDonald3, Paul Villeneuve2

Author Affiliations: 1School of Population and Public Health, University of British Columbia, Vancouver, Canada, 2Department of Neuroscience, Faculty of Science, Carleton University, Ottawa, Canada, 3MacOdrum Library, Carleton University, Ottawa, Canada

Abstract

Objective: To synthesize the epidemiological literature assessing the effect of occupational exposure to low-dose ionizing radiation (LDIR) on cardiovascular disease, particularly ischemic heart disease (IHD). Methods: We conducted a search of literature in three databases (PubMed, SCOPUS, and Web of Science) including studies published in English language between January 1st, 1990, and September 30th, 2022. We searched for occupational exposure doses below 0.5 Gy. A quality assessment of the studies was completed using the Office of Health and Assessment and Translation Risk of Bias Rating Tool. We conducted meta-analyses using random effects models for measures of Excess Relative Risk per Sievert (ERR/Sv) obtained from internal cohort comparisons, as well as for standardized mortality ratios (SMRs) from external cohort comparisons. We assessed potential sources of heterogeneity using stratified analysis and assessed potential publication bias using funnel plots and Egger´s test.Results: Our search identified 2189 articles, and 26 provided data on IHD. Most studies were classified as having a 'moderate' level of risk of bias. The meta-analyses were conducted for IHD mortality. The meta-analytic summary SMR was 0.85 (95% CI: 0.76-0.94, n=12 studies) with evidence of high heterogeneity. For internal cohort measures, the summary ERR/Sv for a lagged exposure of 10 years was 0.13 (95% CI: 0.07-0.20, n=7 studies) with low heterogeneity across studies. The subgroup analysis by lagged exposure time (5-,10-, 15-, 20-years) showed the strongest association were for the 15- and 20- years lag.Conclusions: Our findings suggest that exposure to LDIR in occupational settings increases the risk IHD mortality. Our findings also highlight the relevance of internal cohort comparisons in occupational cohort studies. The relatively small number of studies, and the reporting of risks for different incremental increases in exposure across studies present challenges in characterizing the shape of the dose-response curve.

Association of neighborhood-level income with cancer stage at diagnosis and survival among cancer patients in Alberta

Presented by: Yibing Ruan

Submission Authors: Yibing Ruan1, Emily Heer2, Matthew Warkentin3, Dylan O'Sullivan1, Tamer Jarada3, Desiree Hao3, Doreen Ezeife3, Winson Cheung3, Darren Brenner3

Author Affiliations: 1Department of Cancer Epidemiology and Prevention Research, Cancer Care Alberta, Alberta Health Services, Calgary, AB, 2Department of Medicine, Cumming School of Medicine, University of Calgary, Calgary, AB, 3Department of Oncology, Cumming School of Medicine, University of Calgary, Calgary, AB

Abstract

Objectives: Socioeconomic status (SES) is associated with a wide range of health outcomes including cancer diagnosis and survival. Individuals with lower income have higher odds of being diagnosed with an advanced-stage cancer and have poorer survival in countries with private-based healthcare, such as the United States. However, the evidence is inconsistent for SES and cancer outcomes in countries with single-payer public healthcare systems, such as Canada. In this study, we evaluated the relationships between neighborhood-level income, cancer stage at diagnosis, and cancer-specific mortality in Alberta.Methods: We used the Alberta Cancer Registry to identify all primary cancer diagnoses between 2010 and 2020, including information on cancer site and stage, patients' age, sex, and residential postal code at the time of diagnosis. Vital status was captured through linkage with the population death registry. Average neighborhood income was determined by linking to the Canadian census using postal codes and was categorized into quintiles based on the income distribution in Alberta. We used multivariable multinomial logistic regression to model the association between income quintile and cancer stage. We used the Fine-Gray proportional sub-distribution hazard model to estimate the association between SES and cancer-specific mortality, accounting for the competing risk of death from all other causes.Results: Among the 143,818 cancer patients included in this study, those in lower income quintiles were significantly more likely to be diagnosed at stage III (OR: 1.07, 95% CI: 1.06-1.09) or IV (OR: 1.12, 95% CI: 1.11-1.14), after adjustment for age and sex. The lower income quintiles also had significantly worse cancer-specific survival for breast, colorectal, liver, lung, non-Hodgkin lymphoma, oral, pancreas, and prostate cancer.Conclusion: We observed disparities in cancer outcomes across the neighborhood-level income groups in Alberta. Further research is needed to better understand the underlying causes and to develop strategies to mitigate such disparities.

Low levels of functional social support subtypes mediate the association between depressive symptoms and executive function in women aged 75 years or older in the Canadian Longitudinal Study on Aging (CLSA)

Presented by: Emily Rutter

Submission Authors: Emily C Rutter1, Anita Iacono2, Carrie L Shorey1, Mark Oremus1, Colleen J Maxwell3, Suzanne L Tyas1

Author Affiliations: 1School of Public Health Sciences, University of Waterloo, 2Ontario Drug Policy Research Network, 3School of Pharmacy, University of Waterloo

Abstract

Objectives. Experiencing depression is associated with poorer cognition. Low levels of functional social support (FSS) may partially explain this relationship through a mediating effect, especially among older women, given their heightened risks for experiencing depressive symptoms, dementia and substantial changes in social support with age. This study investigated the role of four subtypes of FSS in mediating the association between depressive symptoms and executive function in community-dwelling adults, with particular attention to sex and/or age differences. Methods. Analyses (n=14,133) utilized baseline (T1) and follow-up (T2) data from the Comprehensive cohort of the Canadian Longitudinal Study on Aging (CLSA), with depressive symptoms (T1) as the exposure, FSS (T2) as the mediator, executive function (T2) as the outcome, and age and sex (T1) as moderators. Depressive symptoms were assessed using the Center for Epidemiological Studies Short Depression Scale (CES-D-10), and FSS was operationalized using the 19-item Medical Outcomes Study-Social Support Survey. Executive function was calculated as the sum of z-scores from five cognitive tests. Conditional process analysis assessed moderated mediation. Interactions were tested hierarchically. Results. A three-way interaction (sex and age) on Path I (exposure to mediator) and a two-way interaction (age) on Path II (mediator to outcome) was significant for all models of FSS subtypes, except tangible. The emotional/informational, affectionate, and positive social interactions subtypes were significant mediators of the effect of depressive symptoms on executive function in women 75+. The proportion mediated was calculated within sex/age group strata where significant mediation was observed (i.e., women 75+). The proportion of the association between depressive symptoms and executive function explained by FSS in women 75+ varied by subtype (4.2-9.9%).Conclusion. Interventions targeting subtypes of FSS may help to mitigate the established negative impacts of depression on cognitive function in women aged 75+.

The Ontario Health Study (OHS)

Presented by: Sarah Salih

Submission Authors: Victoria Kirsh1, 2, Kimberly Skead1, 3, Kelly McDonald1, Nancy Kreiger2, 4, Julian Little5, Karen Menard6, John McLaughlin2, Sutapa Mukherjee7, Lyle Palmer8, Vivek Goel2, 9, Mark Purdue10, Sarah Salih1, Philip Awadalla1, 2, 3

Author Affiliations: 1Ontario Institute for Cancer Research, 2Dalla Lana School of Public Health, University of Toronto, 3Department of Molecular Genetics, University of Toronto, 4Prevention and Cancer Control, Ontario Health, Cancer Care Ontario, 5Faculty of Medicine, School of Epidemiology and Public Health, University of Ottawa, 6Office of Institutional Research and Planning, University of Guelph, 7Adelaide Institute for Sleep Health, Flinders University, 8School of Public Health, University of Adelaide, 9Office of the President, University of Waterloo, 10Occupational and Environmental Epidemiology Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute

Abstract

OBJECTIVES: The Ontario Health Study (OHS) is a resource for investigating the ways in which lifestyle, the environment and genetics affect people's health.METHODS: From 2009 to 2017, the OHS recruited adult residents from Ontario's general population through targeted recruitment strategies. Participants completed a questionnaire on socio-demographics, personal and family medical history, lifestyle factors, and self-reported anthropometry. A subset of participants provided blood samples and physical measures. Follow-up questionnaires targeting health and lifestyle updates and occupational history were collected from 2016 to 2019, and COVID-19 questionnaires and dried blood spots were collected from 2020 to 2022. Participants are additionally followed via various linked health and environmental data sources.RESULTS: A total of 225,620 people (females: 61.13%) completed the OHS baseline questionnaire. The mean age at recruitment was 46 years (range: 18—97 years). Over 83% of participants were successfully linked to administrative data. Biologic samples have supported genotyping and whole genome sequencing, and repeat blood spots have supported COVID-19 serology studies.Common chronic conditions at baseline, for example stroke (2.5%), hypertension (23.8%), and asthma (15.1%), are comparable to estimates in Canadian adults. Over an average nine-year period of follow-up, many incident cancers have been ascertained via cancer registry linkages, including 1645 breast, 1511 colon, 909 lung, and 840 colorectal cancer cases. Incidence of 4763 strokes, 6102 type 2 diabetes, and 3359 asthma cases were additionally confirmed through record linkage. Polymerase chain reaction (PCR)-confirmed SARS-CoV-2 infections and reverse transcription-PCR based COVID-19 test numbers were ascertained through linkage with the Ontario Laboratory Information Systems.CONCLUSION: The OHS supports diverse research projects, across many disciplines, seeking to better understand the landscape of health and disease. The linking of Canada's administrative health data with the cohort represents a powerful means to disseminate high-quality, timely data and biospecimens.

Workplace Factors Associated with Workers Compensation Outcomes: an Ecological Study

Presented by: Mannila Sandhu

Submission Authors: Mannila Sandhu1, Vicki Kristman1, 2

Author Affiliations: 1Enhancing Prevention of Injury and Disability @ Work (EPID@Work) Research Institute, Lakehead University, 2Department of Health Sciences, Lakehead University

Abstract

Objectives: Research demonstrates importance of assessing workplace factors at different levels (Injured Worker, Workforce, Supervisors, Organizational) in work disability prevention. However, these factors were assessed using a small number of workplaces, few levels of assessments, and with a focus on one industry or health issue. This study expands on this historically limited approach by determining workplace factors associated with worker's compensation outcomes, using 18 workplaces across 9 industrial sectors, examining all 4 levels of assessment with no focus on a particular health issue, and considering both supervisors and workers perspectives. Methods: We used an ecological study design. We used data from a previous cross-sectional survey study and linked it to Workers Compensation (WCB) claims data. Results: 366 supervisors and 1062 workers across the 18 participating workplaces completed the 2018 survey study. WCB claims data from 2014 to 2018 was available for 4977 employees across 12/18 participating and 164/251 non-participating workplaces. Therefore, we were able to link data for 12 of the 18 participating workplaces. Bivariable regression results indicated a significant ($p < 0.05$) association with the duration of lost time claims: Supervisor's Organizational Culture Profile - Developmental culture scale (β=-8.60, 95% CI: -16.41, -0.80) and Leadership Behaviour - Consideration scale (β=-1.82, 95% CI: -3.45, -0.20); and Worker's seniority that is the years worked for the same employer (β=2.40, 95% CI: 0.71, 4.09) and access to health care support (β=-0.26, 95% CI: -0.49, -0.04). Comparing claims of participating and non-participating workplaces found no significant differences. Conclusion: Our research confirms supervisors and healthcare support impact time off work after a workplace injury. However, limited by the absence of a unique identifier, we couldn't link the data at the employee level, which restricted our sample size, impeding the exploration of no-lost-time claims and any potential variation based on claim condition and industry sector.

The Influence of Social Determinants of Health on Antibiotic Prescribing Practices Among Marginalized Community-Dwelling Older Adults in Ontario

Presented by: Mia Sapin

Submission Authors: Mia Sapin1, Colleen Maxwell2, 3, Anna Clarke2, Kevin Schwartz2, 4, 5, 6, Curtis Cooper7, 8, Nick Daneman2, 9, Sharmistha Mishra2, 4, 10, 11, 12, Derek MacFadden2, 8, 13

Author Affiliations: 1School of Epidemiology and Public Health, University of Ottawa, Ottawa, Ontario, Canada, 2ICES, Ontario, Canada, 3School of Pharmacy and Public Health Sciences, University of Waterloo, Waterloo, Ontario, Canada, 4Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada, 5Public Health Ontario, Toronto, Ontario, Canada, 6Unity Health Toronto, Toronto, Ontario, Canada, 7Department of Medicine, University of Ottawa, Ottawa, Ontario, Canada, 8The Ottawa Hospital Research Institute, Ottawa, Ontario, Canada, 9Division of Infectious Diseases, Sunnybrook Health Sciences Centre, University of Toronto, Toronto, Ontario, Canada, 10Department of Medicine, University of Toronto, Toronto, Ontario, Canada, 11MAP Centre for Urban Health Solutions, St. Michael's Hospital, Unity Health Toronto, Toronto, Ontario, Canada, 12Institute of Medical Science, University of Toronto, Toronto, Ontario, Canada, 13The Ottawa Hospital, Ottawa, Ontario, Canada

Abstract

Background: Antibiotic overuse is a widespread problem that may be influenced by various individual and social factors. During the COVID-19 pandemic, community-dwelling older adults experiencing social and/or economic marginalization could have faced a disproportionate burden of antibiotic overprescribing due to inequities in rates of SARS-CoV-2 infection and variability in access to high-quality healthcare.Objectives: The aims of this study are to determine (1) which patient, healthcare system, and social determinants of health variables are important predictors of antibiotic prescribing and time to first outpatient prescription, and (2) whether the COVID-19 pandemic modified the cumulative probability and rate of receiving an antibiotic prescription, and assess across which groups this was most significant.Methods: This study will consist of a retrospective, population-based cohort study using linked and coded administrative healthcare databases at ICES (formerly - the Institute for Clinical Evaluative Sciences). The study sample will include all community-dwelling adults (66+ years of age) in Ontario from January 1st, 2018, until May 19th, 2022, effectively capturing prescribing patterns over time and into the pandemic period. Eligible individuals will be assigned a random index date during accrual. Information regarding outpatient antibiotic prescriptions will be obtained from the Ontario Drug Benefit database. Area-level social determinants of health, such as household income and the proportion who self-identify as a visible minority, will be derived from the 2016 Canada Census. Individual-level immigration status will be obtained from the Permanent Residents database. Multivariable regression models will be used to identify relevant predictors of both outpatient antibiotic prescribing and respiratory antibiotic prescribing. The Fine-Gray subdistribution hazard model will be used to determine the influence of area-level and individual-level social determinants of health on the rate of prescribing and cumulative incidence of receiving a prescription over time in the presence of competing risks, including death, hospitalization, or admission to long-term care.

Généralisation d'estimations de séroprévalence des anticorps contre le SRAS-CoV-2 dans la population pédiatrique montréalaise

Presented by: Adrien Saucier

Submission Authors: Adrien Saucier1, Britt McKinnon1, Laura Pierce1, Bouchra Nasri1, 2, Mabel Carabali1, Kate Zinszer1, 2

Author Affiliations: 1Centre de recherche en santé publique, Montréal, Québec, Canada, 2Université de Montréal, Montréal, Québec, Canada

Abstract

ObjectifsNous avons évalué la représentativité d'une cohorte pédiatrique montréalaise visant à estimer la séroprévalence des anticorps contre le SRAS-CoV-2. Nous avons également évalué la possibilité de généraliser l'estimation de séroprévalence en pondérant la distribution de certaines caractéristiques dans la population d'étude afin qu'elles correspondent à la distribution dans la population pédiatrique montréalaise en général.MéthodologieL'étude EnCORE est une cohorte d'enfants et d'adolescents de 2 à 18 ans ayant fourni un échantillon de tache de sang séché entre 2020 et 2022. En se basant sur les données collectées au début de l'étude, entre octobre 2020 et mars 2021, la représentativité de la cohorte a été examinée en la comparant aux données du recensement canadien de 2016 pour certaines caractéristiques clés. Nous avons ensuite pondéré la distribution de certaines caractéristiques dans la population d'étude afin qu'elle reflète la population pédiatrique montréalaise en général à l'aide d'une modélisation statistique. Les différences induites dans l'estimation de séroprévalence ont été examinées en comparant l'estimation non-pondérée à différents scénarios de pondération.Résultats préliminairesLa cohorte présente des différences notables d'avec la population pédiatrique montréalaise. Elle provient de foyers moins populeux, plus nantis, moins ethniquement diversifiés et avec plus de parents possédant un diplôme universitaire. En comparaison de l'estimation de séroprévalence non-pondérée de 5.8% (IC 95%; 4.6% :7.4%), la séroprévalence pondérée pour plusieurs caractéristiques était de 7,5% (IC 95%; 5.6% :10.0%).ConclusionNotre analyse suggère une capacité limitée de l'estimation de séroprévalence non-pondérée à se généraliser au-delà de la population d'étude. On souligne par le fait même l'importance que la population d'étude représente adéquatement la population ciblée par une étude, particulièrement lorsque l'objectif est d'estimer la distribution d'un événement de santé dans la population générale. Notre démarche permet d'assurer une meilleure application des données de recherche à un contexte plus pratique de santé publique.

Infant Mortality Rate in Developed and Developing Countries- A Comparison

Presented by: Afroza Sharmin
Submission Authors: Afroza Sharmin1, Afroza Sharmin1
Author Affiliations: 1School of Health Sciences, Faculty of Health, Education and Life Sciences, Birmingham City University, United Kingdom

Abstract
High infant mortality rate (IMR) indicates unmet human health needs in sanitation, health care, nutrition, and education. Although IMR has more than halved since 1990 globally, the rate of decline varies in developed and developing countries. The objective of this study is to compare IMRs between Canada and Bangladesh, as representatives of the developed and developing countries, respectively. The IMR corresponding to the death of a child under one year of age was collected from publicly available data published by Statistics Canada and Bangladesh Demographic and Health Survey, expressed as a rate per 1000 live births (LB). The quartile distributions of IMR were mapped across the 112 health regions of Canada for 2015 and 64 districts of Bangladesh for 2014. The highest (fourth quartile) IMRs were found in the northern regions for both countries, characterized by lower socio-economic condition. While the IMR varied between 0.0 - 29.9 in Canada, it varied between 24.3 - 133.5 per 1000 LB in Bangladesh. Although the IMR is quite high in Bangladesh compared to Canada, the highest IMRs are distributed in areas characterized by lower socio-economic condition in both countries. Keywords: Infant Mortality Rate, Disease Mapping, Public health, Canada, Bangladesh

Integrating Probability and Non-Probability Samples with Misclassified Covariate: A Latent-Variable Approach

Presented by: Hua Shen
Submission Authors: Zheng Yu1, Hua Shen1, Pengfei Li2, Changbao Wu2
Author Affiliations: 1University of Calgary, 2University of Waterloo

Abstract
Probability samples are often considered representative of the patient population of interest. However, not all variables needed for analysis are observed or precisely measured. Non-probability samples can arise in clinical research and contain information on variables of interest, but they are not representative of the population due to biased sampling, and some variables are measured with error. Categorical covariates in both probability and non-probability samples may be subject to misclassification. In this paper, we propose a two-stage estimation process to integrate a probability sample with missing response and a non-probability sample with observed response in the absence of validation data for the misclassified covariate under a latent-variable framework. We demonstrate the performance of the proposed method and its advantages over the naïve methods in simulation studies. We also use the proposed method to analyze a real dataset. Our results show that the proposed method is effective in improving inference in non-probability samples with misclassified covariate.

Prenatal exposure to lead is associated with infant heart rate variability at 6 months in the Maternal Infant Research on Environmental Chemicals: Infant Development study.

Presented by: Robin Shutt

Submission Authors: Robin Shutt1, James Owen1, Agata Logvin2, Gina Muckle3, Bruce Lanphear4, Natalia Poliakova3, Tye Arbuckle1, Mandy Fisher1, Jillian Ashley-Martin1

Author Affiliations: 1Environmental Health Science and Research Bureau, Health Canada, Ottawa ON, K1A 0K9, 2School of Mathematics and Statistics, Carleton University, Ottawa Ontario Canada, K1S 5B6 , 3Centre de recherche du CHU de Québec, Université Laval, Québec, Canada , 4Health Sciences, Simon Fraser University, Burnaby BC, Canada V5A 1S6

Abstract

Objectives: Toxic metals may adversely affect autonomic nervous system development and function, but few studies have investigated this association in infants. The objective of this study was to investigate the associations between prenatal exposure to metals and Heart Rate Variability (HRV), a non-invasive measure of autonomic nervous system (ANS) balance in the heart, at 6 months old in the Maternal Infant Research on Environmental Chemicals Infant Development follow-up study (MIREC-ID). Methods: Of 2001 MIREC participants recruited during the first trimester of pregnancy, approximately 400 had infants that participated in MIREC-ID. We measured cadmium (Cd), lead (Pb) and mercury (Hg) in blood from the first and third trimesters and in cord blood. We calculated both the time- (standard deviation of the normal-to-normal intervals: SDNN, and the root mean square of successive differences: RMSSD) and frequency- (high frequency power: HF, low frequency power: LF, and LF/HF) domain parameters of HRV in infants at 6 months. Using multivariable linear regression models, we quantified associations between metals and HRV, adjusted for infant heart rate, infant sex, birthweight z-score, infant age, MIREC site, household income, age at pregnancy, smoking, and parity. Results: First trimester and cord blood Pb concentrations were associated with increased LF power and SDNN in infants at 6 months old. For example, a doubling of first trimester Pb was associated with 4.5-fold increase in LF. We found no significant associations between prenatal exposure to Cd or Hg and HRV in infants at 6 months old. Conclusion: Prenatal Pb exposure was associated with altered autonomic nervous system control of the heart at six months old. Future studies with repeated HRV measures are necessary to identify key windows of susceptibility, and to investigate if there are persistent long-term health impacts of altered ANS control following prenatal exposure to Pb or other metals.

Household food insecurity in Citizens of the Métis Nation of Ontario

Presented by: Abby Simms
Submission Authors: Shelley Gonneville1, Abigail Simms1, 2, Noel Tsui1, 2, Sarah Edwards1, 2, Leah Quinlan1
Author Affiliations: 1Métis Nation of Ontario, 2ICES

Abstract
Title: Household food insecurity in Citizens of the Métis Nation of OntarioObjectives: Although Pan-Indigenous rates are often presented on food insecurity and demonstrate Indigenous households are more likely to experience food insecurity, there have been no population-based rates available on Métis households experiencing food insecurity. This study will describe the prevalence of food insecurity in Citizens of the Métis Nation of Ontario (MNO) using population-based surveys.Methods: This study used two MNO-led, population-based online surveys deployed in February 2021 and May 2022. The MNO maintains the only recognized provincial registry for Métis people in Ontario. Census sampling was used in both to invite all MNO Citizens 16 years of age and older with a valid email on file to participate. Respondents were asked “have you or your family experienced periods where you were unsure if you could afford food?” Sociodemographic information was also collected. Bivariate and logistic regression results on MNO Citizens experiencing/not experiencing food insecurity will be presented.Results: In 2021, 4,478 (39%) MNO Citizens followed the survey link; 4,405 (38%) completed consent and 3,967 (35%) completed the survey. In 2022, 4,780 (34%) MNO Citizens followed the survey link; 4,209 (30%) completed consent and 4,164 (30%) completed the survey. In 2021 and 2022, 12.4% and 26.3% of MNO Citizens indicated they have experienced periods where they were unsure if they could afford food at least once, respectively.Conclusion: Our results are the first Métis-specific and population-based results to describe Métis households experiencing periods of food insecurity. Rates have more than doubled between 2021 and 2022 in MNO Citizens in Ontario. Additional research will explore the intersection of MNO Citizens experiencing food insecurity and other health determinants (e.g. housing instability) and health outcomes (e.g. mental health and wellness) to inform MNO programs and services.

The association between alcohol consumption and occurrence of sexual assault in Canadian university students: An exploratory study.

Presented by: Sanewal Singh
Submission Authors: Sanewal Singh1, Michelle Vuong1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: Irrespective of the growing concerns of alcohol consumption and abuse, it remains a significant public health issue with many adverse outcomes, such as being sexually assaulted, particularly among the university population. Previous literature suggests that sexual assault occurrence is associated with an increased risk of mental health issues, academic decline, and reduced overall quality of life. However, current literature has yet to examine the multiple factors associated with alcohol consumption among a Canadian university population. Rather, research has focused largely on individual factors such as gender, race, and cognitive impairment in relation to alcohol use and sexual assault. Thus, this project examines the relationship between alcohol use and sexual assault occurrence among Canadian university students, while controlling for multiple factors found in the literature.Methods: This study (n=33,263) utilized data from the 2019 ACHA-NCHA Survey. Logistic regression models were used to assess the association between alcohol use and being sexually assaulted while adjusting for covariates.Results: The odds of sexual assault occurrence more than doubled in students who drink alcohol compared to those who do not, even after adjustment for physical assault, depression, age, sex, sexual orientation, undergraduate/graduate status, race, international student status, marital status, and place of residence (OR= 2.24, 95% CI = 2.05, 2.45). Significant interactions were found between alcohol use and physical assault occurrence ($p<0.001$), depression ($p<0.01$), age ($p<0.001$), sex ($p<0.001$), sexual orientation ($p<0.05$), identifying as Korean ($p<0.05$), and identifying as Southeast Asian ($p<0.05$).Conclusion: This study identified vulnerable populations (older age, female, LGBTQ+) at higher odds of sexual assault; in contrast, a depression diagnosis and identifying as Korean or Southeast Asian decreased the odds of sexual assault in those who drink versus those who do not. Understanding multiple factors influencing the association between alcohol use and sexual assault occurrence will support universities in creating targeted interventions.

Selecting and implementing a comorbidity index for epidemiological research using administrative health data

Presented by: Boglarka Soos
Submission Authors: Boglarka Soos1, Paul Ronksley1, Kerry McBrien1, 2, Samuel Wiebe1, 3, Tyler Williamson1
Author Affiliations: 1Department of Community Health Sciences, University of Calgary, 2Department of Family Medicine, University of Calgary, 3Department of Clinical Neurosciences, University of Calgary

Abstract
Objective: Comorbidity indices (CIs) are commonly used for risk adjustment in epidemiology. However, researchers may not be aware of the options available and the variability in methodologies used for index derivation. The objective of this study is to describe and critique currently available CIs and provide guidance to researchers in their implementation. Methods: We conducted a literature search using MEDLINE (OVID) from inception to June 2022 using three themes: comorbidity, risk adjustment, and administrative health data. Additional manuscripts were retrieved by searching for publications that mentioned the two most common comorbidity measures, “Charlson” AND “Elixhauser”, and from the references of relevant manuscripts. Articles that assessed differences in the derivation and implementation of CIs were included in this study. We extracted information on the study sample, outcomes, data sources, predictors, look-back period, coding of complications, modelling approach, disease representation, disease weighting scheme, and overall findings. A narrative synthesis was used to summarize evidence across these topics and provide recommendations for health researchers. Results: A total of 35 unique CIs were identified and described. We found that many CIs exhibit robustness despite major differences in the breadth of disease definitions, classification systems used, and the process by which weights are assigned to quantify disease burden. However, predictive performance varies based on the cohort characteristics and the outcome of interest. Further, increasing the number of diseases in the CI, applying a one-year look-back window when predicting long-term outcomes, and using novel methodologies (e.g., machine learning) improves model performance. Conclusion: There are many CIs currently available for use in epidemiological research. When selecting which to implement, it is important to consider the proposed data source, sample size, and clinically relevant medical conditions. Understanding the nuances of CIs is particularly important given the advent of novel statistical approaches and growing breadth of available data.

Establishing Stakeholder Priorities for the Development and Implementation of Strategies to Support Continued Youth & Family Recovery from the COVID-19 Pandemic

Presented by: Cynthia Sriskandarajah

Submission Authors: Cynthia Sriskandarajah1, Stephana J. Moss1, Rebecca Brundin-Mather1, Sara J. Mizen1, Diane L. Lorenzetti2, Stacie Smith3, Micaela Harley4, Perri R. Tutelman2, Kathryn A. Birnie2, Melanie C. Anglin2, Henry T. Stelfox2, Kirsten M. Fiest2, Jeanna Parsons L

Author Affiliations: 1Dalhousie University, 2University of Calgary, 3The Sandbox Project, 4Frayme

Abstract

Objectives: The objective of this scoping review is to synthesize strategies and interventions to mitigate potentially negative impacts of the COVID-19 pandemic on youth and family well-being. The findings of this review will contribute to a larger program of research dedicated to establishing stakeholder priorities for the development and implementation of strategies to support continued youth and family recovery from the COVID-19 pandemic.Methods: The Arksey-O'Malley five stage scoping review method and the Scoping Review Methods Manual by Joanna Briggs Institute were used to develop the protocol. Six databases were searched from inception to January 2023. Records of primary research studies published on or after December 2019 that presented new data on a strategy or intervention or provided recommendations to inform a future strategy or intervention to mitigate negative impacts of COVID-19 on youth (£18 years) and family (>18 years) well-being were considered for inclusion. The definition for well-being and the five domains of well-being as defined by the Partnership for Maternal, Newborn & Child Health and the WHO in collaboration with the United Nations H6+ Technical Working Group on Adolescent Health and Well-Being were used.Preliminary Findings: A total of 5,758 records were screened, 151 were reviewed in full-text, and 49 were included in the review. After independent and duplicated data abstraction, the convergent integrated approach for data synthesis (Joanna Briggs Institute) will be used.Next Steps: The results of this scoping review will be funneled into a synthesis of evidence-informed strategies to mitigate negative impacts of the COVID-19 pandemic on and youth and family well-being in a modified Delphi consensus process with youth and families, clinicians, knowledge users, and decision makers, and a subsequent national stakeholder meeting to generate and communicate evidence-informed consensus statements on youth and family pandemic recovery informed by youth and family experiences.

Leveraging the Occupational Disease Surveillance System to examine risk of COVID-19 among Ontario workers

Presented by: Jeavana Sritharan

Submission Authors: Jeavana Sritharan1, 2, Chaojie Song1, Rebecca Prowse1, 2, Brendan Smith2, 3, Tracy Kirkham1, 2, Victoria Arrandale2, JinHee Kim2, 4, M. Anne Harris1, 2, 5, Jill MacLeod1, Paul Demers1, 2

Author Affiliations: 1Occupational Cancer Research Centre, Ontario Health, 2Dalla Lana School of Public Health, University of Toronto, 3Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, 4Environmental and Occupational Health, Public Health Ontario, 5School of Occupational and Public Health, Toronto Metropolitan University

Abstract

Objectives: Work is a key determinant of COVID-19 outcomes, particularly among health-care workers. However, occupational surveillance continues to be a critical information gap in Canada as many other occupations were at increased risk for COVID-19. Examining the risk of infection, and risk of severe outcomes including hospitalization and ventilator use, by occupation can identify high risk groups and provide better understanding on infectious respiratory disease spread among Ontario workers. Methods: The Occupational Disease Surveillance System (ODSS) includes 1,205,847 former workers compensation (non-COVID-19) claimants (1983-2019) linked to health databases in Ontario. Incident cases were defined as either having a confirmed positive polymerase chain reaction (PCR) test in the Ontario Laboratory Information System (OLIS), or an International Classification of Diseases (ICD-10-CA) diagnostic code of U07.1 in hospitalization or emergency department records (February 2020-December 2021). Workers were followed until diagnosis, death, emigration, age 65 or end of follow-up. Sex- and age-adjusted Cox proportional hazards models were used to estimate hazards ratios (HR) and 95% confidence intervals (CI) by occupation, compared to all other cohort members. Results: Overall, 80,740 COVID-19 cases were diagnosed among workers, where 80% were diagnosed with a positive PCR test. Associations were identified between COVID-19 diagnosis and employment in nursing (HR=1.44, CI95%=1.40-1.49), air transport operating (HR=1.61, CI95%=1.47-1.77), textile/fur/leather products fabricating, assembling, and repairing (HR=1.38, CI95%=1.25-1.54), apparel and furnishing services (HR=1.38, CI95%=1.19-1.60), and janitor and cleaning services (HR=1.11, CI95%=1.06-1.16). Test positivity ranged between 4-16% across major occupation groups. Occupational differences in hospitalization and other severe health outcomes were also examined.Conclusions: This study identified risk of COVID-19 among health care, manufacturing, transportation, and service workers, underscoring the importance of including occupational data in COVID-19 surveillance. Findings can be used to identify high priority areas for risk reduction to keep Ontario's workforce safer from infectious respiratory diseases.

Life satisfaction in Montreal and Canada before and during the COVID-19 pandemic

Presented by: Yingying Su
Submission Authors: Yingying Su1, Muzi Li1, Xiangfei Meng1
Author Affiliations: 1McGill University

Abstract
ObjectivesThe present study aims to 1) compare the life satisfaction of Montreal residents before and during the COVID-19 pandemic; 2) compare the life satisfaction of Montreal residents to the life satisfaction of Canadians before the COVID-19 pandemic; 3) also compare the life satisfaction of Montreal residents to the life satisfaction of Canadians during the COVID-19 pandemic.MethodsData were from Zone d'Épidémiologie Psychiatrique du Sud-Ouest de Montréal (ZEPSOM) at Wave 4 and Wave 7. It is a large-scale, longitudinal, population-based cohort from Southwest Montreal in Canada; and population-representative samples from the 2014 Canadian Community Health Survey (CCHS-2014), as well as two Waves of Survey on COVID-19 and Mental Health (SCMH) which collect data to assess the impacts of COVID-19 on the mental health and well-being of Canadians. To maximize the potential for data comparability, the age/sex-standardized prevalence of life satisfaction was calculated for each dataset based on the 2014 Canadian standard population (CCHS-2014).

The use of molecular biomarkers in colorectal adenoma risk prediction: A systematic review

Presented by: R. Liam Sutherland

Submission Authors: R. Liam Sutherland1, Darren Brenner1, Robert Hilsden1, Nauzer Forbes1, Winson Cheung1

Author Affiliations: 1University of Calgary Cumming School of Medicine

Abstract

ObjectivesRisk prediction models (RPM) for high-risk adenomas (HRA) could facilitate risk-based/stratified screening for colorectal cancer (CRC). Models incorporating genetic and molecular biomarkers may improve the utility of current RPMS. We aimed to perform a systematic review of studies reporting RPMs for HRAs that evaluated the impact of genetic and molecular biomarkers on clinical outcome prediction. MethodsWe conducted a systematic search of MEDLINE, Web of Science, and PubMed databases until June 2022. Case-control, cohort, and cross-sectional studies that developed or attempted to validate a model to predict risk of HRAs were included. Inclusion criteria included a study sample composed individuals aged 40-80 years, with the ability to be generalized to the average-risk CRC screening population. Two reviewers independently screened studies. Data were extracted and study quality was assessed via the Prediction model Risk of Bias Assessment Tool (PROBAST). Meta-analysis will be performed where included studies provide adequate model metrics and data for quantitative synthesis information. Preliminary/Proposed ResultsThere were 28 identified published between 2012 and 2022. The studies varied in population, predictors included, and outcome definition. Outcomes included both high-risk adenomas, and colorectal neoplasia. Six studies utilised genetic markers, 12 investigated blood-based markers, and 2 attempted to use markers found in urine or stool. Most if not all studies were of high-quality with low risk of bias and provide sufficient detail to be able to calculate a pooled c-statistic. ConclusionsUltimately, the evidence base for risk prediction models for CRC and its precursors such as HRAs is increasing, and particularly those involving genetic and molecular biomarkers. Despite the increase in numbers, most RPMs currently lack external validation or insight into their proposed implementation. As biomarkers improve the discriminatory potential of RPMs, more research is needed for the evaluation and implementation of RPMs within existing CRC screening frameworks.

Predicting the risk of high-risk colorectal adenomas with markers of glucose metabolism and liver function in a population undergoing screening-related colonoscopy

Presented by: R. Liam Sutherland

Submission Authors: R. Liam Sutherland1, Darren Brenner1, Robert Hilsden1, Nauzer Forbes1, Winson Cheung1

Author Affiliations: 1University of Calgary Cumming School of Medicine

Abstract

ObjectivesA precision-based approach to CRC screening that utilizes blood-based biomarkers could be used to supplement fecal-based testing to increase the adherence and efficiency of population-level screening. The aim of this study is to examine the associations between markers of glucose metabolism and liver function and the presence of high-risk polyps at the time of colonoscopy and evaluate their relative impact to a risk prediction model (RPM).MethodsThe study sample was selected from the biorepository established at the Forzani & MacPhail Colon Cancer Screening Centre in Calgary, Alberta. The study sample included 980 average risk screening-eligible patients. Cases were defined as the presence of either a high-risk adenoma (HRA), or high-risk sessile polyps (HRS) following screening colonoscopy. Blood samples were taken from each participant prior to their screening colonoscopy. Biomarkers include glucose, insulin, c-peptide, HbA1c, alanine aminotransferase, alkaline phosphatase, gamma-glutamyl transferase, bilirubin, cholesterol, ferritin, carcinoembryonic antigen, and serum vitamin D. Associations between biomarkers and high-risk polyps will be assessed via logistic regression with a preliminary threshold of p-value <0.20 for further evaluation in the RPM Preliminary ResultsThere were 572 controls, and 408 cases, 176 had a HRA, 200 had a HRS, and 32 had both. Initial results indicate that glucose, HbA1c, gamma-glutamyl transferase, cholesterol, triglycerides, carcinoembryonic antigen, and serum vitamin D may be associated with high-risk adenomas. Further, c-peptide and cholesterol may be associated with high-risk sessile polyps. ConclusionsPreliminary results indicate that biomarkers of glucose metabolism and liver function may be associated with high-risk polyps among average-risk, screening-eligible patients. Further analyses are underway to fully characterize these associations and evaluate the utility of these biomarkers for risk prediction. Ultimately, improved risk prediction can identify those at highest risk for colorectal cancer and in prioritizing colonoscopy.

Body Mass Index Modifies Genetic Susceptibility to High Systolic Blood Pressure in Adolescents and Young Adults: Results From An 18-Year Longitudinal Study

Presented by: Marie-Pierre Sylvestre

Submission Authors: Marie-Pierre Sylvestre1, 2, Teodora Riglea1, 2, Tatiana Dessy1, 2, 3, 4, Jodi Kalubi1, 2, 5, Danick Goulet6, Fiston Ikwa Ndol Mbutiwi2, 7, Scott M Williams8, 9, 10, James C Engert11, 12, Hao Yu Chen11, Jennifer O'Loughlin1, 2

Author Affiliations: 1Centre de recherche du Centre hospitalier de l'Université de Montréal (CrCHUM), Montréal, Quebec, Canada, 2Department of Social and Preventive Medicine, Université de Montréal, Montréal, Quebec, Canada, 3Institut de Cardiologie de Montréal, Montréal, Quebec, Canada, 4Centre de Pharmacogénomique Beaulieu-Saucier de l'Université de Montréal, Montréal, Quebec, Canada, 5Centre de recherche en santé publique (CReSP), Université de Montréal & CIUSSS du Centre-Sud-de-l'Île-de-Montréal, 6School of Epidemiology and Public Health, University of Ottawa, Ottawa, Ontario, Canada, 7Faculty of Medicine, University of Kikwit, Kikwit, Republic Democratic of the Congo, 8Case Western Reserve University School of Medicine Department of Population and Quantitative Health Sciences, Cleveland, Ohio, 9Case Western Reserve University School of Medecine Department of Genetics and Genome Sciences, Cleveland, Ohio, 10Cleveland Institute for Computational Biology, Cleveland, Ohio, 11McGill University Department of Medicine, Montréal, Quebec, Canada, 12McGill University Department of Human Genetics, Montréal, Quebec, Canada

Abstract

Background & Objective: Studies in adolescents suggest that single nucleotide polymorphisms (SNPs) associated with systolic blood pressure (SBP) in genome-wide association studies in adults are also associated with SBP in adolescents. Our objective was to identify whether body mass index (BMI), an important determinant of SBP in youth, modifies the genetic susceptibility to SBP in adolescent males and females.Methods: The sample comprised 714 participants (54% female) aged 12-13 of European ancestry recruited in 1999-2000 from 10 Montreal-area high schools for a longitudinal study on the natural course of nicotine dependence. SBP was measured at ages 12, 15, 17, 24, and 30. Blood and saliva samples for DNA extraction were collected at either age 14, 20, or 25. Two evidence-based genetic risk scores (GRS) were constructed in adolescents based on GWAS results in adults: GRS22 used 22 SNPs and GRS182 added 160 newly discovered SNPs to GRS22. Sex-specific associations of each GRS with repeated measures of SBP were estimated using linear mixed models with a GRS-BMI interaction term.Results: Overall, GRS182 explained a greater proportion of SBP variance than GRS22, and a more substantial proportion of SBP variance in females than males. The association between the GRS22 and SBP ranged from 0.17 mm Hg (95%CI = [-0.10; 0.43]) in females with BMI values of 20 kg/m2 to 0.87 (95%CI = [0.34; 1.40]) in females with BMI value of 35 kg/m2. In males, the association between GRS22 and SBP ranged from 0.47 (95%CI = [0.11; 0.83]) when BMI was 20 kg/m2, to 1.26 (95%CI = [0.46; 2.05]) for BMI values of 35 kg/m2. The results using the GRS182 were consistent, although attenuated. Conclusion: BMI modifies the association between aggregated common genetic risk variants and SBP levels from adolescence to adulthood.

Understanding the impact of having friends who use cannabis on cannabis initiation in adolescents: the role of access to cannabis and perception of risks associated with cannabis use

Presented by: Marie-Pierre Sylvestre

Submission Authors: Marie-Pierre Sylvestre1, 2, Laurence Boulanger1, Isabelle Doré1, 3, Richard Bélanger4, 5, Slim Haddad4, 6, Scott Leatherdale7

Author Affiliations: 1Centre de recherche du Centre hospitalier de l'Université de Montréal (CrCHUM), Montréal, Quebec, Canada, 2Department of Social and Preventive Medicine, Université de Montréal, Montréal, Quebec, Canada, 3School of Kinesiology and Physical Activity Sciences, Faculty of Medicine, Université de Montréal, Montréal, 4VITAM-Centre de recherche en santé durable, Université Laval, Québec City, Québec, Canada, 5Department of Pediatrics, Université Laval, Québec City, Québec, Canada, 6Department of Social and Preventive Medicine, Université Laval, Québec City, Québec, Canada, 7School of Public Health Sciences, University of Waterloo, Waterloo, Ontario, Canada

Abstract

Background & Objective: Having friends who use cannabis is a risk factor for the initiation of cannabis use in adolescents. We investigate the mediating role of access to cannabis and perception of risks associated with cannabis use in the association between having friends who use cannabis and cannabis initiation in adolescents.Methods: Data were drawn from 11 schools sampled in Québec, Canada as part of the COMPASS study, an ongoing prospective study (inception 2012-13) of grade 9-12 students in a convenience sample of Canadian high schools (Secondary 1-5 in Quebec). Students complete in-class self-report questionnaires annually. The analytical sample was restricted to the 1,768 students who had never used cannabis in 2017. A parametric regression-based approach was used to estimate mediated proportions of the total effects on the risk difference (RD) scale. Generalized estimating equations were used to account for clustering of observations by schools and confidence intervals (CI) were obtained using bootstrap resampling. Mediators were considered in separate models adjusting for variables pertaining to sociodemographic, substance use, lifestyle and school characteristics.Results: 29% of students had ≥1 friend who used cannabis. While 76% of students considered that it would be easy for them to obtain cannabis, 63% reported that using cannabis was associated with moderate to high risk to health. The 1-year cumulative incidence of regular cannabis use was 14%. Having friends who used cannabis was associated with an increased risk of initiating cannabis in the following year (RD 0.14 95%CI (0.09-0.20). Perceived access to and risk associated with cannabis mediated the association with proportion mediated of 35% and 11%, respectively.Conclusion: Perceived access to and risk associated with cannabis may provide actionable mechanisms to reduce or delay the risk of initiation of cannabis in adolescents.

Examining temporal trends in adherence to the physical activity recommendations among Canadian adults aged 18-79.

Presented by: McKenna Szczepanowski

Submission Authors: McKenna R J Szczepanowski1, 2, Karen C Roberts1, Marisol T Betancourt1, Stephanie A Prince1, 3

Author Affiliations: 1Centre for Surveillance and Applied Research, Public Health Agency of Canada, Ottawa, ON, 2School of Public Health Sciences, Faculty of Health, University of Waterloo, Waterloo, ON, 3School of Epidemiology and Public Health, Faculty of Medicine, University of Ottawa, Ottawa, ON

Abstract

Objectives: The release of Canada's 24-Hour Movement Guidelines for Adults aged 18 to 64 and Adults aged 65+ removed the 10-minute bouts requirement in the recommendation that adults should achieve a minimum of 150 minutes of moderate-to-vigorous physical activity (MVPA) per week. It is unclear whether removing the bout requirement would influence trends in physical activity (PA) recommendations adherence. Thus, the objective of this study is to examine the temporal trends of total minutes of MVPA/week and adherence to PA recommendations (with/without bout requirement) among Canadian adults using accelerometer-measured data.Methods: Data will be obtained from six cycles (2007-2019) of the Canadian Health Measures Survey (CHMS), which is a nationally representative ongoing repeated cross-sectional population health survey. We will generate national estimates of the prevalence of adults (18-79 years) who met the PA recommendations using accelerometer data with/without bouts, as well as mean minutes of MVPA/week, for each cycle for the full sample and by sex, age, household education, income, and immigrant status, separately. Proportions, means and 95% confidence intervals will be generated using appropriate survey weights and 500 bootstrap weights to account for sampling strategies/non-response and survey design effect, respectively. Trend analyses using logistic regression with cycle as the continuous predictor will be conducted to examine changes to PA adherence over time.Results: Preliminary results indicate the prevalence of adults meeting PA recommendations more than doubled with the removal of the bout requirement. Trends over time for adherence to PA recommendations are under investigation.Conclusion: Results will demonstrate how changes to the recommendations and how they are operationalized may shift PA messaging at the population level, particularly for those at risk, as they highlight population groups where trends in PA adherence may be less favourable. Results will also provide pre-pandemic trends to assess future adherence during- and post-COVID-19 pandemic.

Investigating classes of sports participation and associations with mental health outcomes along with implications of transitioning through classes pre- and post-COVID-19 pandemic among Canadian youth using COMPASS data

Presented by: McKenna Szczepanowski

Submission Authors: McKenna R J Szczepanowski1, Scott T Leatherdale1, Mark A Ferro1, Luke R Potwarka2, Karen A Patte3

Author Affiliations: 1School of Public Health Sciences, Faculty of Health, University of Waterloo, Waterloo, ON, 2Department of Recreation and Leisure Studies, Faculty of Health, University of Waterloo, Waterloo, ON, 3Department of Health Sciences, Faculty of Applied Health Sciences, Brock University, St. Catharines, ON

Abstract

Objectives: The overall objective of this research is to characterize youth sport participation (intramural, varsity, and community-based), assess its association with various mental health outcomes and analyze changes in both sports participation and mental health trajectories pre- and post-COVID-19. More specifically, objectives are to: (1) identify classes of sport participation among youth including predictors for membership, (2) examine associations between sports participation classes and mental health outcomes (flourishing, anxiety, and depression) looking at social support as a moderating factor, and (3) investigate transitions in sport participation class and mental health outcomes from pre- to post-COVID-19.Methods: Data from Years 7-10 (2018-2021) of the COMPASS study, which is an ongoing school-based prospective cohort study, will be used. Estimates of the prevalence of sport participation will be generated for the full sample and by sex, age, race/ethnicity, substance use, and meeting the 24-Hour Movement Guideline components, separately. Latent class analysis will be conducted to identify different subgroups of sports participation, followed by logistic regression to determine membership predictors. Linear mixed-effects models will be used to elucidate the association between sport participation classes and mental health outcomes. Social support as a moderator will be investigated using multi-level regression models. Lastly, latent transition analysis will be used to determine if youth changed sport participation class over the course of the COVID-19 pandemic. Linear regression with time as the continuous dependent variable will be used to look at changes in mental health among the individuals who transitioned classes versus those who did not.Contributions: These studies may serve as evidence for how the removal of sports has an impact on youth mental health and promote increased funding for sports in schools and the community. Targeted intervention for those with low social support may also lead to school connectedness policy improvement and promotion within secondary schools.

Socioeconomic inequalities in exclusive breastfeeding: What accounts for differences among low-and-middle-income countries?

Presented by: Tania Sultana Tanwi
Submission Authors: Tania Sultana Tanwi1, Mohammad Hajizadeh2
Author Affiliations: 1PhD Candidate, Dalhousie University, 2Canada Research Chair in Health Economics; Associate Professor, School of Health Administration, Dalhousie University

Abstract
Objectives: Socioeconomic inequalities in exclusive breastfeeding are globally considered a crucial public health concern. However, little is known about the socioeconomic gradient in exclusive breastfeeding practices specifically among low-and-middle-income countries (LMICs). This study aimed to measure socioeconomic inequalities in exclusive breastfeeding and to identify its associated factors in 27 LMICs.Methods: Information on children aged 0-6 months were collected from the latest Demographic Health Surveys (n=49,863) conducted in 27 LMICs. The main outcome variable was exclusive breastfeeding, which referred to children who were only breastfed and lived with their mother. The relative and absolute Concentration indices (RC and AC, respectively) were calculated to measure socioeconomic inequalities in exclusive breastfeeding practice. Meta-regression was conducted to identify factors associated with socioeconomic inequalities in exclusive breastfeeding across the countries.Results: The overall prevalence of exclusive breastfeeding was 80.05%. Both RA and AC suggested substantial differences in socioeconomic inequalities among LMICs. The practice of exclusive breastfeeding was more concentrated among socioeconomically disadvantaged (based on household wealth) people in the majority of LMICs. In certain countries, such as Tanzania, exclusive breastfeeding was primarily observed among mothers with higher socioeconomic status. Meta-regression analysis indicated that there is no significant correlation between socioeconomic inequalities in widely recognized determinants of breastfeeding practice (e.g., maternal education, employment, number of under-five children, and gender of the child) and socioeconomic inequalities in exclusive breastfeeding.Conclusion: The variation in socioeconomic inequalities in breastfeeding behavior across different countries implies that policies aimed at enhancing exclusive breastfeeding practices in LMICs should be tailored to the specific circumstances of each country. As the commonly known determinants of exclusive breastfeeding did not show a significant effect on the socioeconomic inequality in exclusive breastfeeding, further investigation is necessary to determine the factors that contribute to the socioeconomic inequality in exclusive breastfeeding behavior in LMICs.

Survival analysis of colorectal cancer histological subtypes in the Albertan population

Presented by: Devan Tchir
Submission Authors: Devan Tchir1, Jingyu Bu1, Bethany Kaposhi1, Truong-Minh Pham1, Lorraine Shack1
Author Affiliations: 1Alberta Health Services

Abstract
Objectives: Cancer surveillance in adult populations tends to report on large topographical cancer sites, aggregating different cancer histologies with heterogeneity in etiology, treatment and outcomes. As such, important prognostic information may be overlooked. As we shift to more precision healthcare, more detailed prognostic information tailored to treatment and outcomes is required. Here we examine the survival profiles of three major subtypes within colorectal cancer (CRC) for the Alberta (AB) population. Methods: Our study cohort included AB residents who were diagnosed with an invasive CRC from 2004 to 2017. We grouped CRC into three histological subtypes: adenocarcinoma (AC), signet ring cell carcinoma (SRC), and mucinous/mucin producing (MAC). Those with previous malignancies prior to a CRC diagnosis were excluded. We first used Kaplan Meier analysis to describe the survival profiles, then we used a Cox proportional hazard analysis to determine factors (CRC histological subtype, sex, age at diagnosis, tumour grade, tumour stage, and charlson comorbidity index) associated with survival while excluding observations with missing tumor grade or stage. Preliminary Results: From the Kaplan Meier analysis, we found that AC had the highest survival (66.3%), followed by MAC (55.8%), and then SRC (24.6%) at five year follow-up ($p<0.05$). The Cox proportional hazard analysis indicated that the factors: CRC type (SRC), sex (male), age at diagnosis (>59 years), grade (>1), stage (>1), and an increasing charlson comorbidity index had a positive association with earlier death.Conclusion/Next steps: This work suggests that different survival profiles exist among histological subtypes of colorectal cancer in AB, and may highlight the importance for cancer surveillance to focus on histological subtypes in cancer in addition to high-level, topographical cancer sites. Future work could focus on understanding heterogeneity of etiology, diagnostic, and treatment pathways for the different histological subtypes within CRC.

Prevalence of HIV among Citizens of the Métis Nation of Ontario between 2006 and 2020

Presented by: Gabriel Tjong

Submission Authors: Gabriel Tjong1, 2, 3, Keith King4, Abigail Simms2, 3, Shelley Gonneville2, Noel Tsui2, 3, Samantha Morais3, Andrew B. Mendlowitz5, Sarah Edwards1, 2, 3

Author Affiliations: 1Dalla Lana School of Public Health, University of Toronto, 2The Métis Nation of Ontario, 3ICES, 4University of Alberta, 5Toronto Centre for Liver Disease/Viral Hepatis Care Network, University Health Network, Ontario, Canada

Abstract

ObjectivesDespite their active resistance to the ongoing colonization, oppression, and exclusion of Indigenous people from health systems, Indigenous Peoples are overrepresented among those who are diagnosed with HIV in Ontario. In the Canadian Constitution, Indigenous Peoples refers to the First Nations, Inuit, and Métis. Previous research has revealed a lack of Métis-specific health research, including HIV. Currently, there is no Métis-specific HIV data available in Ontario. Indigenous data is often aggregated which is not reflective of the Métis context and lived experience. Métis-specific data will support program planning and advocacy within the health system and support Métis health. The objectives of our study include: (1) To describe the prevalence of HIV among Citizens of the Métis Nation of Ontario (MNO) between 2006 and 2020, and (2) To examine the HIV prevalence rate for MNO Citizens by age, sex and income quintile (where possible).MethodsWe will perform a population-based retrospective cohort study. Data from the MNO Citizenship Registry will be deterministically linked with Ontario administrative health data sets. A validated case-finding algorithm will be used to identify MNO Citizens diagnosed with HIV between 2006 and 2020. An individual is considered HIV positive per the algorithm if they have had three physician claims with an HIV diagnosis over three years. Individuals with missing or invalid identifiers, missing age and sex data, and non-Ontario residents at the start of each year examined will be excluded from analysis. Crude and stratified prevalence rates will be calculated with only confirmed (versus probable) cases of HIV being used. All analysis will be conducted in SAS Version 9.4.

Hepatitis C prevalence in Citizens of Métis Nation of Ontario

Presented by: Gabriel Tjong

Submission Authors: Gabriel Tjong1, 2, 3, Shelley Gonneville2, Noel Tsui2, 3, Abigail Simms2, 3, Sarah Edwards1, 2, 3

Author Affiliations: 1Dalla Lana School of Public Health, University of Toronto, 2The Métis Nation of Ontario, 3ICES

Abstract

Objectives: Hepatitis C (HCV) represents the most burdensome infection in Ontario. However, there are no data at the provincial or national level characterizing rates of HCV in Métis in Ontario. This study examines the prevalence rate of self-reported HCV testing and testing positive in citizens of the Métis Nation of Ontario (MNO).Methods: This study used an MNO-led, population-based online survey which began May 6th and closed June 13th, 2022. Census sampling was used to invite all MNO Citizens 16 years of age and older with a valid email on file to participate. Respondents were asked: "Have you ever been tested for Hepatitis C viral infection?" and if yes, whether they had ever tested positive for Hepatitis C. Chi-square and Fisher's exact test were used to explore differences in testing and testing positive by participant characteristics.Results or Preliminary Results: In total, 4,157 MNO citizens completed the survey, with 827 (19.9%) reporting they had ever been tested for HCV and 58 (1.4%) reporting they had tested positive. Respondents with a strong sense of community belonging ($p=0.0412$), higher education level ($p<0.0001$), and lower income level ($p=0.0048$) were more likely to report HCV testing. Individuals between 16-29 years old and over 65 years old ($p=0.0004$), and students and retired individuals ($p<0.0001$) were less likely to report HCV testing. Among those who tested, older individuals ($p=0.0002$), those with lower education levels ($p=0.0225$), and retired individuals ($p=0.0030$) were more likely to report testing positive.Conclusions or Next Steps: Our results are the first Métis-specific and population-based results to describe prevalence rates of HCV testing and testing positive for HCV in Ontario. Further research will use whole-population administrative data linkage with the MNO Citizenship Registry and administrative health data to capture HCV incidence and prevalence rates over time.

Prostatic Specific Antigen Screening and Prostate Biopsy Procedure Experiences for Men at Risk of Prostate Cancer: Preliminary Results of the Biomarkers and Prostate Cancer Prevention and Environment Study

Presented by: Roxane Tourigny

Submission Authors: Roxane Tourigny1, 2, 3, Karine Robitaille1, 2, 3, Vanessa Bussières1, 3, Fred Saad4, Michel Carmel5, Armen Aprikian6, Yves Fradet1, 3, BIOCaPPE-GRePEC Network1, 4, 5, 6, Vincent Fradet1, 2, 3

Author Affiliations: 1Centre de recherche du CHU de Québec-Université Laval, Québec, Qc, 2Centre Nutrition, Santé et Société (NUTRISS) and Institute of Nutrition and Fonctional Food (INAF), Université Laval, Québec, Qc, 3Centre de recherche sur le cancer (CRC) de l'Université Laval, Québec, Qc, 4Centre de recherche du CHUM, Montréal, Qc, 5Centre de recherche du CHUS, Sherbrooke, Qc, 6Institut de recherche du CUSM, Montréal, Qc

Abstract

Objective: Prostatic specific antigen (PSA) testing is performed to screen prostate cancer (PCa), and a prostate biopsy (PB) is required to confirm the diagnosis. These procedures can have adverse effects, but not much is known on how men at risk of PCa experience these procedures, and no study have been performed in Canada. We aimed at describing the experience of men at risk of PCa with PSA testing and PB.Methods: PCa screening and diagnosis procedure experiences was collected for 2053 men at risk of PCa participating in a prospective multicenter observational study called BIOCaPPE, aiming to evaluate the impact of biomarkers associated with lifestyle habits on PCa incidence. Participants had either a first negative PB in the past 6 months or a PSA level between 2.5-10 ng/mL but no previous PB.Results: Most participants (55.0%) underwent PSA testing to screen for PCa despite no apparent prostate symptoms, from which 77.3% was prescribed by a family physician; 72.3% had a previous discussion with a physician on the benefices and harms of PSA testing; and 83.1% saw their experience with PSA testing as positive. For participants who underwent a PB, 52.9% decided to undergo this procedure following an urologist's recommendation; 67.3% were under local anesthesia during the procedure; 79.7% had mild to moderate pain and 73.0% had mild to moderate anxiety. Most men (89.2%) had at least one side effect following the biopsy, the most frequent being blood in the sperm (79.6%). Overall, 79.2% saw their experience with PB as positive.Conclusions: Men at risk of PCa are generally positive about PCa screening and diagnostic procedures, even if the majority had at least one side effect following the PB. This is the first description of PSA testing and PB experiences in a Canadian cohort of men at risk of PCa.

Quality of Life of Men at Risk of Prostate Cancer: Results of Biomarkers and Prostate Cancer Prevention and Environment (BIOCaPPE) Study

Presented by: Roxane Tourigny

Submission Authors: Roxane Tourigny1, 2, 3, Hanane Moussa1, 2, 3, Karine Robitaille1, 2, 3, Vanessa Bussières1, 3, Fred Saad4, Michel Carmel5, Armen Aprikian6, Yves Fradet1, 3, BIOCaPPE-GRePEC Network1, 4, 5, 6, Vincent Fradet1, 2, 3

Author Affiliations: 1Centre de recherche du CHU de Québec-Université Laval, Québec, Qc, 2Centre Nutrition, Santé et Société (NUTRISS) and Institute of Nutrition and Fonctional Food (INAF), Université Laval, Québec, Qc, 3Centre de recherche sur le cancer (CRC) de l'Université Laval, Québec, Qc, 4Centre de recherche du CHUM, Montréal, Qc, 5Centre de recherche du CHUS, Sherbrooke, Qc, 6Institut de recherche du CUSM, Montréal, Qc

Abstract

Objectives: Only few studies addressed the quality of life (QoL) of men at risk of prostate cancer (PCa), and none has been performed in Canada. Here, we aimed to conduct a comprehensive descriptive analysis of QoL in a Canadian cohort of men at risk of developing PCa, and to assess the impact of urinary and erectile symptoms on general QoL.Methods: QoL was collected for 2053 men at risk of PCa participating in a prospective multicenter observational study called BIOCaPPE, which aims at evaluating the impact of various biomarkers associated with lifestyle habits on PCa incidence. Participants had either a first negative biopsy in the past 6 months, or a PSA level between 2.5-10ng/mL but no previous biopsy. Participants completed several validated questionnaires to assess their general QoL (Hospital Anxiety and Depression Scale [HADS] and 36-item Medical Outcomes Study Short Form Health Survey [SF-36]), and their PCa-specific QoL (International Prostate Symptom Score [IPSS] and Sexual Health Inventory for Men [SHIM]).Results: Of all participants, 122 (6.1%) are definite cases of anxiety and 40 (2.0%) are definite cases of depression, while 154 (7.8%) have severe erectile dysfunction symptoms. Despite that 1068 participants (53.9%) have moderate to severe urinary symptoms, the majority (55.6%) are satisfied with their QoL in relation with their urinary function. Most of participants had a QoL similar to that of men from the general population. General QoL was directly associated to the severity of urinary and erectile dysfunction symptoms.Conclusions: Our results suggest that the majority of participants perceived their QoL as satisfactory, although most have urinary symptoms. Anxiety, depressive, and erectile symptoms are less common. Urinary and erectile dysfunction symptoms have a negative impact on the general QoL. This is the first analysis of the QoL in a Canadian cohort of men at risk of PCa.

Women suffer but men die: survey data assessing whether this self-reported health paradox is real or an artefact of gender stereotypes

Presented by: Afshin Vafaei
Submission Authors: Afshin Vafaei1, Madlen O'Connor 2, Susan Phillips2
Author Affiliations: 1Western University , 2Queen's University

Abstract
Objectives: Despite consistently reporting poorer health, women universally outlive men. We examine whether gender differences in lived circumstances considered, and meaning attributed to SRH by women and men might lead to artefactual findings that explain this paradox.Methods: In an online survey 917 adults rated their health (SRH) and mental health (SRMH) and reflected upon what life experiences they considered in making their ratings. Descriptive findings were sex-disaggregated. The multiple experiences listed were then subject to factor analyses using principal components methods and orthogonal rotation.Results: Women reported poorer SRH and SRMH. They considered a wider range of circumstances and weighed all but self-confidence and behaviors as more important to SRH than did men. Two underlying components, psychosocial context and clinical status were identified overall. Physical health and pain were more important components of men's clinical status and behaviors, and comparisons with others of the same age played a larger role in male psycho-social context. Two components also underpinned SRMH. These were clinical problems and psycho-social circumstances for which self-confidence was only important among men.Conclusions: Women's and men's common interpretation of measures like SRH suggests that women's health disadvantage is neither artefactual nor determined by gendered meanings of measures. Both SRH and SRMH captured social as well as individual circumstances for all. Convergence of characteristics women and men consider as central to health is evidence of the dynamism of gender with evolving social norms. The remaining divergence speaks to persisting traditional male stereotypes.

Poorer subjective mental health among girls: artefact or real? Examining whether interpretations of what mental health means vary by sex.

Presented by: Afshin Vafaei
Submission Authors: Afshin Vafaei1, Fiona Costello 2, Naomi Gazendam 2, Susan Phillips2
Author Affiliations: 1Western University , 2Queen's Univeristy

Abstract
Objectives: Girls consistently report poorer self-rated mental health (SRMH) than boys but demonstrate greater resilience, academic achievement and less risk-taking. We examined whether this apparent paradox might be an artefact arising from girls' and boys' different interpretations of the meaning of SRMH.Methods: Data collected via an online survey of youth aged 13-18 included self-rated mental health and individual and social circumstances shaping that rating.. Principal component analysis (PCA) identified potential latent factors within the items that participants considered important in rating their mental health. The robustness of the analysis was assessed by estimating the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.Results: Poor SRMH was reported by 47% of 506 girls and 27.8% of 216 boys. In general, circumstances considered important to this rating were similar, although boys focused more on sense of identity, self-confidence, physical well-being, exercise, foods eaten and screen time, while girls paid more attention to having a boyfriend or girlfriend, comparisons with peers, and school performance. Common to boys and girls were five emerged domains of resilience, behavior/community, family, relationships with peers and future vision. Given that the KMO measures were greater than 0.60 the size of the sample was deemed adequate. Furthermore, the statistical significance of Bartlett's test suggested that the five-common factor solution was sufficient to explain the correlations.Conclusions: Girls' poorer SRMH did not arise from a more expansive interpretation of mental health. Instead it may reflect perceived or real disadvantages in individual or social circumstances. Alternatively, girls' known greater resilience could underly lower SRMH which might then be used motivate future achievement and avoid the complacency of thinking that 'all is well'.

Do educational level and academic performance predict cognitive reserve? Exploring interactions between educational and genetic factors.

Presented by: Michelle Vuong
Submission Authors: Michelle Vuong1, Suzanne L. Tyas1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: Although Alzheimer's disease (AD) is defined by the presence of both AD neuropathology and clinical symptoms of dementia, some individuals with AD neuropathology do not show the cognitive impairments seen in dementia. This contradiction has led to the concept of cognitive reserve. Understanding predictors of cognitive reserve is vital to developing strategies to enhance cognitive reserve and thereby diminishing the impacts of dementia on individuals and society. Early-life cognitive stimulation, such as higher levels of education and academic performance, is thought to enhance cognitive reserve. Apolipoprotein E (APOE) is the most common genetic risk factor for AD and has been found to modify the association of education with dementia. Our objectives are to determine: 1) if early-life educational level and academic performance are predictors of later-life cognitive reserve, and 2) if APOE modifies this association.Methods: Analyses will be based on the Nun Study, a longitudinal study of 678 participants aged 75+ with up to 12 annual cognitive assessments. Data on educational level and academic performance in high school English, Latin, algebra, and geometry were collected from convent archives. Dementia was diagnosed based on impairment in memory and at least one other cognitive domain (measured via a standard neuropathological assessment), functional impairment in activities of daily living, and decline in cognitive function. AD neuropathology was determined via post-mortem neuropathologic assessment. The sample will be restricted to those who meet neuropathologic criteria for AD; the outcome of cognitive reserve will be determined based on the presence or absence of dementia at the final assessment before death among these participants with AD neuropathology. Bivariate analyses and multiple logistic regression models will be used to assess the association of educational level and academic performance with cognitive reserve, including APOE as a potential effect modifier and controlling for relevant covariates.

The Impact of Abnormal Sleep and Circadian Disruption on Atlantic Canada's High Rate of Colorectal Cancer

Presented by: Alison Walsh
Submission Authors: Alison J Walsh1, Carlee A Feinstein1, Tiffany S Bondoc1, Megan K MacGillivray1, Derrick G Lee1
Author Affiliations: 1St. Francis Xavier University

Abstract
Objectives: Recent studies have highlighted a relationship between abnormal sleep and colorectal cancer (CRC) diagnosis. Given the high prevalence of Atlantic Canadians that require sleep aids, we hypothesize that sleep, and the influence of the circadian rhythm, may have a larger impact on CRC risk than previously thought. This study aims to examine the association between sleep, circadian genes, and CRC, which may help explain why CRC disproportionately affects this region.Methods: From a population-based case-control study, data from approximately 400 cases and 2,000 controls were collected by two research arms of the Canadian Partnership for Tomorrow's Health, including average nightly sleep duration, sleep trouble, sleep apnea diagnosis, and genotype data from 103 single nucleotide polymorphisms (SNPs) across seven genes associated with circadian rhythm. In the preliminary analysis, data from 276 cases and 979 controls involved with the BC Generation Project arm were analyzed to determine their association with CRC. Multivariable logistic regression was used to estimate Odds Ratios and 95% Confidence Intervals while adjusting for potential confounders.Preliminary Results: Associations between average nightly sleep duration and sleep trouble with CRC were insignificant after adjustment for confounders. Three SNPs associated with the Cryptochrome Circadian Regulator 1 (CRY1) gene were identified to have significant associations with CRC after adjusting for the false discovery rate.Conclusion: Although there is a lack of association between sleep characteristics and CRC after adjusting for confounders, the positive association between three SNPs in the CRY1 gene and CRC suggests that the circadian rhythm plays a role in modulating CRC risk. Inclusion of the data from the Atlantic PATH arm will help further elucidate the relationship between sleep and CRC, as well as help us better understand the role sleep and circadian rhythm have in the high rates of CRC in Atlantic Canada.

A population-based study of health care utilization among Canadians with restrictions in daily activity and participation: prevalence and associated characteristics

Presented by: Dan Wang

Submission Authors: Dan Wang1, 2, Jessica J. Wang1, Sheilah Hogg-Johnson1, 3, 4, 5, 6, Silvano A. Mior1, 3, 5, 6, Pierre Côté1, 3, 4

Author Affiliations: 1Institute for Disability and Rehabilitation Research, Ontario Tech University, 2000 Simcoe Street North, Oshawa, Ontario L1H 7K4, Canada, 2Faculty of Health Sciences, Ontario Tech University, 2000 Simcoe Street North, Oshawa, Ontario L1G 0C5 Canada, 3; Faculty of Health Sciences, Ontario Tech University, 2000 Simcoe Street North, Oshawa, Ontario L1G 0C5 Canada, 4; Dalla Lana School of Public Health, University of Toronto, 155 College Street, 6th floor, Toronto, Ontario M5T 3M7, Canada, 5; Department of Research and Innovation, Canadian Memorial Chiropractic College, 6100 Leslie Street, Toronto, Ontario M2H 3J1 Canada, 6; Institute of Health Policy, Management and Evaluation, University of Toronto, 155 College Street, 4th Floor, Toronto, Ontario M5T 3M6 Canada

Abstract

Objective: To describe prevalence of health care utilization among Canadians with restrictions in daily activity and participation and to identify characteristics associated with the utilization.Methods: We analysed data collected in five cycles of the Canadian Community Health Survey (CCHS) from 2001-2010. Eligible participants were CCHS respondents with self-reported restrictions in daily activity and participation. Health care utilization was measured as self-reported consultation with medical doctor, nurse, chiropractor, and/or physiotherapist in the past 12-months. We calculated annual prevalence (95% CI) of consultation for each type of provider, overall and stratified by personal characteristics. We used multivariable modified Poisson regression to examine the association (adjusted prevalence ratio (aPR), 95% CI) between sociodemographic, health, and behavioural characteristics and health care utilization (yes/no), using sampling weights provided by Statistics Canada.Results: Among the estimated 8.1 million Canadians with restrictions in activity and participation every year: 88.8% (95% CI 88.6-89.0%) consulted medical doctors, 16.3% (95% CI 16.1-16.6%) consulted nurses, 15.0% (95% CI 14.7-15.2%) consulted physiotherapists and 14.4% (95% CI 14.2-14.7%) consulted chiropractors. For all providers, lower prevalence of consultation was consistently associated with being male, lower education and income level, daily smoker, inactive physical activity and better general health. Older age was associated with lower utilization of chiropractors (aged ≥80: aPR=0.59 [95% CI 0.51-0.68]) but higher utilization of medical doctors (aged ≥80: aPR=1.10 [95% CI 1.07-1.12]). Residents of provinces west of Ontario were more likely to consult chiropractors and physiotherapists (vs Ontario: largest aPR=1.43 [95% CI 1.36-1.51] for Alberta).Conclusion: Canadians with restrictions in daily activity and participation primarily consult medical doctors. For all providers, health care utilization was consistently associated with sex, education level, income, smoking status, physical activity, and perceived general health. Findings can be used to inform tailored evidence-based health care delivery to this population, with priority given to underserved groups.

Probability of Lung Cancer in a Population Excluded from Screening Due to Low PLCOM2012 Risk

Presented by: Matt Warkentin

Submission Authors: Matthew T Warkentin1, Paul MacEachern2, Darren R Brenner1, Eric LR Bedard3, Alain Tremblay2

Author Affiliations: 1Department of Oncology, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada, 2Department of Medicine, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada, 3Department of Surgery, Faculty of Medicine & Dentistry, University of Alberta, Edmonton, AB, Canada

Abstract

Objectives: Several randomized trials have demonstrated reduced lung cancer mortality with regular screening of high-risk individuals with computed tomography. However, there remains debate about the optimal approach for determining screening eligibility, and no evidence yet exists reporting lung cancer rates in those that have been excluded from screening due to too low of a personalized risk based on an established risk assessment model. Methods: This study was based on the Alberta Lung Cancer Screening Study, which received 1,737 applicants and enrolled 850 participants based on the NLST criteria (age 55-74 years, ≥30 pack-years smoking, cessation ≤15 years prior) or a PLCOM2012 risk ≥1.5%. PLCOM2012 risk is estimated based on participant demographics, medical history, and smoking history. We excluded 887 applicants who were interested in screening but were deemed ineligible. We identified lung cancer diagnoses over the subsequent 5 years and report lung cancer incidence in the screened and unscreened cohorts. Results: Those deemed ineligible for screening were younger, more likely female, more educated, with lighter smoking history, and better functional status. We observed 30 and 8 lung cancers in the screened and unscreened groups, respectively. Only 1 of 8 lung cancers were among those considered too low risk (0.13%), while the remaining 7 were among those excluded for other reasons, including symptoms requiring more immediate workup. No NLST eligible but PLCO risk <1.5% screened individual had a lung cancer detected as part of the study, so that of all individuals contacting the program with a risk estimate <1.5%, only 1/857 (0.12%) developed lung cancer.Conclusions: Nearly all lung cancers in the unscreened cohort occurred among subjects eligible for screening using risk-based criteria but were excluded for other reasons. Our findings suggest that a risk-based approach will miss few lung cancers in those excluded due to being at too low risk.

Prediction of long-term survivorship among high-fatality stage 4 solid tumors in Alberta: a province-wide, population-based analysis

Presented by: Matt Warkentin

Submission Authors: Matthew T Warkentin1, Devon J Boyne1, Tamer N Jarada1, Daniel YC Heng2, Don G Morris1, Jennifer A Chan3, Winson Y Cheung1, Darren R Brenner1

Author Affiliations: 1Department of Oncology, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada, 2Tom Baker Cancer Centre, University of Calgary, Calgary, AB, Canada, 3Department of Pathology and Laboratory Medicine, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

Abstract

Objectives: A proportion of patients with advanced-stage high-fatality cancers have been observed to have exceptional survival beyond the typical prognosis for the affected organ (i.e., super survivors). There is limited evidence characterizing the differences between those with expected survival patterns and those who are long-term survivors. The objective of this study was to predict long-term survivorship among metastatic (stage IV) solid tumors with known poor prognosis, based on a set of patient-related, tumor-related, and treatment-related factors. Methods: We used data from the Alberta Cancer Registry (ACR) to identify stage IV high-fatality cancers (esophagus, liver, lung, pancreas) that occurred between 2004 and 2020. A stage IV cancer patient was considered a super survivor if their survival time was beyond the median survival (T50%) of stage I-II cancers of the same anatomical site and year of diagnosis. We separated the data into training (80%) and testing (20%) splits. We performed 10-fold cross-validation (CV) and grid search to fit XGBoost, Random Forest, and regularized logistic regression (LASSO) models to classify super survivors based on 39 candidate predictors. We estimated model performance using the area under the ROC curve (AUC).Results: There were 617 (3.5%) super survivors and 17,597 (96.5%) stage IV controls available for fitting our machine learning (ML) models. After cross-validation and grid search, the top-performing ML model (LASSO) achieved an CV-AUC of 0.796 in the training set and an AUC of 0.749 in the test data. Thirty-one of the 39 candidate predictors were retained in the final model, with the top five predictors being number of metastases, age at diagnosis, and location of metastases (adrenals, bone, brain).Conclusions: In this study, we were able to predict long-term survivorship with good accuracy even among high-fatality advanced-stage cancers using a set of baseline patient, tumor, and treatment factors available in provincial administrative databases.

Construction and Validation of a Frailty Index for the Inflammatory Bowel Disease Population

Presented by: Natalie Willett
Submission Authors: Natalie Willett1, Samuel Stewart1, Jennifer Jones1, Olga Theou1, Kenneth Rockwood1
Author Affiliations: 1Dalhousie University

Abstract
Objectives:Objectives for this thesis project are: 1) To construct a frailty index using data from the SPOR IMAGINE IBD patient cohort 2) To evaluate the construct validity of the index 3) To use the frailty index to measure the prevalence of frailty in the cohort, by capturing the proportion of patients that are classified as frail at baseline visit. Methods:A standardized method for constructing a frailty index will be followed using data from the SPOR IMAGINE IBD cohort. This cohort is part of a pan-Canadian, observational prospective study. Deficits must result from the chronological aging process, be associated with adverse health outcomes, and satisfy Searles' criteria. Once created, the construct and content validity of the index will be assessed to determine whether the index is an internally valid health measure. The index will then be used to measure the proportion of patients who are frail at baseline, based on a previously validated frailty categorization scheme. Preliminary Results:I have reduced the SPOR IMAGINE variable list from 872 variables down to 247 variables that may serve as candidates for a Frailty Index. This process involved taking the initial list and removing all variables that were clearly inappropriate for inclusion (eg. duration of IBD, past surgeries, demographic variables). The current list of 247 include remaining variables that are related to health. Many of these variables are individual items from questionnaires included in the SPOR dataset. Next Steps:Each variable in the tentative list will be statistically analysed using STATA version 17, and distribution and missingness will be assessed. The variable list will then be reviewed by experts on the thesis committee who will apply Searles criteria to identify which candidates should be incorporated into the index. Once the index is created, patients in the dataset will be assigned frailty scores.

Pandemic preparedness and infection prevention and control in the violence against women sector: a mixed-methods study of the Greater Toronto Area during the COVID-19 pandemic

Presented by: Alexa Yakubovich
Submission Authors: Alexa Yakubovich1, Priya Shastri2
Author Affiliations: 1Dalhousie University, 2Woman Abuse Council of Toronto

Abstract
Objectives: We investigated experiences and outcomes of implementing pandemic preparedness plans and infection prevention and control (IPAC) policies within supportive services for violence against women (VAW) survivors in the Greater Toronto Area (GTA) during the COVID-19 pandemic.Methods: We conducted surveys and interviews throughout 2021 as part of a community-based, mixed-methods study (the MARCO-VAW Study) on the processes, experiences, and outcomes of adapting VAW programming during the COVID-19 pandemic in collaboration with 42 VAW organizations across the GTA. We surveyed 127 staff who worked on VAW services ('VAW staff') and interviewed 18 VAW staff and 10 VAW survivors. We descriptively analyzed quantitative data and conducted a reflexive thematic analysis of qualitative data.Results: Most VAW staff participants who worked on residential services had to maintain in-person programming during the pandemic. Yet only 45% of residential staff participants indicated that they received training on IPAC protocols or that their organization had a pandemic preparedness plan. In addition, 42% of residential staff faced PPE insecurities, including extending the use of PPE beyond normal use, reusing previously worn PPE without sanitizing, using expired PPE, or rationing staff PPE for client use. Reflecting these structural challenges, we identified two overarching themes across staff and survivor participant interview data: (1) tension between trauma-informed care and IPAC and (2) the need for systems-level coordination in VAW pandemic preparedness. Conclusions: Many VAW staff, including those working in congregate living settings, were left without adequate public health support and resources during the first two years of the pandemic. This led to major concerns, uncertainty, and stress among VAW survivors and staff around the implementation of COVID-19 IPAC protocols. In future public health emergencies, the needs of VAW survivors should be accounted for in policy decisions, including recognizing VAW organizations as essential services with appropriate PPE access and training.

Phenotyping Risk Profiles of Substance Use Among Canadian Youth via Cluster Analysis on COMPASS Data

Presented by: Yang (Rena) Yang
Submission Authors: Yang Yang1, Zahid Butt1, Scott Leatherdale1, Alexander Wong1, Helen Chen1
Author Affiliations: 1University of Waterloo

Abstract
Objectives: None of the studies on youth substance use have investigated risk profiles based on student characteristics and school environment. We address this deficiency by phenotyping risk profiles of substance use among Canadian youth. Methods: Data were from 8824 grades 9 and 10 Canadian secondary school students who completed COMPASS questionnaires in 2016/17, 2017/18, and 2018/19. We applied fuzzy clustering with hierarchical clustering and partitioning around medoids for validation using internal and external indices. Results: Four sub-phenotypes (SP) of risk profiles were identified, confirming heterogeneity across four SPs' prevalence and characteristics. In 2016/17, SP1 (N=2799 (32.5%)) consisted of students with the lowest mean scores on substance use measures and health risk behaviors, including eating habits, physical activity, mental health (the Center for Epidemiologic Studies Depression, CESD score of 7.08±5.39), peer influence, truancy, access to allowance, and school connectedness. In contrast, SP4 (N=986 (11.5%)) represented individuals with the highest mean scores on substance use measures and health risk behaviors, e.g., CESD score of 10.8±6.70, indicating this group, on average experienced clinically-relevant depressive symptoms. Two intermediate SPs, SP2 (N=2712 (31.5%)) and SP3 (N=2113 (24.5%)), were identified in between. SP1 through SP4 had escalating health risks. The longitudinal evidence showed that the mean scores on substance use measures and health risk behaviors within each SP increased across the three-wave, indicating a rising risk of health behaviors over time. For example, in 2018/19, individuals in SP3 started to have clinically relevant depressive symptoms, determined by their average CESD score of 10.0±6.15. Conclusion: We employed cluster analysis on longitudinal health surveys to identify SPs related to youth substance use. Our results support developing risk reduction interventions for substance use and improving youth health behaviors.

The Association of Folate and Vitamin B12 with Schizophrenia: Integrated Synthesis of Epigenetic and Phenotypic Evidence

Presented by: Samantha Yoo
Submission Authors: Samantha Yoo1, Monique Potvin Kent1, Helene McNulty2, Julian Little1
Author Affiliations: 1University of Ottawa, 2Ulster University

Abstract
Background: Schizophrenia is a severe neuropsychiatric disorder with a lifetime prevalence of 1%. Patients with schizophrenia have 15 years shorter lifespan compared to the general population due to high rates of chronic comorbidities. Globally, it is one of the top 20 contributors to years lived with disability.However, current understanding of the etiology of schizophrenia is limited. While it is highly heritable, genome-wide association studies have found over 200 common genetic variants with small effects. Environmental factors are reported to account for 15-40% of the risk for schizophrenia, with growing evidence on the role of obstetrical complications, migration, urbanicity, and childhood adversity. Environmental factors may work with underlying genetic factors as effect modifying or mediating variables in development of schizophrenia. Folate and vitamin B12 may be modifiable risk factors for schizophrenia. Both vitamins play a critical role in one-carbon metabolism enabling DNA, RNA synthesis and DNA methylation. Impaired metabolism results in elevation of homocysteine, a neurotoxic substance implicated in neurodegenerative diseases.ObjectivesTo integrate evidence on the association between folate, B12 levels and schizophrenia. MethodsFirst, an umbrella review will be conducted to integrate evidence from systematic reviews relating to associations between schizophrenia and folate/ B12, measured as dietary intake, supplementation, or concentrations of biomarkers. The included systematic reviews will be assessed using AMSTAR-2 and findings will be reported by type of exposure.Second, de novo systematic reviews will be conducted on associations between schizophrenia and (a) Mendelian randomization studies of genetic instruments for the status of these vitamins; and (b) potential epigenetic marks of the status of these vitamins. This approach will triangulate the associations identified in the umbrella review considering causal inference and/or mediation pathways. Whenever possible, stratification will be made by factors impacting health equity to understand the possible diversity of gene-environment interactions across the life course.

Sleep Apnea and Type 2 Diabetes in Two Saskatchewan First Nation Communities

Presented by: Sumsun Nahar Zinia

Submission Authors: Sumsun Nahar Zinia1, 2, Bonnie Janzen3, James A Dosman4, Chandima Karunanayake5, Sylvia Abonyi3, Malcom King3, Jeremy Seeseequasis6, Marie Neubuhrarie Neubuhr6, Warren Seesequasis6, Delano Mike6, Larry Berguss7, Carol Naytayhow7, Punam Pahwa8

Author Affiliations: 1MSc Student and Graduate Teaching Fellow, University of Saskatchewan, 2Department of Community Health & Epidemiology, College of Medicine, University of Saskatchewan, 107 Wiggins Road, Saskatoon, SK S7N 5E5, Canada * Correspondence: neg843@mail.usask.ca; Tel.: +1-639-384-8036, 3Department of Community Health & Epidemiology, College of Medicine, University of Saskatchewan, 107 Wiggins Road, Saskatoon, SK S7N 5E5, Canada , 4Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan, 104 Clinic Place, Saskatoon, SK S7N 2Z4, Canada and Department of Medicine, University of Saskatchewan, 103 Hospital Drive, Saskatoon, SK S7N 0W8, Canada , 5Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan, 104 Clinic Place, Saskatoon, SK S7N 2Z4, Canada 3 Department of Medicine, University of Saskatchewan, 103 Hospital Drive, Saskatoon, SK S7N 0W8, Canada , 6Willow Cree Health Services, Beardy's & Okemasis Cree Nation, P.O. Box 96, Duck Lake, SK S0K 1J0, Canada and Beardy's & Okemasis Cree Nation Band, P.O. Box 340, Duck Lake, SK S0K 1J0, Canada , 7Health director community 2 , 8Department of Community Health & Epidemiology, College of Medicine, University of Saskatchewan, 107 Wiggins Road, Saskatoon, SK S7N 5E5, Canada and Canadian Centre for Health and Safety in Agriculture, University of Saskatchewan, 104 Clinic Place, Saskatoon, SK S7N 2Z4, Canada

Abstract

Objective: There has been a sharp increase in type 2 diabetes mellitus (T2DM) in Saskatchewan. Obstructive sleep apnea (OSA) is a recent concern for diabetes. The objective was to explore associations between OSA, established risk factors, and T2DM in two First Nation communities.Methods: First Nation Sleep Health Project survey data on 588 participants aged ≥ 18 years in the two First Nation communities were used for this study. The primary outcome of interest was T2DM. Independent variables included questions on established risk factors for diabetes and the STOP-BANG questionnaire as a measure of OSA. Data analysis was conducted using SPSS 28.Results: The majority of the participants were female (55.8%), the mean (±SD) age was 40.03 (±15.3) years and 18.9% reported having T2DM. Based on the bivariable analysis, significant variables associated with a higher prevalence of T2DM at $p<0.20$ which became candidates for multivariable analysis were: (i) an intermediate risk and a high risk of OSA compared to low risk; (ii) attendance of residential school compared to non-attendance; (iii) age group of 35-50 years and >50 years compared to <35 years; (iv) presence of multimorbidity compared to absence; and (v) prescription medications used for any health condition compared to non-use. Based on the multivariable analysis it was observed that those having an intermediate risk of OSA (OR=1.85 (1.01-3.42)) and a high risk of OSA (OR=3.02 (1.32-6.93)) compared to low risk were associated significantly with a higher prevalence of T2DM. Similarly, the age group 35-50 years (OR=4.28 (2.02-9.08)) and >50 years (OR=4.87 (2.20-10.75)) compared to <35 years, and regular prescription medication use (OR=3.67 (1.95-6.88)) for any health condition compared to non-use, were significantly associated with a higher prevalence of T2DM.Conclusion: In two First Nation communities in Saskatchewan, Canada, a significant association was observed between OSA and T2DM.

Post Traumatic Stress Disorder and Pregnancy Outcomes- A systematic Review and Meta-Analysis

Presented by: Natalie Zitoun

Submission Authors: Natalie Zitoun1, Yasaman Yasaman Mohammadi Kamalabadi1, Facundo Garcia-Bournissen1, 2, 3, 4, Karen Campbell1, 2, 3, 4, 5, Joel Gagnier6

Author Affiliations: 1Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, University of Western Ontario, London, ON Canada, 2Department of Pediatrics, Schulich School of Medicine & Dentistry, Western University, London, ON Canada, 3Children's Health Research Institute, 4Lawson Health Research Institute, 5Department of Obstetrics & Gynecology, Schulich School of Medicine & Dentistry, Western University, London, ON Canada, 6Department of Epidemiology & Biostatistics, University of Western Ontario

Abstract

Objectives: The goal of this study was to systematically review research examining associations between PTSD during pregnancy and pregnancy outcomes. Methods: A literature search was implemented using the following databases: Google Scholar, PubMed, and EMBASE. The initial search terms were 'Post-Traumatic Stress Disorder', 'Trauma', 'PTSD' 'pregnancy outcomes, 'pregnancy', and 'birth outcomes. Two reviewers (NZ and YMK) independently screened articles in each database against the inclusion criteria. Citations in retrieved articles were screened for potentially relevant articles that may have been missed by the initial search. Risk of bias was assessed based on CLARITY and overall evidence across included papers using the GRADE guidelines. Data analysis, including meta-analysis, was conducted using statistical R version 3.6.2. Preliminary Results: Analysis of PTSD during pregnancy and low birthweight revealed a pooled OR of 0.77 (95% CI, 0.58-0.96) (n=10, from 14 studies). Analysis of PTSD during pregnancy and preterm and 0.21(95% CI, 0.10-0.31) (n=9 from 14 studies). 40 studies were included in the review: 27 prospective cohort studies, 5 retrospective cohort studies, 4 cross-sectional studies, and 4 case-control studies, including in total 157,708 pregnancies. Out of these, 11,750 had PTSD symptomatology. There was some evidence for an association between PTSD during pregnancy and smaller infant head circumference (n=3), as all three eligible studies found an association between antenatal PTSD and reduced infant head circumference. Next Steps: To complete this work in progress, the following steps remain: a Risk of Bias (ROB), full GRADE analysis, a full discussion with limitations stated, and a conclusion. This work will enhance the limited information currently available on perinatal PTSD and Pregnancy Outcomes and aid in closing the gap that exists for this topic in literature.