Summer 2020 Practicum Abstracts- MPH Epidemiology Students

S.A.

Dalla Lana School of Public Health

The prevalence and frequency of e-cigarette use has been increasing in North America since 2017. Change in legal access to nicotine-salt based devices in Canada has occurred concurrently and may be responsible for driving these trends. Other possible risk factors include attractiveness of flavours and peer influence in offline and online spaces.

We aimed to use data collected from Canadian youth and young adults between 2018 and 2019 to identify modifiable risk factors of frequent (>8 days in past month) and almost daily/daily (>23 days) vaping one year later and to predict change in number of days vaped in the past month one year later.

The relationship between the outcome and each exposure of interest was modelled individually using multinomial logistic and multivariable linear regression. Some or all of age, sex, baseline vaping frequency, baseline smoking status, puffs vaped per session, and a measure of socioeconomic status were controlled for in these models.

Frequency of use of nicotine-based e-liquid at baseline and use of a pod-type, nicotine salt-based device in 6 months before follow-up were associated with daily vaping at follow-up (RRR=2.50 [1.30, 4.76]; 4.55 [2.33,9.09]) and with 6 more days of past-month vaping at follow-up (Days=5.04 [2.43, 7.65]; 6.10 [3.56, 8.54]). No factor explained the difference between infrequent and frequent users at follow-up.

Mitigating e-cigarette-related risks to Canadian youth and young adults would involve both curbing access to nicotine salt-based devices and improving e-cigarette use literacy and nicotine use awareness.

N.A.

Nova Scotia Breast Screening Program IWK Health Centre

The Nova Scotia Breast Screening Program (NSBSP) oversees delivery of screening mammography in Nova Scotia. Whereas their average risk screening process is an organized programmatic screen, high risk screening is currently done opportunistically - in which patients must seek care individually and no province-wide standards are established. Clinical practice guidelines were released describing eligibility and screening protocol for this population, but many implementation details have yet to be fleshed out. My role was to synthesize lessons from the NSBSP's existing average risk screening program, other provinces' established high risk programs, the knowledge of the NSBSP's epidemiologists and patient navigator, and a data extract from the Breast Information System (BIS) in order to determine the current state of high risk screening in the province as well as make recommendations for clinical guideline implementation across the spectrum of the high risk pathway. This was accomplished in two major steps: through the use of flow diagrams describing both the average risk pathway and a proposed high risk pathway, and through an analysis of a data extract intended to describe current trends in screening practices for high risk women in the absence of a standardized process in order identify areas of improvement. In developing the flow diagrams, I was able to help develop implementation

recommendations for every step of the high risk screening pathway, from eligibility assessment to rebooking a screen. The flow diagrams will also be an important tool in communicating the differences in appropriate care of the average risk and high risk population. My data analysis led to a deeper level of understanding of the high-risk population and their screening practices, while simultaneously demonstrating the need to adjust the BIS for better surveillance of this population. Overall, these tools will help guide the NSBSP in their communication with other stakeholders as they move forward with the high risk policy approval and implementation.

A.C.

Ontario Health (Cancer Care Ontario)

The Ontario Cancer Profiles is an interactive dashboard for the public containing population-level cancer statistics created by Ontario Health (Cancer Care Ontario) in 2017. The tool contains statistical data on cancer burden, cancer screening, and cancer risk factors by Local Health Integration Networks (LHIN) and Public Health Units (PHU). It can be used for health system planning, measuring health systems performance, monitoring the impact of interventions, and to help identify new areas of research. An updated version of the Ontario Cancer Profiles tool was launched in August 2020 with the addition of data and program improvements. 9 new modifiable cancer risk factors were proposed to be included in future updates. The proposed risk factors include: access to care, active transportation, binge drinking, alcohol abstinence, inadequate fruit consumption, inadequate vegetable consumption, sedentary behavior, second hand smoke exposure, and sun safety. My practicum consisted of two main objectives: to conduct a literature search on the association between the proposed risk factors and cancer and to determine the prevalence of exposure of the identified risk factors in Ontario using 2015 to 2017 CCHS data. I performed a literature search to examine current evidence linking each proposed risk factor with cancer risk to determine the inclusion or exclusion of the indicator in the analysis. An analysis was performed with the selected variables in CCHS, each indicator was age-standardized, and both standardized and crude ratios of individuals engaging in selected indicator activities were calculated. The results were examined for reliability using the produced coefficient of variation values. Finally, a report was produced to summarize the findings of the analyses and presented to the Population Health and Prevention Unit at Cancer Care Ontario.

E.C.

University of Connecticut, Institute for Collaboration on Health, Intervention and Policy

For a person to be water secure, they require access to sufficient amounts of safe and affordable water. Globally, 1.8 billion people drink water that is unsafe1 with Africa, Asia, and the Middle East having the lowest levels of water security2. Most households in Kenya obtain their water from open sources which are more susceptible to contamination3. The regions in Kenya which receive the least amount of rain experience the highest levels of food insecurity4. Water insecurity can negatively affect child physical and emotional development. The purpose of this report is to understand the prevalence of water and food insecurity among rural Kenyan children under the age of 5 years.

The data used in this analysis was collected for the pediatric portion of the Shamba Maisha cluster-randomized control trial. The intervention group received a loan ($150), a water pump and farm equipment, and training in sustainable farming and financial management. A score was created for water and food security based on the sum of the responses for each topic. The water security score has

a possible range of 0-60 and the food security score had a possible range of 9-36. Results: Most participants (92.76%) experienced slight or no water insecurity. The net decrease in mean of water security scores for the intervention group was 8.8437 while it was 4.8796 for the control group. Most participants (58.55%) experienced either slight food insecurity or none at all. The intervention group had a net decrease in mean food security scores of 7.8368 and the control had a net decrease of 5.6013.

The results indicate that there is a higher prevalence of food insecurity than water security. The intervention group also saw a larger net decrease in mean water and food insecurity scores compared to the control group.

M.W.D

ICES

Influenza and respiratory syncytial virus (RSV) are significant contributors to morbidity and mortality, especially in young children, older adults, and those with underlying health conditions. Previous efforts to compare both viruses have been primarily descriptive, comparing rates and disease burden. The objective of this study was to use population-based health administrative data and laboratory-confirmed test results from Ontario, Canada to estimate risk factors for severe outcomes related to influenza and RSV.

We conducted a case-control study examining Ontario residents who had a positive polymerase chain reaction test (PCR) for influenza or RSV and were hospitalized in the 2014-15 to 2017-18 respiratory virus seasons. This information from the Ontario Laboratories Information System (OLIS) was linked to hospital discharge abstract data and used to examine risk factors for ICU admission and mortality from influenza and RSV.

11,871 and 4,964 individuals were identified as hospitalized with a positive influenza or RSV test, respectively. Cancer (Influenza: OR 1.57 95% CI 1.28–1.93, RSV: OR 2.00 95% CI 1.40–2.87) and dementia/frailty (Influenza: OR 1.81 95% CI 1.55–2.11, RSV: OR 1.64 95% CI 1.20–2.23) were associated with increased odds of mortality from influenza and RSV. Rural residency was associated with increased odds of ICU and death from RSV (ICU: OR 1.52 95% CI 1.14–2.04, Death: OR 1.80 95% CI 1.00–3.25). Influenza vaccination was associated with decreased odds of death only for influenza (OR 0.80 95% CI 0.69–0.92).

We used laboratory data and hospital discharge abstract data to identify key risk factors for RSV and influenza. We found significant associations between comorbidities commonly associated with both diseases, such as cancer and dementia/frailty, and risk of ICU admission or death. We also identified distinguishing risk factors of both viruses that could inform intervention.

N.E.

University of Toronto Scarborough

Cancer screening is associated with reduced cancer-related morbidity and mortality. Previous studies have found screening rates to be lower in both Indigenous populations and in those with disability. However, the experience of dual marginalization of Indigenous people with a disability on cancer screening uptake has not been studied in Canada and represents an important gap in research. Our

objectives are to: (1) determine the rates of not receiving screening among Indigenous people with and without a disability and non-Indigenous people with and without a disability, and (2) identify factors associated with not receiving screening among Indigenous people with a disability.

Using seven cycles of the Canadian Community Health Survey for the period between 2007 and 2014 (excluding 2011), we assessed rates of lifetime and up-to-date cervical, breast and colorectal screening. To address the first objective, we used modified Poisson regression to determine the unadjusted and adjusted relative risks of not receiving cancer screening across four exposure groups: Indigenous people with a disability, Indigenous people without disability, non-Indigenous people with a disability, and non-Indigenous people without disability (the referent). Additive interaction was used to examine the combined effect of Indigenous status and disability status, via relative excess risk due to interaction and synergy index. To address the second objective, among Indigenous people with disability, factors associated with not receiving screening were examined in regression models guided by the Andersen Behavioural Model of Health Service Utilisation. In secondary analyses, self-reported barriers and reasons for screening were descriptively assessed and compared across all groups.

Results pending. Preliminary analyses have shown that Indigenous status but not disability status was associated with risk of not receiving screening, with measures of additive interaction being non-significant.

Several limitations affect the generalizability of our study. The CCHS does not collect information for those living on-reserve, so the generalizability of our findings is limited to Indigenous populations off-reserve. Additionally, type of disability is not collected in the CCHS, limiting our ability to assess the barriers to cancer screening uptake associated with having different types of disability. Tailored programs may be needed to facilitate screening uptake among Indigenous people. Future research could examine screening in Indigenous people with different types of disabilities.

J.G.

Public Health Agency of Canada

The Canadian Nosocomial Infection Surveillance Program (CNISP) is a collaboration between PHAC and the National Microbiology Laboratory that conducts prospective, sentinel surveillance for healthcare-associated infections. This database consists of a network of 78 acute-care hospitals around Canada that keeps an extensive record of patient information following the identification of a healthcare-associated infection, such as risk and protective factors like compliancy to Infection Prevention and Control (IPC) measures. As a Student Epidemiologist with the Healthcare-Associated Infection Prevention and Control team, I was responsible for drafting a research proposal to determine the impact of compliancy to various IPC measures, such as hand hygiene and screening, on reducing the transmission of Methicillin-Resistant Staphylococcus aureus (MRSA) bloodstream infection rates. Two separate objectives were laid out in order to answer this research question: the first is to create a regression model using CNISP data to predict MRSA bloodstream infection incidence rates, adjusting for both risk and protective factors. The second objective is to create an SIRD (Susceptible-Infectious-Recovered-Deceased) model to determine the impact that hand hygiene and screening compliancy has on reducing the MRSA bloodstream infection transmission rate. This will involve using differential equations to predict how the transmission rate changes with varying levels of compliancy to IPC measures and the use of CNISP data to inform model parameters. My main deliverable during this first practicum was to complete the research proposal and to begin working on a proof of concept using SAS software to clean, manage, and

perform preliminary analyses on CNISP data. As expected, high hand hygiene compliancy seems to be significantly associated with lower MRSA bloodstream infection incidence rates. Throughout Fall 2020 and into my second practicum, the next steps will be to activate a PHAC working group to establish a study protocol, complete the proof of concept, then submit a manuscript draft.

M.A.H.

ICES

Routinely collected health administrative data can be used to efficiently assess disease burden in large populations, but it is important to evaluate the validity of these data. The objective of my practicum was to develop and validate International Classification of Disease 10th revision (ICD -10) algorithms that identify laboratory-confirmed influenza or laboratory-confirmed respiratory syncytial virus (RSV) hospitalizations using population-based health administrative data from Ontario, Canada.

Influenza and RSV laboratory data from the 2014-15 to 2017-18 respiratory virus seasons were obtained from the Ontario Laboratories Information System (OLIS) and were linked to hospital discharge abstract data to generate influenza and RSV reference cohorts. These reference cohorts were used to assess the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of the ICD-10 algorithms. To minimize misclassification in future studies, I prioritized specificity and PPV in selecting top-performing algorithms.

83,638 and 61,117 hospitalized patients were included in the influenza and RSV reference cohorts, respectively. The best influenza algorithm had a sensitivity of 73% (95% CI 72% to 74%), specificity of 99% (95% CI 99% to 99%), PPV of 94% (95% CI 94% to 95%), and NPV of 94% (95% CI 94% to 95%). The best RSV algorithm had a sensitivity of 69% (95% CI 68% to 70%), specificity of 99% (95% CI 99% to 99%), PPV of 91% (95% CI 90% to 91%) and NPV of 97% (95% CI 97% to 97%).

I identified two highly specific algorithms that best ascertain patients hospitalized with influenza or RSV. These algorithms may be applied to hospitalized patients if data on laboratory tests are not available, and will thereby improve the power of future epidemiologic studies of influenza, RSV, and potentially other severe acute respiratory infections.

A.L.

Dalla Lana School of Public Health

I completed my practicum under the co-supervision of Drs. Ananya Banerjee and Jackie Bender at the Dalla Lana School of Public Health working on the 3-Minute Movement Break initiative. This initiative is based on the work of the quasi-experimental study which investigated the effects of introducing Movement Breaks into the undergraduate classroom on student wellbeing, general health, and engagement. The two main components of my practicum included: statistical analysis and project coordination.

I completed multiple statistical analyses using the study data which included over 1,300 students. This practicum allowed me to refine my quantitative data skills as I was able to do a range of statistical analyses from simple bivariate analyses to multivariable linear and logistic regression. Using the same

dataset, I completed additional analyses for a second project looking at the effects of racialization and ethnocultural background on student general health.

In addition to statistical analyses, I also coordinated the knowledge translation and expansion of the 3-Minute Movement Break initiative through the filming of new movement break videos and the creation of a website to house the videos and disseminate information for instructors on how to implement the Movement Breaks into their classrooms. I conducted volunteer recruitment, and drafted the design and content for the website. I worked with a multidisciplinary team within U of T to complete these tasks.

In the end, I completed data analyses on multiple different projects which has led to prospective lead and co-authorship opportunities. This practicum offered me the opportunity to apply my quantitative skills on a real-world dataset and take the lead and be creative with my volunteer recruitment materials. My supervisors supported me throughout this practicum and provided me with the appropriate resources to be successful.

I.M.

Public Health Agency of Canada

Canada is in the midst of an opioid crisis, with 19,377 opioid-related hospitalizations and 15,393 apparent opioid-related deaths occurring between January 2016 and December 2019. At the federal government level, gaining a better understanding of the mental health profile of those who experience opioid-related harms has been identified as a priority to inform evidence-based policies and interventions. There is evidence to suggest that many people experiencing opioid-related harms also experience other mental disorders, but most of the research in this area has been conducted in US and UK populations. Using Canadian national hospital administrative data (CIHI-DAD), we examined three types of opioid-related hospitalizations and their associated co-diagnosed mental disorders from April 2018 to March 2019. Our analyses found that co-diagnoses for mental disorders are common among people hospitalized for opioid-related poisonings, opioid use disorders and adverse drug reactions from prescribed opioids. For people hospitalized for these opioid-related harms, other substance-related and addictive disorders (including disorders due to the use of alcohol, cannabinoids, cocaine, other stimulants, sedatives and hallucinogens) were the most common co-diagnosed mental disorders. We also observed age- and sex-specific differences in the presence of co-diagnosed mental disorders. These findings highlight the importance for interventions to incorporate a poly-substance use lens that accounts for varying harms by substance type and context of use. It is important to note that these data do not reflect the overall prevalence of co-occurring mental disorders among people experiencing opioid-related harms in Canada, but rather co-diagnoses for mental disorders which were deemed significant to the patient's hospital stay. The mental disorder data from our analyses reflect minimal estimates and future research is needed to determine overall co-occurring prevalence. The Government of Canada will continue to work to improve data and analysis to inform strategies and interventions to reduce opioid-related harms across the country.

S.N .

Toronto General Hospital and Princess Margaret Cancer Centre

Peer support (PS) is important for the health and well-being of cancer survivors. However, little is known about the extent of use of PS among cancer survivors and its association with health outcomes. The

purpose of this study was to examine the prevalence and factors associated with participation in and satisfaction with PS among Canadian cancer survivors.

A secondary analysis of the nation-wide, cross-sectional Cancer Transitions survey administered by the Canadian Partnership Against Cancer (CPAC) in 2016 was conducted. Cancer survivors 18+ years and post-treatment were recruited through the ten provincial cancer agencies/registries. Descriptive statistics were used to summarize the sample and their use/satisfaction with different forms of PS. Univariable logistic and linear regression were used to investigate associations between six forms of PS and emotional and physical health, quality-of-life, healthcare utilization, and unmet needs.

13,319 cancer survivors participated; most were 65-74 years (4701; 35.5%), 1-3 years post-treatment (6120; 48%) and females (6820; 51.5%). Nearly 12% (1,398) used at least one form of PS, of whom 66% participated in only one form of PS; 42.9% had never heard of any of the forms examined. The most common form of PS used was face-to-face peer support groups (6.4%); the least common was support group retreats (1.1%). Satisfaction was highest for one-on-one peer mentorship (85.1%) and lowest for professionally-led online support groups (77.8%). Factors associated with participation in any form of PS were emotional health (OR=0.65, CI=0.57-0.74), HC utilization (GP, OR=1.87, CI=1.6-1.18; Oncologist, OR=1.49, CI=1.21-1.83; ER, OR=2.1, CI=1.84-2.4), and unmet needs (physical, β=0.46, CI=0.35-0.57, p<0.000; emotional, β=0.3, CI=0.19-0.4, p<0.000). Factors associated with satisfaction with any form of PS were quality-of-life (OR = 1.59, CI=1.12-2.27), emotional health (OR=1.61, CI= 1.17-2.22), GP visits (OR=1.51, CI=1.02-2.23), and unmet needs (physical, β=-0.81, CI=-1.14-0.48, p<0.000; emotional, β= 0.5, CI=0.21-0.79, p = 0.001; practical, β=-0.4, CI=-0.64-0.16, p=0.001).

A considerable proportion of cancer survivors are not aware of PS and only 11.6% participated in PS post-treatment. Respondents who participated in PS had poorer emotional health, greater healthcare utilization, and more unmet needs compared to those who did not. However, survivors who were satisfied with PS reported better quality-of-life and emotional health, and fewer unmet needs compared to those who were not satisfied. Future research should identify how to increase awareness of and optimize peer support programs to maximally benefit and meet the needs of cancer survivors.

T.N.

Ontario Health (Occupational Cancer Research Centre)

Firefighters and police officers are exposed to various known and suspected carcinogens. Our objective was to conduct cancer surveillance among a cohort of firefighters, police officers, and detectives in Ontario, Canada using the novel Occupational Surveillance System (ODSS).

Accepted Workplace Safety and Insurance Board (WSIB) time-loss compensation claims were linked with the Ontario Cancer Registry (OCR) data (1964-2016) to ascertain site-specific incident cancer diagnoses (n=214, 821). Multi-variable Cox proportional hazard models were constructed to estimate hazard ratios (HRs) and corresponding 95% confidence interval (95 % CI) for primary site-specific cancer diagnoses.

We identified 12 084 firefighters (97% male) and 22 417 police officers (84% male) in a cohort of 2.18 million workers. For firefighters, increased risk was observed for melanoma (HR 2.21, 95% CI 1.80-2.72), non-Hodgkin's lymphoma (HR 1.42, 95% CI 1.15-1.76), leukemia (HR 1.41, 95% CI 1.08-1.84), colorectal (HR 1.33, 95% CI 1.16-1.54), kidney (HR 1.55, 95% CI 1.23-1.94), prostate (HR 1.47, 95% CI 1.33-1.62) and testicular cancer (HR 2.67, 95% CI 1.82-3.91). For police officers, elevated risks were observed for

melanoma (HR 2.41, 95% CI 2.05-2.83), colorectal (HR 1.33, 95% CI 1.17-1.50), thyroid (HR 1.35, 95% CI 1.03-1.75), prostate (HR 1.49, 95% CI 1.36-1.63), testicular (HR 1.47, 95% CI 1.01-2.14) and cervical cancer (HR 1.88, 95% CI 1.07-3.32).

Our study is the first to assess risk of various cancer sites among firefighters and police officers in Ontario. Our results supported previous findings and reported increased risk for new cancer sites of interest.

S.R.

St. Michael's Hospital

The incidence of childhood adversities has previously shown links to increased risk and occurrence of chronic disease, such as psychological disorders. Concussions are a growing public health concern, which manifest as cognitive, somatic and psychological symptoms. There is currently no consensus on which patients are more likely to have persistent symptoms. The present study aimed to describe the prevalence of childhood adversities in a clinical population and determine if they were associated with post-concussion symptoms.

Patient data was collected, and relevant questionnaires were performed upon presentation to a tertiary care head injury clinic. These patients were referred by other hospital departments and must have sought treatment within 12 months of injury. Data was entered in REDCap and later exported to IBM Statistical Package for the Social Sciences (SPSS) for description and analysis. The chi-square test for independence was used to determine if post-concussion symptoms were dependent on adverse childhood experiences.

Among the 581 eligible patients, 52.0% were female, with a median age of 40 (IQR, 25) and Bachelors' degrees & high school diplomas as the most common education levels. The median months since injury upon clinic presentation was 4 (IQR, 10). For ACE and RPQ median scores, they were 1 (IQR, 2) with a range of (0,10) and 20 (IQR, 19) with a range of (0, 48), respectively. The RPQ scores for cognitive, somatic and psychological symptom subdomains were 4 (IQR, 7), 7 (IQR, 11) and 4 (IQR, 8), respectively. Pennsylvania was the most demographically similar province to Ontario and had similar ACE prevalence to our population. The statistical analysis displayed insufficient evidence for an association between high/low ACE scores and total RPQ, but sufficient evidence for each of the subdomains; the strongest associations were for somatic and psychological symptoms with high/low ACE.

The similar ACE prevalence between Pennsylvania and the clinical population is reason to believe that the population is representative of Ontario; they also share their three most prevalent items. The associations for somatic and psychological symptoms with high/low ACE are further supported by previous literature. Biomarkers in physiologic research and dysregulation of the amygdala & limbic system explain these persistent symptoms. This can guide practitioners in their treatment of specific symptoms and recognize which patients are at-risk for chronic complications. However, our clinical data had missing patient information and assumptions were made. Other facets of these findings are limited by the self-report nature of intake forms.

The discovered association between ACE and RPQ subdomains is important for understanding certain patients' post-concussion prognosis. With additional research on ACE subtypes, increased ACE

monitoring in Canada, and intervention in the first 18 years of life, there is potential to improve concussion rehabilitation and individuals' quality of life.

T.W.

DLSPH/OTRU

The prevalence of electronic cigarette use has doubled among Canadian youth and young adults in recent years. However, little is known about the predictors of greater vaping nicotine dependence. This study identifies variables associated with higher vaping sessions per month (SPM) among this population.

Data were drawn from a longitudinal study that recruited 1048 Canadian participants aged 16-26 in 2018 through social media platforms and a recontact list from a Smoke-Free Ontario initiative for young adults. Quota sampling was used to ensure enough regular e-cigarette users were recruited. The current study restricted analyses to the 459 participants who were vapers at baseline and have completed both the baseline and 12-month follow-up surveys. The vaping SPM for both waves and the net change were computed. Multiple linear regression analyses were conducted to identify the predictors of the net change in SPM and the SPM at the 12-month follow-up.

With the net change as the outcome, being 19 years or older and did not completed high school, having 10-29 puffs per vaping session, shorter vaping history, and had used a pod vape in the last 6-month were more likely to have increased SPM over 1 year compared to their counterparts. With the SPM at 12-month as the outcome, those who self-identified as males, current smokers and experimenters, or never smokers, being 19 years or older and had not completed high school, 18 years or older and were married or cohabiting, having 30 or more puffs per vaping session, vape(d) to help me quit/reduce smoking, and had used pod vape in the last 6-month were more likely to have lower SPM at the 12-month follow-up compared to their counterparts.

42% of the participants had increased their SPM over 1 year. The findings provide targets for vaping reduce or cessation programs and potential policy change in the regulation and sales of pod vape.

R.W.

Li Ka Shing Knowledge Institute

My practicum experience involved one primary project and three secondary projects. My primary project involved conducting a quantitative analysis using SAS. My secondary projects involved conducting qualitative analyses.

In my primary analysis, I aimed to determine if there is an association between rectal chlamydia/gonorrhea and anal HPV among gbMSM. I merged data from Engage and Engage-HPV to conduct my analysis. Engage is a longitudinal sexual health study of gbMSM aged 16 and older. Participants provide rectal swabs to detect infections including rectal chlamydia and gonorrhea. Engage-HPV is a prevalence study of anal and oral HPV infection nested within Engage. Rectal chlamydia/gonorrhea can cause chronic inflammation in the anal canal. If a person is co-infected with anal HPV, the chronic inflammation may result in more persistent HPV which can lead to anal carcinogenesis.

My secondary projects involved two literature reviews and a knowledge synthesis component. I conducted a literature review on the burden of HPV-related diseases (particularly anogenital warts, anal intraepithelial neoplasia, and anal cancer) among males. My second literature review focused on the healthcare costs associated with HPV-related diseases among males. In both literature reviews, I focused on summarizing reports that used health administrative data to conduct their analyses.

For the knowledge synthesis piece, I conducted an environmental scan of HPV vaccination programs across Canada and internationally. I identified publicly-funded vaccination programs for school-aged females and males as well as programs targeted towards MSM. I noted key dates including when programs were implemented, when the dose schedule changed from 3-doses to 2-doses, and when the vaccine changed from the 4v to 9vHPV vaccine.

C.H.W.

Sanofi Pasteur

Residents of long-term care facilities (LTCF) are at particularly high risk for respiratory infections and its complications due to their increased age, frailty, and close clustering. The impact of the COVID-19 pandemic on LTCFs across Canada has highlighted substantial gaps in the prevention and management of respiratory outbreaks. Despite being common occurrences, limited work has been done to understand the characteristics of influenza outbreaks in LTCFs. Here, we report a descriptive analysis of influenza outbreaks in LTCFs.

Annual and weekly influenza reports from 2013-14 through 2018-19 influenza seasons were collated from national and provincial sources. To assess seasonality, outbreaks were plotted by epidemiological week, and were classified by institution type, causative organism, and influenza subtype.

Over six influenza seasons, an average of 707 (range: 180-1,282) outbreaks were reported in LTCFs, which accounted for approximately 66% of all institutional influenza outbreaks. Influenza A(H3)-dominant seasons had more LTCF outbreaks and outbreaks tended to peak earlier in the season, while A(H1N1)-dominant seasons had fewer LTCF outbreaks spread over a longer duration. While Quebec and Ontario generally had the greatest number of crude LTCF outbreaks, improved surveillance and reporting metrics of outbreaks would allow for comparisons between provincial public health measures regarding respiratory outbreaks in LTCFs.

Seasonal influenza outbreaks continue to have a significant impact on LTCFs. Measuring influenza in LTCFs through outbreaks (versus the number of associated influenza cases) obscures the true burden of influenza in these institutions. The absence of robust and comprehensive surveillance data for LTCF influenza outbreaks (nationally and provincially) limits this descriptive analysis. As Canada prepares for the potential co-circulation of influenza and COVID-19 during the 2020-21 influenza season, understanding the epidemiology and optimal prevention strategies in LTCFs for respiratory illnesses such as influenza, will aid in protecting one of Canada's most vulnerable population segments.