

# BCCDC's

14<sup>TH</sup> ANNUAL  
Oct 18 - Oct 22, 2021



# RESEARCH SYMPOSIUM



## Public Health in the Post-Pandemic World

RESEARCH, DISCOVERY AND BEST PRACTICE!

All events will take place Online; See inside for details

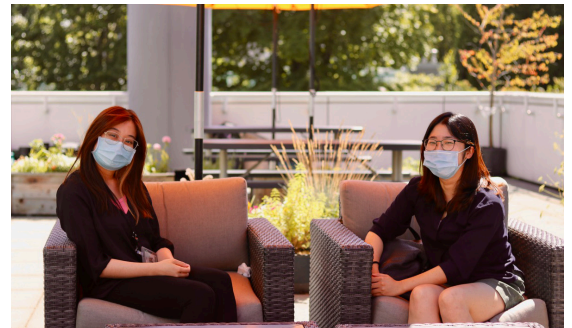
**Research Symposia** Tuesday & Thursday, 10am - 2:00pm @ Online

**Workshop** Wednesday at noon: Race-Based Data Collection

**Poster Session** Viewable on the Event Website Throughout the Week

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### Acknowledgements:

The BCCDC would like to acknowledge the following people for their contributions made towards the success of this year's research symposium: Breanna Watson, David Patrick, Erin Jones, Lisa Young, Natalie Prystajecy, Priscilla Vuong, Rachel Yiu, Travis Salway. Photos: Michael Donoghue

The symposium would also like to thank the generous support of the BCCDC Facility Engagement committee with funding from the Specialist Services Committee Facility Engagement program.

Facility Engagement is a provincial initiative of the Specialist Services Committee that aims to strengthen relationships and engagement between health authorities and facility-based physicians, to improve the shared work environment and the delivery of patient care. Visit <http://www.facilityengagement.ca> for more information.

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# Zoom Links

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## **Tuesday**

Main Plenary 10 - 12 pm

<https://nexuswebcast.mediasite.com/Mediasite/Play/ee21246691a04ba8995bbab0f5a720ff1d>

Meeting ID: **92277871194**

Meeting Password: **92277871194**

## **Wednesday**

Lunchtime Workshop

Race Based Data Collection Workshop

Zoom Meeting Link: <https://nexuswebcast.mediasite.com/Mediasite/Plab0f5a720ff1d>

Meeting ID: **92277871194**

Meeting Password: **92277871194**

## **Thursday**

Main Plenary 10 - 12 pm

<https://nexuswebcast.mediasite.com/Mediasite/Play/ee21246691a04ba8995bbab0f5a720ff1d>

Meeting ID: **92277871194**

Meeting Password: **92277871194**

## **Poster Presentations**

<https://nexuswebcast.mediasite.com/Mediasite/Play/ee21246691a04ba8995bbab0f5a720ff1d>

Meeting ID: **92277871194**

Meeting Password: **92277871194**

**Thanks for joining! Please type in questions at anytime in the “chat” window.  
Please make sure your microphone is muted and your camera is off.**





# Tuesday Main Plenary

Thanks for joining!  
You can type your questions into “chat” anytime; presenters are bolded.

**10:00-10:05**

## **Welcome and introduction to Research Week**

*David Patrick*



**10:05-10:50 KEYNOTE**

## **Vaccines against COVID-19 in Canada: What is next?**

*Caroline Quach*

Dr. Caroline Quach is a Professor in the Departments of Microbiology, Infectious Diseases & Immunology and of Pediatrics at University of Montreal. She is an adjunct Professor in the Department of Epidemiology, Biostatistics & Occupational Health at McGill University and a scientific collaborator at the School of Public Health at Université Libre de Bruxelles (ULB) in Brussels. She is the physician in charge of Infection Prevention and control at CHU Sainte-Justine where she also works as a pediatric infectious diseases specialist and medical microbiologist. Dr. Quach is a clinician-scientist, who was supported by the Fonds de Recherche Québec – Santé (FRQS, chercheure boursière de mérite) and is now the Canada Research Chair, Tier 1 in Infection Prevention and Control. Her research interests are in Infection Prevention: both healthcare-associated and vaccine-preventable diseases

The past 18 months have put immunization committees in the spotlight, like never before. This presentation will recap the decisions taken, the evidence used to support these decisions, and the challenges ahead.

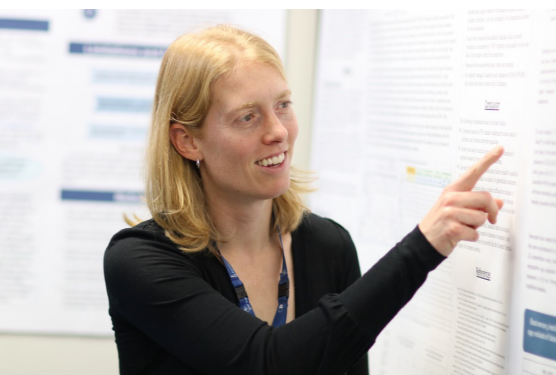


**10:50-11:05**

## **Take Home Naloxone Program Summary Report 2020 - Key Findings and Recommendations**

*Rachael Geiger, Sierra Williams, Jane A. Buxton*

In 2020, British Columbia's Take Home Naloxone (THN) program continued to expand access to naloxone with record high kit shipment and distribution. However, despite these successes, 2020 also saw a record number of deaths in BC due to illicit drug toxicity and over 17,000 paramedic attended overdose events. We aim to highlight THN program expansion and uptake but acknowledge that naloxone is not enough to stop preventable harms associated with toxic drug poisoning. Program recommendations are informed by an understanding that safe supply, expanded harm reduction services and the removal of policies that criminalize people who use drugs are essential to ending the opioid crisis.

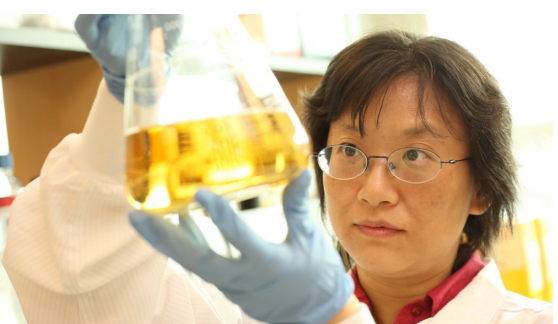
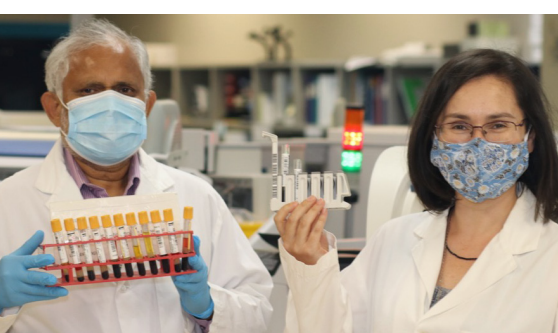
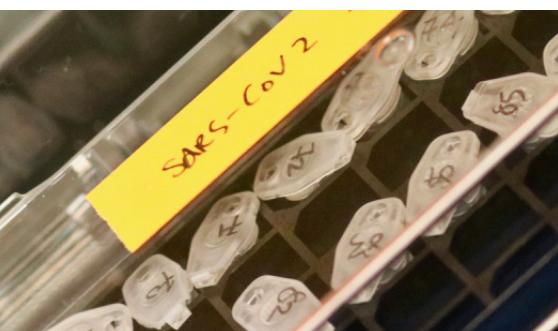


**11:05-11:20**

## **The association of variants of concern with severe outcomes following COVID-19 infection in British Columbia**

*Caren Rose, James Wilton, Mei Chong, Hind Sbihi, Yayuk Joffres, Eleni Galanis, Naveed Janjua*

The prevention of serious illness is a priority in public health management for communicable disease prevention; and is of paramount importance during a pandemic, when public health measures need to be put in place. This work is a retrospective



multivariable analysis of the relationship between variants of concern (i.e. alpha, gamma, delta) and severe outcomes (i.e. hospitalization, critical care and death), following COVID-19 infection in British Columbia using linked data. The analyses will examine the differential effect of the relationship between VOC and outcomes by age and sex.

**11:20-11:35**

### **Intentional self-harm injuries in adolescents and youth: 10-year trends, costs and pattern in hospitalization rates in B.C.**

*Mojgan Karbakhsh, Megan Oakey, Fahra Rajabali, Alex Zheng, Ian Pike*

Youth Suicide and self-harm are among the top injury priorities in British Columbia, requiring a comprehensive and integrated approach for prevention. The term 'intentional self-harm' encompasses injuries incurred due to suicide attempts as well as non-suicidal self-harm. In this presentation, the trends and patterns of hospitalizations for intentional self-harm injuries among British Columbian adolescents and youth (10-24 yr) from 2010 to 2019, by sex, 5-year age groups, and injury cause will be demonstrated. We also aim to present the length of stay and costs of these injuries and discuss implications for prevention and intervention.

**11:35-11:50**

### **One and two dose vaccine effectiveness against SARS-CoV-2 in healthcare workers in BC, Canada**

*Shiraz ElAdam, Danuta M Skowronski, Macy Zou, Catherine Ogden, Jeffery Phung, Solmaz Setayeshgar, May Ahmed*

Healthcare workers (HCWs) in British Columbia were amongst the first prioritized for COVID-19 vaccination, with varying intervals between two mRNA COVID-19 vaccine doses applied. We used a test-negative design to compare odds of vaccination among SARS-CoV-2 test-positive and weekly-matched (6:1), randomly-sampled, test-negative HCWs using the Workplace Health Incident Tracking and Evaluation (WHITE) database which includes all HCWs employed by health authorities in BC. Adjusted VE was estimated using conditional logistic regression. We present one and two dose VE overall and by time since last dose. Two dose VE will also be presented by interval between first and second doses.

**11:50-12:05**

### **Identification of an optimized receptor-binding domain-based subunit vaccine against SAR-CoV-2**

*Hong Yu, Liam Worrall, Martin Petric, Craig Robb, Natalie Strynadka, Robert Brunham*

Current vaccine efforts to combat SAR-CoV-2 are focused on spike protein, the primary target for neutralizing antibodies. SARS-CoV-2 receptor binding domain (RBD) is immunodominant and accounts for 90% of serum neutralizing activity. In this study, we constructed various versions of SAR-CoV-2 RBD as well as spike protein. Then we conducted several mouse trials to evaluate the immune responses after vaccination of these antigens that are formulated in alum or a Th1 adjuvant DDA/TDB. We would like to identify an optimized RBD-based subunit vaccine for a human clinical trial.

**12:05-12:20**

### **Social contacts and transmission of COVID-19 in British Columbia, Canada**

*Notice Ringa, Michael C. Otterstatter, Sarafa A. Iyaniwura, Mike A. Irvine, Prince Adu, Naveed Z. Janjua, Samara David, Michelle Spencer*





Close-contact rates are thought to be a significant driving force behind the dynamics of transmission for many infectious respiratory diseases. Efforts to control such infections typically focus on the practice of strict contact-avoidance measures. Yet, contact rates and their relation to transmission, and the impact of control measures, are seldom quantified. Here, we quantify the response of contact rates, transmission and new cases of COVID-19 to public health contact-restriction orders, and the associations among these three variables, in the Canadian province of British Columbia (BC) and within its two most densely populated regional health authorities.

**12:20-12:35**

### **Plover: A Novel Laboratory Informatics System for BC-Wide COVID-19 Public Health Response**

*Chris Fjell, Jaideep Singh, Phillip Dumotru, Ali Rahmat, Kyle Clarkson, Natalie Prys-tajcky, Hoang, Linda Hoang*

The Public Health Lab at BCCDC was ordered by PHO to aggregate, report, and make available BC-wide COVID-19 virus testing in early 2020. The “Plover” system was deploy for production use within a month of BC’s first COVID case, and now supports more than 130 active users at the PHL and across BC and Yukon. It receives COVID-19 virus testing data for all COVID-19 testing in BC, including all hospital and public health labs, private labs, and Point of Care testing, and generates automatic case notifications within 1 hour of test received. Use of a robust, widely-used open-source software framework (Django) allowed for rapid, continuous development, deployed on IMITS secure environment.



**12:35-12:50**

### **A scoping review of common challenges encountered in the development of digital public health and potential solutions identified in the literature**

*Ihoghosa Iyamu, Oralia Gomez-Ramirez, Hsiu-Ju Chang, Sarah Watt, Aidan Ablona, Geoffrey McKee, Mark Gilbert*

The emergence of digital public health has not been accompanied by collective assessments of challenges inherent in integrating digital technologies to improve public health impact. We conducted a scoping review of these challenges & mapped suggested solutions. From articles published between 2000 & 2020, we found a myriad of challenges categorized as technical & non-technical. We identified 7 main strategies to strengthen development of the field including, securing political commitment; intersectoral collaboration; economic investments; standardized ethical, legal & regulatory frameworks; adaptive research & evaluation; health workforce capacity building; & transparent public engagement.



**12:50-1:05**

### **Increased use of GetCheckedOnline for sexually-transmitted and bloodborne infections (STBBI) testing during the COVID-19 pandemic**

*Heather Pedersen, Aidan Ablona, Devon Haag, Hsiu-Ju Chang, Ellen Korol, Sophie Bannar-Martin, Jason Wong, Troy Grennan, Mark Gilbert*

GetCheckedOnline remained available during the COVID-19 pandemic, unlike many sexual healthcare services which reduced capacity or services. We used linked GetCheckedOnline program and laboratory testing data to compare program measures during the pandemic (Mar 2020 to Feb 2021) to pre-pandemic (Mar 2018 to Feb 2020) using descriptive statistics and interrupted time series analysis. The increase in testing, percent positive, those reporting symptoms, being a contact to an STBBI, and using GetCheckedOnline for the first time during the COVID-19 pandemic suggest the program has filled a gap in STBBI testing services. GetCheckedOnline remains a critical service for sexual healthcare in BC.





**1:05-1:20**

## The You Matter Project: Partnering With People In Prison To Co-Create STBBI Policies And Guideline

*Sofia Bartlett, Terri Buller-Taylor, Taylor Teal, Sarah Hughes, Terry Marion, Mo Korchinski, Pam Young, Merv Thomas, Barb Ellis, Jane Buxton, Nancy Desrosiers, Adam Beaumont, Neora Pick, Margaret Erickson, Lindsay Jennings, Douglas Laird, Ruth Martin, Matthew Moher, Andrea Krusi, Sara Young, Naveed Janjua*

Universally offering screening for Sexually Transmitted and Blood-Borne Infections (STBBIs) results in higher uptake of testing in correctional settings. However, there is no guidance on how to implement these policies in prisons in person-centred, culturally safe and trauma informed ways. To address this, the You Matter project has created a framework to incorporate the experiences and preferences of key stakeholders, including people with lived or living experience of incarceration, Correctional Health Services staff, and correctional officers, into the development of policies and guidelines for universal STBBI screening and linkage to care in Provincial Correctional Centres (PCCs).

**1:20-1:35**

## Tick-borne Diseases and Climate Change 3 West

*Erin Fraser, Stefan Iwasawa, Muhammad Morshed, Sunny Mak, Michael Otterstatter, David Patrick, Eleni Galanis, Mayank Singal, Carl Ribble, Theresa Burns, Cait Nelson, Susan Cork, Isabelle Couloigner, Sylvia Checkley, Shaun Dergousoff, Amanda Lang, Andrew Cameron, Emily Jenkins, Maarten Voordouw*

The TCC-3W (Tick-borne and Climate Change - 3 West) project is a One Health initiative that is funded by the Public Health Agency of Canada. The project aims to improve the evidence base and response capacity to address the impacts of climate change on tick-borne diseases in Alberta, British Columbia, and Saskatchewan. The primary goals of the project are to: 1) improve surveillance of ticks and tick borne diseases; 2) develop data models to explore the potential impact of climate on tick distribution and abundance and the occurrence of tick borne diseases; and 3) to enhance communication and collaboration across disciplines, agencies, and stakeholders in Alberta, BC, and Saskatchewan.

**1:35-1:50**

## Provincial surveillance of Risk Mitigation Guidance prescribing in British Columbia for people at risk of overdose during COVID-19

*Heather Palis, Bin Zhao, Amanda Slaunwhite*

On March 26th 2020 BC's Ministry of Health introduced a Risk Mitigation Guidance (RMG) document, permitting physicians to prescribe pharmaceutical alternatives (e.g. opioids, stimulants) to the toxic drug supply to people at risk of overdose. RMG prescriptions were identified using PharmaNet (drug dispensation database) data retrieved from the BCC19C. From March 2020 to June 2021, 8,939 people were identified as having been dispensed RMG medications. The demographics of RMG recipients were consistent with those of people experiencing overdose in BC. Unprecedented overdose rates persist in BC and expanded implementation efforts are required for RMG to reach people at highest risk of overdose.

**1:50-2:00**

## Day's Recap

*Travis Salway*



# Lunchtime Workshop

## Wednesday Oct 20th, 2021

### 12 - 2 pm

# Race Based Data Collection

Please join us for a workshop on Raced Based Data Collection Workshop as part of BCCDC Research Week 2020.

This virtual session will run from 12-2pm and will host speakers from:

**Put Peoples Names Here**

All faculty, staff and students based at BCCDC are invited to attend this interactive workshop.

Zoom link:

<https://ubc.zoom.us/j/62235001892?pwd=MmYyNCt2SS9mYVVOR2t2TDNOczgvUTo9> (not real, updateded needed)

Meeting ID: 22 3500 1892 (not real, updateded needed)

Password: 55724 (not real, updateded needed)

In this session we will xxxxx, yyyyyy, zzzz. We will ..... and.....With a focus on .....in this session participants will:

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**Facility Engagement is a proud sponsor of Research Week**



# Thursday Main Plenary

Thanks for joining!

You can type your questions into “chat” anytime; presenters are bolded.



**10:00-10:05**

## Welcome and Introduction to Research Week

*Natalie Prystajeky*

**10:05-10:20**

## From the horse’s mouth: Calls to the BC Drug and Poison Information Centre related to ivermectin ingestion during the COVID-19 pandemic

*Cheryl Young, Tom Kosatsky*

As the COVID-19 pandemic continues to unfold, increasing numbers of Canadians have been using ivermectin, an anti-parasitic drug used to treat infections in both humans and livestock. This is despite low certainty evidence on its efficacy in the prevention and treatment of COVID-19. Concerns over unsafe use of ivermectin prompted a review of calls to the British Columbia Drug and Poison Information Centre. Calls received by poison control centres have been used as a source of information to identify and monitor emerging public health issues. Review of these calls brings into question the interplay between ivermectin familiarity and access, and attitudes and beliefs about COVID-19.



**10:20 - 10:35**

## Prospective Evaluation of Immunity After COVID Vaccines Study

*Brynn McMillan, Citlali Marquez, Bonny So, Tamara Pidduck, Agatha Jassem, Manish Sadarangani*

Addressing vaccine immunity and protection in population groups that have an increased risk of developing severe illness from COVID-19, such as those aged 50 years and above, is paramount to inform public health policies on the deployment of booster vaccines. This study will establish the vaccine-elicited humoral immunity and immune protection of the different COVID-19 vaccines by measuring the concentration of antibodies that are able to recognize SARS-CoV-2 virus in the blood. Findings obtained from this study will provide scientific evidence on vaccine effectiveness in those at higher risk of developing severe disease and will help guide public health policy on vaccination schedules.



**10:35 - 10:50**

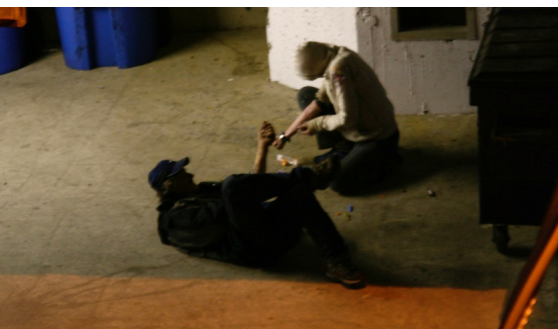
## Population contact patterns in Canada during the COVID-19 pandemic: results from a population-based survey in Canada

*Prince A. Adu, Sarafa Iyaniwura, Notice Ringa, Mike A. Irvine, Michael Otterstatter, Naveed Z. Janjua*

Interpersonal interaction between infectious and uninfected individuals facilitates the spread of COVID-19. We used data from the BC COVID-19 Population Mixing Patterns survey (BC-Mix) to investigate the contact patterns of residents of British Columbia over a period of one year (September 2020 to August 2021) during the pandemic. Contact patterns in British Columbia varied between September 2020 and July 2021, with a marked decline in average daily contacts noted immediately following the introduction of stricter physical distancing measures in November 2020.







**10:50 - 11:05**

## Mapping Spatial Variations in Fatal Overdose Risk in BC

*Kevin Hu, Brian Klinkenberg, Amanda Slaunwhite, Wenqi Gan*

The overdose crisis is more complicated than ever as the risk distribution is now affected by interventions in addition to the endogenous factors. We used a spatial modelling approach to estimate fatal overdose risk per event, with covariate adjustments at the individual level. We found the odds of fatal overdose in some regions were 50% higher than in others. Temporal variations (2015 - 2018) in fatal risks were also modelled, and we observed an increasing trend over the entire province. However, risk in the Interior and Northern BC increased earlier and faster, suggesting that these regions may lack harm reduction services to counteract the province-wide increasing illicit drug toxicity.



**11:05 - 11:20**

## Quantitative Evaluation of an Intervention Supporting Peer Workers in Overdose Response Settings

*Emma Ackermann, Zahra Mamdani, Jane A Buxton*

An intervention model 'ROSE' was piloted at two organizations in BC. R: Recognition of Peer Work, O: Organizational Support, S: Skill Development and E: for Everyone. Quantitative surveys were administered at sites pre- and post- implementation. We found an increase in the peers' perception of fair pay and recognition. More participants, post-implementation, feel satisfied by their work and feel connected to each other. There was also a decline in the ranking of "work situation" as a stressor. The majority of the strategies were rated "extremely effective" by participants. These results are promising and call for the expansion of the ROSE model to other sites.



**11:20 - 11:35**

## A Population Health Assessment of BC's COVID-19 Experience: Two large cross-sectional web surveys

*Jat Sandhu, Geoff McKee, Kate Claydon-Platt, Binay Adhikari, Mei Chong, Crystal Li, Megan Oakey, Ellen Demlow, Amina Moustaqim-Barrette, Sandy Shergill, Maritia Gully, Rahul Chhokar, Gillian Frosst, For the members of the BC COVID-19 SPEAK Survey Research Team*

This population health survey consisted of two cross-sectional samples, providing insight into the experiences and unintended consequences of the COVID-19 response early in the pandemic and one year on in British Columbia. The surveys captured the effect on mental and physical wellbeing, social connectedness, economic stability, and resilience. The findings showed that the impacts were extensive and widespread, inequitably distributed, and significantly affecting vulnerable populations. The methodology is grounded within the social determinants of health providing a framework for developing population health surveys to help prioritize public health initiatives and policies.

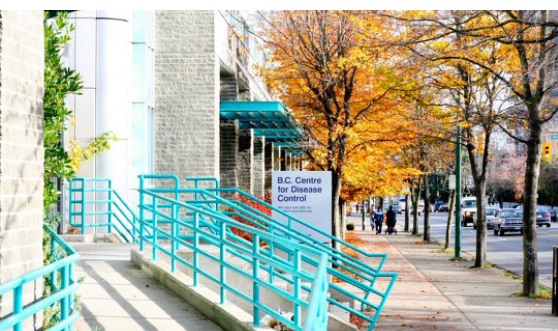


**11:35 - 11:50**

## Risk of Cardiovascular Diseases in Relation to Substance Use Disorders

*Wenqi Gan, Jane Buxton, Heather Palis, Bin Zhao, Naveed Janjua, Amanda Slaunwhite*

This cohort study examined the associations of cardiovascular disease (CVD) with substance use disorder (SUD) and alcohol, cannabis, opioid, or stimulant use disorder using a large random sample of BC residents without CVD at baseline (N = 617,863). During a 4-year follow-up period, 17,360 (2.8%) people developed CVD, the hazard ratio (HR) was 1.74 (95% CI, 1.60-1.89) for people with SUD compared with people without SUD. The corresponding HR was 1.75 (1.59-1.94), 1.31 (1.02-1.67), 2.08 (1.74-2.48), and 1.78 (1.49-2.11), respectively, for people with alcohol, cannabis, opioid, and stimulant use disorder. The findings suggest that SUD, especially opioid use disorder, is a risk factor for CVD.







**11:50 - 12:05**

## Acceptability and experience with HPV-based cervix screening: HPV FOCAL Online survey results

*Laurie W Smith, C Sarai Racey, Lovdeep Gondara, Mel Krajden, Marette Lee, Ruth E Martin, Gavin Stuart, Stuart Peacock, Eduardo L Franco, Dirk van Niekerk, Gina Ogilvie*

Cervix screening across Canada is undergoing a significant change with many jurisdictions planning to move from cytology (Pap) to HPV-based testing. This paradigm shift cannot occur successfully without engagement from all stakeholders, including those who are screened. We conducted an online survey to participants of the HPV FOCAL Study, a large BC RCT evaluating HPV testing compared to cytology for cervix screening. We assessed respondents attitudes regarding the change from Pap to HPV testing and experiences receiving HPV positive results. Results will be presented. Findings from this study will be valuable for education and communication planning for programs across Canada.



**12:05 - 12:20**

## Nanopore metagenomic sequencing for detection and characterization of SARS-CoV-2

*Nick P.G. Gauthier, Cassidy Nelson, Michael B Bonsall, Kerstin Locher, Marthe Charles, Clayton MacDonald, Mel Krajden, Samuel D. Chorlton, Ameer R. Manges*

Metagenomic Next-Generation Sequencing (mNGS) may allow for the detection of pathogens that can be missed in targeted assays. The goal of this study was to assess the performance of nanopore-based Sequence-Independent Single Primer Amplification for the detection and characterization of SARS-CoV-2. We report 100% specificity overall and 95.2% sensitivity for specimens with a RT-PCR cycle threshold value less than 30. We assembled high-quality SARS-CoV-2 genomes and found 100% concordance with variant of concern PCR results. This study supports future work examining the broader feasibility of nanopore mNGS as a diagnostic strategy for the detection and characterization of viral pathogens.



**12:20 - 12:35**

## Using Community Smoking Rates and Radon Levels to Optimize Radon Mitigation Programs

*David McVea, Tom Kostatsky*

Radon is a leading environmental cause of lung cancer. The risk of radon-attributable lung cancer is particularly high in smokers due to an interaction with tobacco smoke. This risk can be greatly reduced by modifying buildings, but this is expensive. We have developed models that combine background residential radon levels with community smoking rates to help prioritize radon interventions to increase cost-utility.



**12:35 - 12:50**

## Mental health service use and unmet need among BC adolescents during the COVID-19 pandemic

*Lauren Gorfinkel, Gaelen Snell, David Long, Judy Wu, Mari del Casal, Kimberly Schonert-Reichl, Martin Guhn, Hasina Samji*

Although the pandemic has revealed clear vulnerabilities in youth mental health, it is unclear whether high-risk groups are accessing services, and which have been left with unmet need. We therefore completed a school-based cross sectional survey of 1,928 BC adolescents to assess characteristics associated with mental health care access and unmet need during the pandemic. We ultimately found substantial unmet need for mental health care services, particularly among youth with signs of depression, anxiety and/or gender and sexual minorities. Interventions aimed at mitigating the mental health impacts of the pandemic should consider expanding outreach to these underserved groups.





**12:50 - 1:05**

### **Mink Farm Worker COVID-19 Surveillance in BC: Design, Implementation, and Findings**

*Elaine Chan, Emily Newhouse, Adrianna Paiero, Yin Chang, Erin Fraser, Inna Sekirov, Natalie Prystajecy, Veronic Clair*

Outbreaks of SARS-CoV-2 on two BC mink farms at the end of 2020 highlighted the rapid need for timely mink farm worker and animal surveillance. A COVID-19 surveillance system was subsequently designed using a One Health approach, incorporating mink farm worker, animal, and environmental testing, and allowing the linkage of epidemiological, laboratory, and genomic information. We describe the design and implementation of the mink farm worker component of the surveillance system and summarize findings to date.



**1:05 - 1:50 KEYNOTE**

### **Solastalgia: Climate change and public health in British Columbia**

*Sarah Henderson*

Sarah Henderson is the Scientific Director of Environmental Health at the BC Centre for Disease Control. She has been studying public health effects associated with climatic changes in BC for almost 20 years. Although she is an international expert on wildfire smoke and extreme hot weather, she recognizes that the changing climate presents many other threats to health in the province.



Climate change is a complex and daunting global challenge, but its specific impacts can manifest at relatively small spatial scales. This is particularly relevant for BC, which has a large landmass, a complex topography, and a low population density in many areas. We are already experiencing different climatic changes at different speeds, and the public health impacts of these changes can vary by location and population susceptibility. This talk will provide an overview of the most pressing climate threats in BC, the relevant health research, the evidence gaps, and the challenges ahead.



**1:50-2:00**

### **Day's Recap and Closing Remarks**

*David Patrick*



## Poster Abstracts

Posters are listed in alphabetical order by first author's surname  
[zoom link to poster speakers here?](#)

### **Quantifying contact patterns: development and characteristics of the British Columbia COVID-19 population mixing patterns survey (BC-Mix)**

*Prince A. Adu, Mawuena Binka, Bushra Mahmood, Dahn Jeong, Terri Buller-Taylor, Makuza Jean Damascene, Sarafa Iyaniwura, Notice Ringa, Héctor Alexander Velásquez García, Stanley Wong, Amanda Yu, Sofia Bartlett, James Wilton, Mike A. Irvine, Michael Otterstatter, Naveed Z. Janjua*

Assessing the impact of physical distancing measures on person-to-person contact can provide valuable information for refining control measures and help minimize both COVID-19-related disease burden and the related economic, social, and mental health impacts. Early detection of COVID-19 resurgences requires mechanisms for tracking precursors of transmission, including changes in social contacts, mixing patterns and physical distancing behaviours as well as early signals of a COVID-19 spread. Here, we describe the development the BC COVID-19 Population Mixing Patterns survey (BC-Mix), an ongoing online survey to monitor and assess social contact behaviours and mixing patterns in BC, Canada.

### **Development of a provincial case and outbreak COVID-19 surveillance system: Challenges, opportunities and future insights**

*May Ahmed, Maria Alvarez, Hannah Caird, Sophie Li, Cara McLean, Janyyn Mercado, Elaine Ren, Haoyu Su, Marsha Taylor*

The global COVID-19 pandemic led to the rapid development of an integrated provincial surveillance system for BC. This system bridges multiple data sources including case and outbreak data from health authorities and provincial lab systems. This system is flexible to new information and data, such as variants of concern, reinfections and immunization data, and support daily and weekly reporting. The system generates timely daily outputs which provide crucial information to inform the public while also providing stakeholders with data that has been used to inform actions and decisions. The impact, outputs strengths and limitations of the provincial surveillance system will be highlighted.

### **Hepatitis C screening and diagnosis in a Canadian provincial correctional system prior to and during the COVID-19 pandemic**

*Sofia Bartlett, Terri Buller-Taylor, Taylor Teal, Sarah Hughes, Terry Marion, Mo Korchinski, Pam Young, Merv Thomas, Barb Ellis, Susana DelRio, Jane Buxton, Nancy Desrosiers, Maylene Fong, Adam Beaumont, Neora Pick, Margaret Erickson, Lindsay Jennings, Daryl Luster, Douglas Laird, Ruth E. Martin, Matthew Moher, Andrea Krusi, Sara Young, Naveed Janjua*

Transfer of health services in BC provincial correctional centres to PHSA led to an increased volume of hepatitis C screening, with concomitant increases in HCV diagnoses among people who are incarcerated in BC. The COVID-19 pandemic led to health care challenges in prisons, however the total number of HCV tests ordered as a proportion of intakes increased in 2020, compared to previous years.

### **Preventing Opioid Deaths due to COVID Related Increase in Smoking Illicit Substances (Preventing OD CRISIS)**

*Jane Buxton, Jessica Moe, Tamara Chavez*

The project implemented a novel continuous pulse oximetry monitoring protocol that better matches overdose prevention sites services (OPS) to the needs of people who smoke opioids during COVID-19 and evaluated the effectiveness, feasibility, and acceptability. The four partnering OPS from Victoria and Vancouver successfully implemented our protocol. The project improved capacity and comfort levels among peer researchers, participants, and OPS staff on using continuous pulse oximetry. Our study offers crucial lessons about engaging people with lived experience in participatory research on people who smoke opioids. We engaged people with lived experience in every aspect of the study.

### **Disinfecting effectiveness of lab-grade and household sanitizers against SARS-CoV-2 surrogate MS2 on plastic and stainless steel surfaces**

*Lin Chen, Yoyo Lee, Yvonne Ma, Sung Sik Jang, Karen Fong, Siyun Wang*

Lab-grade (n=11) and household (n=10) grade disinfectants were tested for the virucidal activities against bacteriophage MS2, a surrogate of severe acute respiratory syndrome coronavirus 2, on plastic and stainless steel surfaces. The lab-grade sanitizers containing ethanol concentrations up to 90% showed 1-2.5 log PFU/ml reductions on both surfaces, and the 70%

isopropanol and isopropanol-based formula also reduced MS2 by 0.7-1.5 log PFU/ml on both surfaces. Household sanitizers containing 1.84% or 3% sodium hypochlorite (NaClO) reduced 4.15-6.23 log PFU/ml MS2 on hard surfaces. The use of ethanol and NaClO-based product was a potential surface decontamination strategy in the food industry.

## Selected indicators of pre-pandemic health and well-being status of British Columbians

*Eugene Cheung, Rita Zhang, Drona Rasali, Rose Jose, Kate Smolina*

The poster will present data on the health and well-being status of British Columbians (aged 12+) in the pre-pandemic situation using a set of selected indicators based on the Canadian Community Health Survey. The data analysis results presented will serve as the baseline data visualization of pandemic and post-pandemic health and well-being status at a later period, when their comparable data become available.

## The 'geographic' argument for Covid-19 booster shots

*Chirag Chopra, Archit Purohit, Hillary Spencer*

Booster shots for Covid-19 are being debated around the world for use in bolstering immunity with the hopes of stagnating infection rates of the virus. The discussion has been focused around which demographic of individuals should be considered for a booster, whether it be age group or health status. We propose a BC specific argument for the strategic administration of booster shots looking at geographical location as an important variable. While certain at-risk demographics would certainly benefit from a booster shot, we present an argument for prioritizing boosters for those living in remote areas and low vaccination rates to prevent the general transmission of more transmissible variants.

## Validation and Implementation of Free-living amoeba multiplex real-time PCR

*Dylan Chow, Martin Cheung, Muhammad Morshed, Catherine Hogan*

Free-living amoebas of genus *Acanthamoeba*, *Balamuthia* and *Naegleria* are known to be causal agents of rare diseases in humans. The most common disease, *Acanthamoeba* keratitis, is inflammation of the cornea via infection with *Acanthamoeba*. We validated a real-time multiplex PCR for the detection of *Acanthamoeba* spp., *Balamuthia mandrillaris* and *Naegleria fowleri* to supplement existing culture methods, which in contrast have lower sensitivity and long incubation times. The implementation of this molecular assay provides additional diagnostic sensitivity, enhanced surveillance, and improved turnaround time for the detection these free-living amoebas.

## When Unique Identifiers Fail: Using NLP Techniques to Associate Database Records to Individuals By Name

*Kyle Clarkson, Phillip Dumitru, Chris Fjell*

Ideally, individuals within the healthcare system can be uniquely identified by using their provincial healthcare numbers (PHNs.) However as data is collected, entered, and shared by healthcare professionals, errors such as typos, misaligned delimiters, or dropped values makes relying on PHNs not always possible. We present our approach to timely group together records associated to a single patient across several million records in PLO-VER using natural language processing as well as techniques to validate the formed groups.

## Dose-Response Modeling of PSP in Humans Using Historical Case Record in BC

*Matteo Damascelli, Lorraine McIntyre, Nikita Sahaturna, Tom Kosatsky*

Paralytic shellfish poisonings (PSP) occur worldwide when shellfish contaminated with saxitoxin or equivalent analogs are ingested. We are working on modelling the relationship between toxin dose and symptoms, based on a historical record of cases in BC spanning 1940-2021, to determine the appropriateness of current regulatory limits on saxitoxin in shellfish here in Canada.

## Understanding the social and economic impacts of cervical cancer on women and children in Uganda: a protocol

*Hallie Dau, Beth Payne, Carolyn Nakisige, Heather Armstrong, Laurie Smith, Gina Ogilvie*

Cervical cancer is a leading cause of death in low- and middle-income countries. A cervical cancer diagnosis has a physical and emotional impact however the social and economic consequences are largely unknown. The overall study goal is to understand the social and economic impact of cervical cancer on women and children in Uganda. The results from this study will help identify and develop support needed for women and children affected by cervical cancer in low- and middle-income countries. This information can be used to improve cervical cancer screening programs and serve as an example for investing in resources to support global cervical cancer screening.

## The Impact of Contact Tracing on the Control of COVID-19 Outbreak in BC.

*Rebeca C. Falcao, Henry Ngo, Mike Irvine, Naveed Janjua, Michael Otterstatter*

Efficient contact tracing and broad testing along with some level



of physical distancing could mitigate the spread of COVID-19 within a context of low transmission levels. We developed a branching process transmission model to assess the impact of conventional and app-based contact tracing in conjunction with various levels of physical distancing on Covid-19 epidemic control. In this work, we took a focused local approach informing each aspect of the analysis with data from British Columbia, Canada. A package of this model can be found in <https://github.com/bcgov/epi.branch.sim>

### **Quantifying the Relationship Between SARS-CoV-2 Vaccine Breakthrough infections and the Production of Infectious Virus**

*Chad Fibke, Hind Sbihi, Agatha Jassem, Natalie Prystajek, John Tyson*

Current vaccines are effective at preventing serious illness due to SARS-CoV-2, but breakthrough infections are expected. Regardless of vaccination status, RT-PCR assays are used to detect and approximate SARS-CoV-2 RNA levels. However, RT-PCR cannot discern between infectious and non-infectious virus and methods are variable. Studies have examined the infectivity of breakthrough SARS-CoV-2 viruses, but do not adjust for important covariates, including age, sex, sampling and testing methods and lineage. Therefore, we summarize known associations to define a set of confounders that will be adjusted for when piloting a study to determine if breakthrough infections produce infectious virus.

### **Scale-up of GetCheckedOnline: Examining how public health policies impact the context for ongoing program implementation**

*Oralia Gómez-Ramírez, Kinnon R. MacKinnon, Devon Haag, Sophie Bannar-Martin, Maja Karlsson, Catherine Worthington, Mark Gilbert, Daniel Grace*

Using an institutional ethnography approach, we examined contextual factors shaping the ongoing implementation of GetCheckedOnline—BC's internet-based testing program for sexually transmitted and blood-borne infections (STBBIs). The study revealed that targeted policy premised on biomedical HIV exceptionalism such as the provincial 2012 HIV framework paradoxically opens opportunities for scale-up of STBBI programming like GetCheckedOnline while closing other possibilities over the implementation cycle. This study underscores the need for policy frameworks not to remain static, draws attention to the ways in which policy can foreclose public health service availability, and encourages ongoing critical policy scrutiny to promote change.

### **Impact of direct-acting antiviral treatment on mortality related to extrahepatic manifestations**

*Dahn Jeong, Stanley Wong, Mohammad E. Karim, Sofia Bartlett, James Wilton, Jean D. Makuza, Héctor Alexander Velásquez García, Mawuena Binka, Hasina Samji, Amanda Yu, Maria Alvarez, Mel Krajden, Naveed Z. Janjua*

Chronic hepatitis C virus (HCV) infection is associated with an increased risk of deaths related to extrahepatic manifestations (EHM). The sustained virologic response (SVR) following the highly effective direct-acting antivirals (DAA) has been linked to decreased all-cause and liver-related mortality. However, evidence on the impact of DAA on EHM-related mortality is lacking. This analysis assessed the impact of DAA treatment and SVR on reducing mortality related to EHM using a large population-based, comprehensive linked administrative data in British Columbia, Canada.

### **The 2019 HCV cascade of care for children and youth in British Columbia, Canada**

*Dahn Jeong, Margo Pearce, Amanda Yu, Laura Sauvé, Rick Schreiber, Jean D. Makuza, Prince A. Adu, Héctor Alexander Velásquez García, Sofia Bartlett, Hasina Samji, Mawuena Binka, Jane Buxton, David Goldfarb, Chelsea Elwood, Stanley Wong, Maria Alvarez, Neora Pick, Naveed Z. Janjua*

Canadian children and youth are at risk from HCV through a few mechanisms. About 3,500 women in Canada with chronic HCV deliver babies each year and vertical transmission can occur among 5-10% of deliveries. Other sources of risk include immigrating to Canada from HCV endemic countries, having parents who are living with HCV, being street-involved, and using substances without adequate harm reduction supports. Monitoring of HCV services use among this population is essential to support Canada's hepatitis elimination goals. We constructed the HCV cascade of care for children and youth living with HCV in British Columbia in 2019.

### **Identification of SARS-CoV-2 Mutational Profiles Associated with Breakthrough Infections**

*Yayuk Joffres, Chad Fibke, Natalie Prystajek, John Tyson, Linda Hoang, Naveed Janjua, Mel Krajden, Hind Sbihi*

COVID-19 vaccination is a key tool in the pandemic response. However, the emergence of new variants may undermine the efficacy of current vaccines. Mutations in the Spike protein, such as E484K, have been associated with lower vaccine effectiveness. Therefore, we defined a subset of 29,080 samples with 639 breakthrough infection and 2079 distinct spike mutation profiles, which would challenge traditional statistical analysis.

We investigate penalized logistic regression's ability to select mutation profiles associated with breakthrough infections. Identification of breakthrough mutation profiles will help aid future vaccine development and vaccination campaigns.

## Replicative Fitness of SARS-CoV-2 Variants

*Samantha Kaweski, Martin Petric, Paul Levett*

Multiple lineages of SARS-CoV-2 have arisen since the initial spread of the virus in early 2020. Successive variants have replaced the original wild type of SARS-CoV-2. One hypothesis for the rapid spread of variants is that they have better replicative fitness, allowing faster growth to higher titres than wild-type virus in infected tissues. We have cultured samples from patients infected with each new variant of concern and local variants of interest in British Columbia. We performed growth curve experiments on viral isolates and wild-type virus. Our data suggest that SARS-CoV-2 variants do not show substantial differences in their growth in cell culture compared to the wild-type virus.

## Vital-E

*Afraz Khan, Catherine Hogan, Hind Sbihi, Mike Irvine, Naveed Janjua, Linda Hoang*

Monitoring cycle threshold (Ct) values as a proxy for SARS-CoV-2 viral load and infectiousness may be a useful approach to guide public health decision-making. This is particularly important in the context of the recent Delta Variant emergence. In this study, we investigated the distribution of SARS-CoV-2 Ct values of vaccinated and unvaccinated individuals in British Columbia over the 3rd phase of the pandemic on a sample of 6,226 nasopharyngeal swabs positive for SARS-CoV-2. We demonstrate that the highest viral burden occurred in infections with the Delta Variant, and in unvaccinated individuals. These findings highlight the potential of COVID-19 vaccination to reduce onward transmission.

## ProbeTools: User-friendly hybridization probe design for hypervariable viral taxa

*Kevin Kuchinski, Jun Duan, Chelsea Himsworth, William Hsiao, Natalie Prystajeky*

Hybridization probes are commonly used to enrich viral genomes for sequencing, which is necessary for high-throughput applications. Designing hybridization probes for viral taxa can be difficult, however, due to extensive hypervariability caused by adaptation to new hosts and antigenic drift. ProbeTools applies a heuristic k-mer clustering approach to facilitate the probe design process. We used ProbeTools to design a panel of probes for capturing avian influenza viruses (AIVs). Our panel provided broadly inclusive capture across all AIV subtypes, demonstrated *in silico* on tens-of-thousands of reference sequences and *in vitro* on a representative collection of 22 egg-cultured viral isolates.

## Role of Cellular Autophagy (“Self-eating”) in the Activity and Therapeutic Efficacy of Novel Site-Specific Immunomodulators”

*Martin Kwok, Shirin Kalyan, Mark Bazett, Ezra Kwok, Vikramaditya G. Yadav, Marko Kryworuchko*

Immune cell dysfunction and chronic inflammation are etiologically-associated with the pathology of inflammatory bowel disorders, as well as certain cancers and persisting infections (eg. HIV). Recently, a series of novel, microbe-derived, Site-Specific Immunomodulators (SSIs; Qu Biologics) have been described to strategically repurpose the immune response to exert therapeutic effects at specific sites of pathology. Such therapeutic effects have been observed in animal models and patients with ulcerative colitis and lung cancer for eg. The mechanism for these effects and their organ/site-specific nature are poorly understood. Our results suggest that SSIs may act, at least in part, through t

## Elucidating Determinants of Respiratory Health by Virome Assessment

*ang Fang Li, Citlali Marquez, Jun Duan, Jessica Caleta, Catherine Burton, Theo Moraes, Piush Mandhane, Natalie Prystajeky, Agatha Jassem*

Respiratory health is indelibly linked to the wellbeing of society. Asthma one of the leading causes of hospitalizations and school absences in school-aged children while sleep disordered breathing has been linked with attention deficit hyperactivity disorder and poor academic performance. Interestingly, previous studies have observed either increased protection or increased risk with specific viral infections in childhood. We will use VirScan, a comprehensive antibody profiling platform, to survey a birth cohort and identify all previous viral infections. We will then correlate findings with clinical outcomes to identify patterns of protection or risk to inform public policy and research.

## What Meaningful Engagement Looks Like: Perceptions of Peer Research Assistants involved in the Peer2Peer Project

*Zahra Mamdani, Jantzen Fan, Jane A. Buxton*

The Peer2Peer Project is aimed at identifying, designing, implementing and evaluating support interventions for peer workers in overdose response settings. A key tenet of this project is the meaningful engagement of peer workers. The project team consists of academic researchers and peer research assistants (PRAs) who are representatives with lived/ living experience of substance use from each of the pilot sites. In this presentation, we will share the results of a qualitative evaluation to assess the benefits, challenges and impact of peer engagement on the PRAs involved in the Peer2Peer Project, and highlight what PRAs described as meaningful engagement



## COVID-19 Consent to Contact Registry

*Abdullah Mamun, Chau Chin Yo, Joel Cheung, Isaac Clark, David Patrick*

The COVID-19 Consent to Contact Registry Database (CCRD) contains the contact details of people who have previously tested positive for COVID-19 and have given their consent to be contacted about related research. Qualified B.C. researchers can access the registry and connect with participants about research opportunities across the province.

## Dried Blood Spots to Measure SARS-CoV-2 and Endemic Human Coronavirus Seroreactivity

*Aidan Nikiforuk, Citlali Marquez, Brynn Millan Bonny So, Ella Chan, Agatha Jassem and the COVID-19 Immunity Task Force*

Dried blood spot collection offers a cheap and easily scaled means to measure SARS-CoV-2 seroreactivity from natural infection or immunization. We validated the performance of dried blood spot collection in a cross-sectional serological survey within British Columbia and report the diagnostic accuracy. Dried blood spot collected samples resulted by an electrochemiluminescence assay reliably detect SARS-CoV-2 antibodies against the viral Spike and Nucleocapsid proteins. Dried blood spot collected samples should be considered a valid alternative to serum from venipuncture to measure SARS-CoV-2 antibodies.

## Correlations of COVID-19 incidence with neighborhood socio-demographic factors in British Columbia Lower Mainland

*Drona Rasali, Crystal Li, Sunny Mak, Younathan Abdia, Cara McLean, Caren Rose, Naveed Janjua, Eleni Galanis, David Patrick*

This study aims to assess the relationships of the proportions of neighborhood level socio-demographic factors- race/ethnicity, level of education and occupations with COVID-19 incidence rate. Data on 81,426 confirmed COVID-19 cases collected from BC's Lower Mainland between August 1, 2020 and April 7, 2021 were analyzed. The Kendall's correlations of neighborhood concentrations of certain minority groups, low education level and occupations in trades and essential services with the incidence rate were significant indicating disparities in exposure to the infection.



## Promoting vaccine confidence in Provincial Correctional Centres: co-developing strategies with people who are incarcerated

*Julia S Parrilla, Diana Zohdy, Jane Buxton, Sofia Bartlett*

People who experience criminalization are more likely to acquire COVID-19, be hospitalized for it, and die from it. Vaccinations have been proven to significantly mitigate adverse outcomes. However, vaccine acceptance among people who are criminalized is low. We are conducting an integrated knowledge translation study with people who are incarcerated to co-create peer education strategies that promote vaccine confidence."

## SARS-CoV-2 vaccine effectiveness in British Columbia, Canada

*Solmaz Setayeshgar, Danuta M Skowronski, Macy Zou, Natalie Prystajecy, John R Tyson, Hind Sbihi, Chris D Fjell, Eleni Galanis, Monika Naus, David M Patrick, Shiraz El Adam, May Ahmed, Shinhye Kim, Bonnie Henry, Linda M N Hoang, Manish Sadarangani, Agatha N Jassem, Mel Krajden*

Utilizing the provincial immunization registry, notifiable disease list and database that captures nucleic acid amplification test results for SARS-CoV-2 testing in British Columbia (BC), we assessed COVID-19 vaccine effectiveness (VE) in community-dwelling residents of BC. VE was estimated by test-negative design, using multivariable logistic regression to derive the adjusted odds ratio for vaccination among SARS-CoV-2 test-positive cases versus test negative controls. Our stratified analysis include VE by outcome (including infection and hospitalization), vaccine type, age group, variant of concern (including delta), duration since vaccination, and interval between two doses.

## Exploring the link between sedentary behaviour and mental health outcomes in British Columbian youth during the COVID-19 pandemic.

*Akash Sharma, David Long, Hasina Samji*

Studies have shown that increased sedentary behaviour in youth is related to an increase in adverse mental health outcomes, but evidence of this effect during the COVID-19 pandemic is limited. With the large-scale adoption of online schooling due to COVID-19 in many regions, youth may be facing increased sedentary behaviour resulting in increased adverse mental health outcomes. This study, a comprehensive self-reported survey of social and emotional development, health, and well-being of participating British Columbia Grade 11 students, aims to elucidate the relationship between sedentary behaviour and mental health outcomes to inform future research and policy implementation.

## A Machine learning predictive model for overdose

*Andy Man Yeung Tai, Alireza Kazemi, Amanda Slaunwhite, Kerry Jang, Michael Reinhard Krausz*

Comorbidities among people who use drugs (PWUD) are significantly hard to weigh, and identify. Our aim is to create and validate an analytical predictive model that can predict the likelihood of fatal overdose among PWUD in BC.

## The Application of Machine Learning and Predictive Modelling to Understand Risk of Overdose (A preliminary model)

*Andy Man Yeung Tai, Alireza Kazemi, Amanda Slaunwhite, Kerry Jang, Michael Reinhard Krausz*

In April 2016, British Columbia declared a public health emergency under the Public Health Act in response to increasing non-fatal and fatal overdose events in the province. Overdose remains a significant public health challenge. In 2020, 5.5 people died from illicit drug overdoses every day. Despite previous research that has identified risk factors for overdose, there is limited knowledge on their potential to predict fatal opioid overdose events. In this poster, we will describe the application of these machine learning methods to create two preliminary models to predict fatal overdose using data from the BC Provincial Overdose Cohort.

## Persistence of Anti-SARS-CoV-2 Antibodies in Long Term Care Residents Over Seven Months After Two COVID-19 Outbreaks

*Guadalein Tanunliong, Aaron Liu, Rohit Vijh, Tamara Pidduck, Jesse Kustra, Citlali Marquez, Alexandra Choi, Meghan McLennan, Althea Hayden, Christy Kearney, Soren Gantt, Mel Krajden, Muhammad Morshed, Agatha Jassem, Inna Sekirov*

The COVID-19 pandemic remains a public health challenge worldwide, and there is a paucity of evidence investigating the long-term durability of SARS-CoV-2 antibodies in high-risk populations, such as the elderly. We evaluated the antibody responses to SARS-CoV-2 and endemic human coronaviruses in long term care residents following two COVID-19 outbreaks in the same facility, seven months apart. Our findings support and expand on current knowledge, and can help guide public health measures and vaccine implementation guidelines.

## Geographic Distribution of Conversion Therapy in Canada

*Amrit Tiwana*

Sexual orientation or gender identity or expression change efforts (SOGIECE), also known as “conversion therapy”, refers to any practice designed to change, deny, or discourage one’s feelings of sexual attraction to members of the same gender; lesbian, gay, bisexual, transgender, and/or queer (LGBQ) identity; non-conforming gender expression; or gender identity that differs from sex at birth. The objective of the research is to conduct a geospatial analysis tracking the location of conversion therapy practices in Canadian provinces, territories, and municipalities. Findings will help inform policies to eliminate these discredited practices harming thousands of LGBTQ2S+ individuals.

## 2000-2015 NAFLD Incidence and Prevalence Trends in British Columbia

*Héctor Alexander Velásquez García, Stanley Wong, Prince A. Adu, Mawuena Binka, Mohammad Karamouzian, Dahn Jeong, Jean D. Makuza, Amanda Yu, Maria Alvarez, Sofia Bartlett, Mel Krajden, Alnoor Ramji, Naveed Z. Janjua*

This study provides population-based evidence of the increasing burden of NAFLD in BC, irrespective of gender or location of residence. However, administrative data may underestimate the overall burden of NAFLD. NAFLD is a growing public health problem requiring further attention and research initiatives.

## Developing Multiplex PCR Set Targeting Five Pathogens for Improved Tick-Borne Disease Surveillance

*Kathy Wong, Min-Kuang Lee, Navdeep Chahil, Muhammad Morshed*

As climate change creates favourable environmental conditions for ticks in Canada, spread of tick-borne diseases (TBD) into British Columbia is a major concern. The current tick surveillance in-house qPCR assay at BCCDC Public Health Laboratory can detect Lyme disease, Anaplasmosis, and Ehrlichiosis. This study aims to add two new targets for detection of *Rickettsia rickettsii* and *Babesia microti* to the current tick surveillance qPCR assay. By including *R. rickettsii* and *B. microti*, the causative agents of Rocky Mountain Spotted Fever and Babesiosis respectively, a single assay will be able to detect five most common TBDs found in North America and increase TBD surveillance in B.C.

