Annual General Meeting

Ottawa, Ontario
Monday April 24th, 2023

Meeting Contributors

CIRN Management Committee

Dr. Scott Halperin, NPI
Dr. Julie Bettinger
Dr. Joanne Langley
Dr. Manish Sadarangani
Dr. Shelly McNeil
Dr. Melissa Andrew
Dr. Karina Top
Dr. Juthaporn Cowan
Dr. Eve Dubé
Dr. Shannon MacDonald
Dr. Jeff Kwong
Dr. Shelly Bolotin
Dr. Todd Hatchette
Dr. Marc Brisson
Dr. Jane Heffernan
Dr. David Scheifele
Dr. Mark Loeb
Dr. Philippe De Wals
Dr. Gaston De Serres
Dr. Brian Ward

Management Support

Allison Young
Jenna Hastings
Min Chen

The CIRN Network Management Office would also like to acknowledge and thank the Canadian Public Health Association for their assistance in coordinating this event. We are very grateful to Sarah Pettenuzzo and Alexie Arsenault for their support throughout this process.

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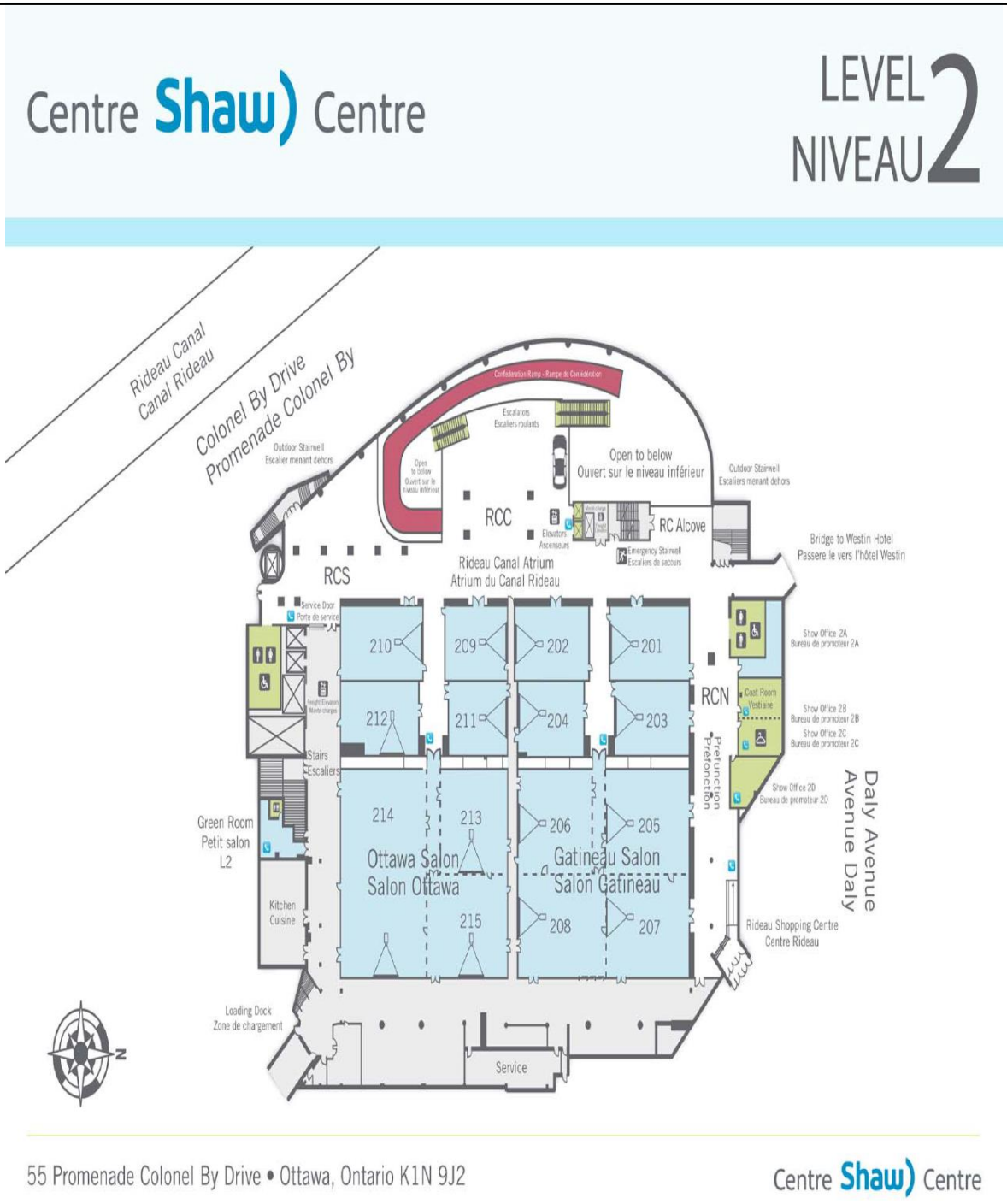
Agenda

MONDAY APRIL 24th			
Time	**Activity or Presentation**	**Presenter**	**Place**
07:00-08:30	*CIRN AGM Registration* ***All presenters must provide a USB stick with their final slide presentation in PPT format upon registration***	Allison Young/Jenna Hastings	Shaw Centre Room 208
08:00-09:00	***Breakfast***		***Room 207***
09:00-09:05	Welcome	Scott Halperin	Room 208
09:05-09:25	*Revaccination outcomes among individuals aged 12+ with suspected hypersensitivity reactions following SARS-CoV-2 vaccination: A Canadian Special Immunization Clinic (SIC) Network study*	Tiffany Fitzpatrick	
09:25-09:45	*Modelling Immunity*	Jane Heffernan	
09:45-10:05	*A shot in the arm: the evidence and gaps regarding the role of pharmacy technicians in vaccination services*	Mathew DeMarco	
10:05-10:25	***Break – Light Refreshment***		***Room 207***
10:25-10:45	*Influenza vaccine responses in older adults: a matter of chronological age, biological age or both?*	Chris Verschoor	Room 208
10:45-11:05	*Measurement of Population-Level Measles Immunity in Ontario Using Serology Data Linked to Health Administrative Data*	Archchun Ariyarajah	
11:05-11:25	*COVID-19 vaccine intentions of migrant South Asian mothers in the Fraser Valley, BC*	Ashleigh Rushton	
11:25-11:45	*Limited benefit from indirect impact of childhood 13-valent pneumococcal conjugate vaccine (PCV13) for Canadian older adults*	Shaza Fadel	
11:45-12:30	*Poster Presentation Session*	Poster presenters	
12:30-13:30	***Lunch Buffet***		***Room 207***
13:30-13:50	*The good, the bad, and the ugly: A Qualitative Evaluation of Web-based COVID-19 Vaccine Communication in Canada*	Michelle Driedger	Room 208
13:50-14:10	*Description of Vaccine+, a co-created strategy to increase vaccine confidence in Long-Term Care and Retirement Homes (LTCH and RH)*	Christine Fahim	
14:10-14:30	*Pediatric respiratory syncytial virus hospitalizations, 2017 to 2022, the Canadian Immunization Monitoring Program Active (IMPACT)*	Malou Bourdeau	
14:30-14:50	***Break – Light Refreshment***		
14:50-15:10	*Covid-19 vaccine uptake among pregnant Ontario residents in 2021: Preliminary descriptive findings*	Devon Greyson	Room 208
15:10-15:30	*Identifying Gaps in Resources for Parent-Provider Vaccine Communication in Pregnancy in Canada, with an Interest on the BIPOC Population: A Scoping Review*	Monica Surti	
15:30-15:50	*Keeoukaywin (Visiting) with HPV-related Cancer Prevention: Métis wellness research in action.*	Keith King	
15:50-16:00	Closing Remarks	Scott Halperin	
18:30 – 20:30	***CIRN Social Hour***		**Lowertown Brewery** **73 YORK STREET**

Floor Map: Shaw Centre



ORAL PRESENTATION

Fitzpatrick, Tiffany
Public Health Ontario, Health Protection Department

SPECIAL IMMUNIZATION CLINIC NETWORK: REVACCINATION OUTCOMES AMONG INDIVIDUALS AGED 12+ WITH SUSPECTED HYPERSENSITIVITY REACTIONS FOLLOWING SARS-CoV-2 VACCINATION

AUTHORS: Tiffany Fitzpatrick[1,2], Gina Lacuesta[3], Manish Sadarangani[4], Victoria Cook[5], Persia Pourshahnazari[6], Chrystyna Kalicinsky[7], Julia Upton[8], Scott Cameron[5], Karver Zaborniak[7], Amin Kanani[6], Godfrey Lam[5], Kyla Hildebrand[5], and Karina A. Top[1], on behalf of the Special Immunization Clinic (SIC) Network investigators

AFFILIATION: 1. Canadian Center for Vaccinology, IWK Health and Dalhousie University; Halifax, Nova Scotia 2. Public Health Ontario; Toronto, Ontario 3. Halifax Allergy and Asthma Associates, Dalhousie University; Halifax, Nova Scotia 4. Division of Infectious Diseases, Department of Pediatrics, Faculty of Medicine, University of British Columbia; Vancouver, British Columbia 5. Division of Allergy and Immunology, Department of Pediatrics, Faculty of Medicine, University of British Columbia; Vancouver, British Columbia 6. Division of Allergy and Immunology, Department of Medicine, University of British Columbia; Vancouver, British Columbia 7. Section of Allergy and Clinical Immunology, Department of medicine, University of Manitoba; Winnipeg, Manitoba 8. Division of Immunology and Allergy, Department of Pediatrics, The Hospital for Sick Children; Toronto, Ontario

INTRODUCTION: Individuals with suspected hypersensitivity to COVID-19 vaccines may benefit from specialized assessment to provide recommendations for revaccination. Infectious disease physicians and allergists in the Special Immunization Clinic (SIC) Network developed standard protocols for evaluating and revaccinating such patients.

METHODS: We included all individuals aged 12+ years enrolled at participating SICs prior to May 1, 2022 whose final diagnosis was a hypersensitivity reaction following COVID-19 vaccination. De-identified clinical assessments and revaccination data, captured in a centralized database, were analyzed.

RESULTS: 165 individuals were referred from 12 sites for suspected hypersensitivity reactions. 125/165 (75.8%) had final diagnoses of hypersensitivity; 21/165 received diagnoses of non-allergic events, e.g., immunization stress-related responses (18/21, 85.7%). Four additional participants suspected to have another type of adverse event received a final diagnosis of hypersensitivity. Non-anaphylactic immediate (<4 hours) hypersensitivity reactions were most common (54/129, 41.9%), followed by suspected anaphylaxis (35/129, 27.1%) and delayed onset urticaria/angioedema (25/129, 19.4%). 61 (47.3%) participants underwent allergy skin testing; 7 (11.5%) tested positive to COVID-19 vaccines (or components), with BNT162b2 mRNA vaccine (3/7, 42.9%) and polyethylene glycol (2/7, 28.6%) allergies being most common. 110 (85.3%) participants were revaccinated; 59 (53.6%) received graded doses. In all, 33 (30.0%) experienced another adverse event; 25 (75.8%) were recurrent hypersensitivity reactions. Of these, 24/25 (96.0%) were of lesser or similar severity; one was higher severity but was non-serious. Among participants with positive allergy skin tests, 6/7 (85.7%) were revaccinated, primarily via 5-step dosing (4/5, 80%). 5/6 (83.3%) experienced another hypersensitivity event; none were serious.

CONCLUSIONS: Most individuals in this national cohort who experienced a suspected hypersensitivity event following COVID-19 vaccination were safely revaccinated. This work provides evidence demonstrating specialist evaluation and revaccination in a controlled setting can facilitate safe revaccination.

ORAL PRESENTATION

Heffernan, Jane
Professor,
York University

MODELING AND ECONOMICS RESEARCH NETWORK: MODELLING IMMUNITY

AUTHORS: Jane Heffernan

AFFILIATION: York University

INTRODUCTION: Mathematical models of infection or vaccination have been used to study immune activation and the development of memory against COVID-19 infection and severe disease. The models are used to quantify protective capacity and determine when booster doses of vaccines are needed. The results are also used to inform mathematical models of immunity distributions in the Canadian population, by age, which are used to inform decision-makers on healthcare capacity requirements and priority groups for vaccination campaigns.

METHODS: Mathematical models of vaccination and infection in-host are developed. The models consist of systems of ordinary differential equations. The models are fit, using hierarchical mixed modelling, to infection and vaccination data from the literature and collaborators, including vaccine clinical trials and immunity studies from the COVID-19 Immunity Task Force.

RESULTS: Briefly, concerning infections, we find that mild infections are shorter in duration than moderate infections, and moderate infections are shorter in duration than severe infections. We also find that immune system memory development is lower after a mild infection compared to a moderate infection, and lower after moderate infection compared to severe infections. The models show that immunity gained from infection can decay to 75% of peak levels in 3 to 6 months.

Concerning vaccination, we find that antibody levels decay to 75% of peak levels over 4-9 months, depending on the vaccine type (i.e., mRNA (Pfizer, Moderna), protein subunit, adenovirus (Astrazeneca)).

Immunity distributions against infection and severe disease are informed by the in-host modelling studies. The distributions change over time, given infection, vaccination, and the waning of immunity. Current immunity distributions are do not provide high levels of protection against infection, but we find that current healthcare capacity levels suffice provided current protective capacity against severe disease.

CONCLUSIONS: Mathematical models can quantify the outcomes of immunity generation from infection and vaccination. Model results help to inform public health vaccination campaigns, and healthcare demand.

ORAL PRESENTATION

DeMarco, Mathew
Graduate Student,
University of Waterloo

A SHOT IN THE ARM: THE EVIDENCE AND GAPS REGARDING THE ROLE OF PHARMACY TECHNICIANS IN VACCINATION SERVICES

AUTHORS: Mathew J. DeMarco PharmD, Caitlin A. Carter BA, MLIS, Liaison Librarian, Sherilyn K.D. Houle, BSP, PhD, Associate Professor, Nancy M. Waite, PharmD, Professor

AFFILIATION: University of Waterloo

INTRODUCTION: Busy pharmacy workloads and competing clinical priorities limit a pharmacist's ability to meet the needs of vaccine-willing patients and contribute to missed opportunities with vaccine-hesitant individuals. No prior research has identified the evidence and gaps regarding pharmacy technician roles in vaccination services. This research reviews the research regarding the role of pharmacy technicians in vaccination services.

METHODS: In compliance with PRISMA scoping review protocols, systematic searches were performed in PubMed, Embase, International Pharmaceutical Abstracts, Scopus, and CINAHL. Data extraction of included study methodologies and results was performed by one reviewer and verified by a second reviewer. A summary of evidence and gaps regarding pharmacy technician roles and impacts on pharmacy professionals' training, workflow, and patient outcomes was created.

RESULTS: Full-text screening of 145 relevant records identified 14 articles for inclusion. Most articles evaluated emerging pharmacy technician roles in patient screening (n = 8, 53%) and vaccine administration (n = 5, 36%). Pharmacy technician vaccine screening roles included identifying eligible patients using electronic medical records and vaccine registries. Vaccine administration roles included vaccine handling and storage, choosing the correct needle and syringe, drawing up vaccine, vaccine administration, responding to emergency situations, and completing required documentation. Pharmacists and technicians advocated for accredited vaccine administration training owing to consistent benefits in pharmacy workflow efficiency, pharmacist clinical time availability, and pharmacy technician job satisfaction. Implementation of emerging roles demonstrated positive patient outcomes (n = 10, 72%). Research gaps included no or limited research on the impact of pharmacy technicians' involvement on vaccination workflow, pharmacy efficiency, adverse events, and cost-effectiveness.

CONCLUSIONS: This review supports deployment of pharmacy technicians in delivering vaccination services with demonstrated evidence of their emerging role in vaccination services. Future research will be important for advocacy work with policy makers, pharmacy managers and pharmacy staff.

ORAL PRESENTATION

Verschoor, Chris
Assistant Professor,
Health Sciences North
Research Institute

INFLUENZA VACCINE RESPONSES IN OLDER ADULTS: A MATTER OF CHRONOLOGICAL AGE, BIOLOGICAL AGE OR BOTH?

AUTHORS: Chris P. Verschoor, George A. Kuchel, Melissa K. Andrew, Daniel W. Belsky, Laura Haynes, Mark Loeb, Graham Pawelec

AFFILIATION: Health Sciences North Research Institute, Sudbury, ON

INTRODUCTION: It is well established that with age the likelihood of generating strong antibody and cellular immune responses to vaccination is reduced. While chronological age is undoubtedly a critical component of this risk, the role of overall health status requires further study. Aspects of poor health such as multimorbidity, functional dependence, and mental illness, and physiological manifestations such as chronic inflammation are known to contribute to reduced resilience in the face of pathogenic stressors, elevating what is commonly referred to as biological age.

METHODS: Using data and biospecimens from a previous randomized trial comparing the immunogenicity of standard and high-dose influenza vaccines (Fluzone, Sanofi) in adults over 65, we sought to determine the correlation between biological age and influenza vaccine responses, and whether these trends were similar to that observed for chronological age; specifically, we investigated frailty and biological age estimated using data from soluble blood biomarkers.

RESULTS: In contrast to chronological age, hemagglutination inhibition antibody responses tended to improve with increasing frailty and biological age, but only in recipients of the high-dose influenza vaccine (Fluzone) and more commonly for those that were cytomegalovirus (CMV) positive. Further, pre-vaccination levels of chronic inflammation (plasma TNF and IL-6) and $CD56^{dim}CD57^{+}ILT2^{+}$ NK-cells emerged as potential mediating factors.

CONCLUSIONS: Our findings suggest that biological age may not be a ubiquitous detriment to vaccine-mediated protection as often observed for chronological age. Further study is needed to pinpoint exact mechanisms of our findings and how they align with the response to other types of vaccines.

ORAL PRESENTATION

Ariyarajah, Archchun
Graduate Student,
University of Toronto

MEASUREMENT OF POPULATION-LEVEL MEASLES IMMUNITY IN ONTARIO USING SEROLOGY DATA LINKED TO HEALTH ADMINISTRATIVE DATA

AUTHORS: Archchun Ariyarajah,[1,2] Natasha Crowcroft,[1,2,3] Kevin Brown,[1,4,5,] Jeff Kwong,[1,2,4,5] Shelly Bolotin[1,2,4]

AFFILIATION: [1]Dalla Lana School of Public Health, University of Toronto [2]Centre for Vaccine Preventable Diseases, University of Toronto [3]Immunization, Vaccines and Biologicals, World Health Organization [4]Public Health Ontario [5]Institute for Clinical Evaluative Sciences

INTRODUCTION: Preventing measles outbreaks requires ≥95% of the population to be immune. Canada eliminated measles in 1998, but risk of importation persists. Immunity can be acquired through previous infection or vaccination with measles-containing-vaccine (MCV). We aimed to measure the proportion of individuals with measles IgG antibodies above the threshold of protection in Ontario populations.

METHODS: We linked measles IgG test results (2014-16) from Public Health Ontario laboratories to health administrative databases at ICES to obtain sociodemographic and immigrant (available as of 1985) information.

RESULTS: We included 349,706 individuals tested for measles IgG, among whom 83.4% (95% confidence interval (CI) 83.2-83.5%) had measles IgG above the threshold of protection (275 mIU/mL). Measles IgG seroprevalence was comparable by sex and immigrant status, but not birth year. Individuals born before 1970, who are presumed to be immune through previous infection, had a seroprevalence of 94.9% (95%CI 94.8-95.1). Comparatively, individuals born in 1970-1976 (one-dose MCV eligibility), 1977-1991 (one-dose MCV eligibility with catch-up for second dose), 1992-1997 (two-dose MCV eligibility), and 1998-2016 (elimination setting) had a seroprevalence of 85.2% (95%CI 84.9-85.6), 80.2% (95%CI 80.0-80.4), 74.6% (95%CI 74.2-74.9), and 74.3% (95%CI 73.7-74.9), respectively. Immigrant status appears to interact with birth year. Among individuals born in 1970-1976, immigrants (arrival ≥1985) had a higher seroprevalence of 91.3% (95%CI 90.9-91.7) compared to 81.4% (95%CI 80.9-81.8) among non-immigrants and immigrants (arrival <1985). Among individuals born in 1998-2016, immigrants had a lower seroprevalence of 65.2% (95%CI 63.8-66.5) compared to 77.3% (95%CI 76.6-77.9) among non-immigrants.

CONCLUSIONS: These results suggest that the proportion of Ontarians adequately protected by measles IgG is below the herd immunity threshold, meaning that endemic transmission could be re-established. Older individuals may have acquired a more robust immunity through previous infection, compared to vaccine-induced immunity in younger individuals, which appears to be waning. These results characterize the measles immunity profile of the Ontario population and may inform modification to the current vaccination schedule to sustain measles elimination.

ORAL PRESENTATION

Rushton, Ashleigh
Post-Doctoral Fellow,
University of Fraser Valley

COVID-19 VACCINE INTENTIONS OF MIGRANT SOUTH ASIAN MOTHERS IN THE FRASER VALLEY, BC

AUTHORS: Dr Ashleigh Rushton, Kamal Sidhu, Dr Kusum Soni and Dr Cindy Jardine

AFFILIATION: University of The Fraser Valley

INTRODUCTION: The impact of the pandemic has been particularly severe for South Asian mothers in Canada, as South Asian women have also had a higher risk for contracting COVID-19 (estimated to be 5 to 10 times higher compared to white Canadians). It is documented that in 2020, 82% of South Asian people were willing to receive the COVID-19 vaccine, compared to 76.9% of the overall Canadian population. However, since the roll out of the Canadian COVID-19 immunization program, there has been limited information available on migrant South Asian mother's perception of COVID-19 risk, their COVID-19 vaccine intentions and vaccine information requirements. This research is examining the intersections of migration, ethnicity (South Asian heritage), gender (women) and age (mothers with young children) to contribute to the literature on the gendered dimensions of vaccine willingness.

METHODS: The research is being conducted in the Fraser Health Region of BC, where nearly 1 in 8 residents identify as South Asian. To date, we have conducted interviews with 24 migrant South Asian mothers and ten service providers who support this population.

RESULTS: Preliminary research outcomes show that most participants welcomed the opportunity to receive the primary doses of the COVID-19 vaccine. However, many voiced a reluctance to receive a booster and are hesitant to receive additional COVID-19 vaccines. Hesitancy often related to negative changes in menstruation as participants commented on increases in pain, bleeding and fatigue and/or feeling that they are fully protected against COVID-19 and therefore feel little need for additional vaccination. Primary healthcare providers, such family doctors were the principal source of information on COVID-19 immunization for participants. However, in some instances participants relied on receiving information from their wider family members and community, sometimes relatives and friends from their country of origin.

CONCLUSIONS: Participant's vaccine intentions were shaped by seeking overall health and wellbeing and in many cases additional COVID-19 vaccines were viewed as unnecessary and/or were considered to compromise wellbeing.

ORAL PRESENTATION

Fadel, Shaza
Assistant Professor,
University of Toronto

LIMITED BENEFIT FROM INDIRECT IMPACT OF CHILDHOOD 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) FOR CANADIAN OLDER ADULTS

AUTHORS: Sharifa Nasreen,[1,2,3] Jun Wang,[3,4] Fawziah Marra,[5*] Jeffrey C Kwong,[1,2,3,4,6,7] Allison McGeer,[1,2,8,9,10] Manish Sadarangani,[11,12] Sarah E Wilson,[1,2,3,4] Shaza A Fadel[1,2*]

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INTRODUCTION: Immunization of older adults is a key cornerstone in Canadian Healthy Aging strategies that promote equitable wellness and prevention opportunities. To define our progress and gaps in a Canadian context, we developed an interdisciplinary network of researchers and trainees taking a life course lens to research healthy aging and immunization, with pneumococcal vaccination in older adults as entry focus.

Despite the National Advisory Committee on Immunization's (NACI) recommendations, only 55% of Canadian adults 65 and older surveyed by the Public Health Agency of have been vaccinated to prevent pneumococcal disease. Individual level vaccination coverage data continue to be gap. Older adults have benefitted from community protection provided by childhood pneumococcal vaccination programs, reducing severe outcomes such as hospitalization for invasive pneumococcal disease (IPD) and pneumonia. Highlighting one of the network's collaborative projects, we sought to measure indirect impact of childhood pneumococcal conjugate vaccination (PCV) programs eight years after implementation in British Columbia and Ontario.

METHODS: We extracted monthly IPD and pneumonia cases from laboratory and health administrative databases between January 2005 and December 2018. Using a quasi-experimental difference-in-differences design, we calculated the relative risk ratio (RRR) using incidence rates of IPD or pneumonia cases before (pre-PCV13 period) and after (PCV13 period) 2010 with rates of fractures as controls.

RESULTS: The rates of all hospitalized IPD in Ontario for older adults did not change eight years after childhood PCV13 program implementation. In BC, the rates of IPD caused by unique serotypes covered by the 23-valent pneumococcal polysaccharide vaccine (RRR 1.66, 95% CI 1.13, 2.45), and non-vaccine serotype (RR 2.94, 95% CI 1.79, 4.83) increased significantly. In contrast, the rates of PCV7 IPD decreased (RRR 0.46, 95% CI 0.27, 0.80). Pneumonia increased in both Ontario (RRR 1.48, 95% CI 1.25, 1.75) and BC (RRR 1.18, 95% CI 1.10, 1.26).

CONCLUSIONS: Childhood pneumococcal vaccination has provided some indirect community protection to adults; however, serotype replacement has resulted in a continued high burden of pneumococcal disease in older adults

ORAL PRESENTATION

Driedger, Michelle
Professor,
University of Manitoba

THE GOOD, THE BAD AND THE UGLY: A QUALITATIVE EVALUATION OF WEB-BASED COVID-19 VACCINE COMMUNICATION IN CANADA

AUTHORS: Michelle Driedger, Gabriela Capurro, Cynthia Jardine, Jordan Tustin

AFFILIATION: University of Manitoba, University of the Faser Valley, Toronto Metropolitan University

INTRODUCTION: Web-based information about vaccines can affect individuals' decision-making and increase vaccine uptake. Poor website accessibility and usability can create barriers to the equitable distribution of vaccines. We examine how people in Canada interact with official COVID-19 vaccine websites and how they use the information they find to inform their choices regarding COVID-19 vaccinations.

METHODS: Our analytic focus is how individuals navigate, comprehend, and respond to the information on seven COVID-19 public health websites concerning their needs, questions, and concerns. We conducted interviews with 50 individuals following a talk-aloud (also called 'think-aloud') method, during which they navigated specific websites and attempted to find information on various aspects of COVID-19.

RESULTS: We found that website users' experience is affected by the amount and quality of the information provided and by expert endorsement, acknowledgement of scientific uncertainty, responding to myths and rumours, and website design. Notably, when people become frustrated with a website, they are most likely to look for the information elsewhere, including online searches and social media, where they may encounter misinformation.

CONCLUSIONS: When people become frustrated with a website, they are most likely to look for the information elsewhere, including online searches and social media, where they may encounter misinformation. These findings highlight the need for health authorities to prioritize web-based communication to meet the information needs of their audience.

ORAL PRESENTATION

Fahim, Christine
Associate Scientist,
St. Michael's Hospital, Unity Health Toronto

DESCRIPTION OF VACCINE+, A CO-CREATED STRATEGY TO INCREASE VACCINE CONFIDENCE IN LONG-TERM CARE AND RETIREMENT HOMES (LTCH AND RH)

AUTHORS: Dr. Christine Fahim, Dr. Sharon Straus, Jamie Boyd, Claire Gapare

AFFILIATION: Unity Health Toronto

INTRODUCTION: The COVID-19 pandemic has disproportionately affected Long Term Care and Retirement Homes (LTCHs & RHs) in Canada. We describe our process of developing and disseminating the Vaccine+ intervention to promote COVID-19 vaccine confidence among Ontario LTCH and RH populations.

METHODS: Between February 2021-June 2022, we conducted 91 needs assessment interviews with LTCH/RH leadership across 47 homes (33 LTCH, 14 RH) in the Greater Toronto Area to identify pandemic-related challenges, one of which was related to COVID-19 vaccine confidence. We used theoretically-rooted knowledge mobilization methods and an iterative, co-creation approach to design and implement a multi-pronged strategy to promote vaccine confidence.

RESULTS: We identified nine challenges (e.g., lack of access to vaccine clinics, fears of side effects particularly for pregnancy and fertility) and nine facilitators (e.g., protected time for LTCH/RH staff to get vaccinated) to vaccine confidence. Based on this feedback, we developed the Vaccine+ intervention, which included 19 original educational resources and a vaccine champions course to build capacity for LTCH/RH opinion leaders to promote vaccine confidence. Vaccine+ was delivered through an overarching pandemic support program titled Wellness Hub (WH) and delivered via the WH's community of practice meetings (attended by >400 LTCH/RH staff), town halls and seminars (attended by >6000 staff), website, and weekly newsletters (circulated to 72 LTCH/RH). Thirty-two staff completed the vaccine champions course. The Vaccine+ interventions were well received by LTCH/RH partners.

CONCLUSIONS: We used a co-creation strategy to iteratively address LTCH/RH concerns and develop supports to promote vaccine confidence. LTCH/RH managers perceived the supports as helpful in increasing vaccine confidence.

ORAL PRESENTATION

Bourdeau, Malou
Medical Student,
McGill Univserity

PEDIATRIC RESPIRATORY SYNCYTIAL VIRUS HOSPITALIZATIONS, 2017 TO 2022, THE CANADIAN IMMUNIZATION MONITORING PROGRAM ACT (IMPACT)

AUTHORS: Malou Bourdeau*[1], Nirma Khatri Vadlamudi, MPH, PhD*[2], Christina Bancej MSc, PhD[3], Nathalie Bastien PhD[4], Joanne Embree MD[5], Scott A. Halperin MD[6], Andrea Hudgin RN[6], Taj Jadavji MD[7,] Kescha Kazmi MD[8], Joanne M. Langley MD[6], Marc Lebel MD[9], Nicole LeSaux MD[10], Dorothy Moore MD PhD[11], Shaun K. Morris MD, MPH[8], Jeffrey M. Pernica MD MSc[12], Joan Robinson MD[13], Manish Sadarangani BM BCh, DPhil[14,15], Julie A. Bettinger PhD, MPH* [14,15] and Jesse Papenburg MD, MSc* [16-18] for the Canadian Immunization Monitoring Program Active (IMPACT) Investigators[†]

AFFILIATION: [1] McGill University, [2] The University of British Columbia, [3] Center for Immunization & Respiratory Infectious Diseases, Public Health Agency of Canada, [4] National Microbiology Laboratory (NML), Public Health Agency of Canada (PHAC), [5] University of Manitoba, [6] Canadian Center for Vaccinology, Dalhousie University, [7] Alberta Children's Hospital, University of Calgary[8] Hospital for Sick Children, University of Toronto, [9] Sainte-Justine, Montreal, [10] Children's Hospital of Eastern Ontario[11] McGill University, [12]McMaster University, [13]University of Alberta, [14]University of British Columbia, [15] Vaccine Evaluation Center, BC Children's Hospital Research Institute, [16]McGill University, [17]Montreal Children's Hospital, McGill University Health Centre, [18]McGill University Health Centre, Montreal

INTRODUCTION: Respiratory syncytial virus (RSV) is a leading cause of pediatric hospitalizations. We describe RSV-associated hospitalizations from 2017 until 2022 and changes in the epidemiology of this illness in Canadian pediatric centers during the COVID-19 pandemic.

METHODS: We performed active surveillance for all hospitalized children 0 to 16 years of age with laboratory confirmed RSV at 13 Canadian Immunization Monitoring Program Active (IMPACT) pediatric hospitals from 2017-2022. Proportions of RSV hospitalizations over all-cause hospitalizations over time were calculated, as were intensive care unit (ICU) admissions, prolonged admissions(≥7-days) and mortality proportions, overall and by age groups and regions. RSV hospitalizations associated burden was compared for 2021-2022 to pre-pandemic.

RESULTS: Among 11,014 RSV-associated hospitalizations 6035 (54.8%) were male and 5488 (50%) were aged <6 months. Overall, 2594 (23.6%) were admitted to ICU, of which 60.8% were aged <6 months old. The median hospital stay was 4 days (interquartile range: 2-6). The mean number of hospitalizations during the pre-pandemic seasons was 2,522. Only 58 cases were reported in 2020-2021, followed by 3,170 in 2021-2022. The proportion of RSV hospitalizations over all-cause hospitalizations rose from 3.2% pre-pandemic to 4.5% in 2021-2022 (difference 1.3% [95%CI 0.8-1.8]). Age, sex, ICU admission, prolonged length of stay(≥7-days) and mortality proportions did not change in 2021-22 compared to the pre-pandemic period. Interregional differences were observed and were greatly accentuated in 2021-22

CONCLUSIONS: RSV hospitalization burden in Canadian pediatric hospitals is substantial, especially in infants aged <6 months. Following a near absence of RSV admissions in 2020-21, hospitalizations increased in the 2021-2022 season, but severity of illness remained similar to the pre-pandemic period. These data will inform planning for implementation of RSV prevention strategies.

ORAL PRESENTATION

Greyson, Devon
Assistant Professor, University of British Columbia

COVID-19 VACCINE UPTAKE AMONG PREGNANT ONTARIO RESIDENTS IN 2021: PRELIMINARY DESCRIPTIVE FINDINGS

AUTHORS: Devon Greyson[1], Rebecca Correia[2], Meredith Vanstone[2], and the Covid-19 and Pregnancy Research Team

AFFILIATION: [1]University of British Columbia, [2]McMaster University

INTRODUCTION: Although pregnancy is associated with higher risk of severe Covid-19, pregnant people were not deliberately included in pre-market vaccine trials. NACI recommended vaccination in pregnancy based on registry data, and Ontario prioritized pregnant people for vaccine access in April 2021. Canadians have historically had low rates of vaccination in pregnancy and a great deal of fertility-related mis/disinformation circulated regarding Covid-19 vaccines. This descriptive analysis examined whether pregnant Ontarians had lower uptake of Covid-19 vaccines than non-pregnant comparators, and whether they delayed vaccination until postpartum.

METHODS: Our study cohort was defined using an ICES derived cohort (MOMBABY), linking publicly-funded perinatal services data from the Ontario Health Insurance Plan (OHIP), the Registered Persons Database (RPDB), and vaccine data from COVaxON. We specified two sub-groups: people who had a live, in-hospital birth May 1-Dec 1, 2021 and an age/sex-matched population who were not pregnant during this time. Descriptive statistical analysis of vaccine uptake, and testing for significance of difference between populations were conducted, and multivariable logistic regression models are currently being built to examine demographic variation.

RESULTS: 78,559 people gave birth during our study timeframe. 84.0% of the pregnant cohort received dose 1 of a Covid-19 vaccine, with 53.5% of the cohort receiving it during pregnancy. 81.4% also received dose 2, with 37.3% during pregnancy. There were no statistically significant differences in Covid-19 vaccination between pregnant Ontarians and non-pregnant comparators. Despite high Covid-19 vaccine uptake, only 31.6% of the pregnant cohort received the recommended TDaP vaccination.

CONCLUSIONS: It does not appear that fertility-scare mis/disinformation negatively impacted Covid-19 vaccine uptake during pregnancy in Ontario, although some people may have delayed vaccination until postpartum.

ORAL PRESENTATION

Surti, Monica
Graduate Student,
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IDENTIFYING GAPS IN RESOURCES FOR PARENT-PROVIDER VACCINE COMMUNICATION IN PREGNANCY IN CANADA, WITH AN INTERST ON THE BIPOC POPULATION: A SCOPING REVIEW

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INTRODUCTION: Vaccination in pregnancy (VIP) is an essential preventive measure for safeguarding pregnant people's and their babies health. The role of healthcare providers (HCPs) is crucial, as strong recommendations strongly influence VIP. This study aimed to identify the availability of resources for parent-provider vaccine communication in pregnancy in Canada, with an interest in BIPOC-tailored resources. Vaccine hesitancy is a growing concern, particularly among visible minorities in Canada. According to the 2021 Census, one-in-four Canadians is foreign-born, and 78% of new Canadians belong to a visible minority. Visible minorities may display vaccine hesitancy due to distrust or past negative experiences when accessing the healthcare system. Therefore, tailoring communication resources to address BIPOC communities is critical to reducing health inequity.

METHODS: This scoping review followed the Joanna Briggs Institute (JBI) methodology and included a comprehensive search of nine disciplinary and interdisciplinary databases and a systematic grey literature search in March and January 2022, respectively. The inclusion criteria encompassed studies examining resources available to HCPs practicing in Canada when discussing VIP and resources designed for pregnant individuals. Two reviewers piloted a representative sample of published and grey literature. Of the 65 published articles and 1,079 grey reports screened, 19 articles and 166 reports were included in the final analysis.

RESULTS: The analysis of 19 published literature articles and 166 grey reports revealed only 2% of resources addressed vaccine hesitancy in BIPOC populations, and none were specific to VIP. This is an important finding, as vaccine hesitancy among BIPOC communities can contribute to lower vaccination rates and increase health disparities. Additionally, the study identified a lack of information on culturally safe or trauma-informed counselling practices, which could be crucial in addressing vaccine hesitancy among marginalized populations.

CONCLUSIONS: The study highlights the need for culturally appropriate and trauma-informed vaccine communication resources to meet the unique needs of the diverse Canadian population. The absence of such resources may hinder VIP uptake and widen existing inequities.

ORAL PRESENTATION

King, Keith
Graduate Student,
University of Manitoba

KEEOUKAYWIN (VISITING) WITH HPV-RELATED CANCER PREVENTION: A MÉTIS WELLNESS RESEARCH IN ACTION

AUTHORS: Keith D. King, Cindy Gaudet, Shannon E. MacDonald

AFFILIATION: University of Alberta

INTRODUCTION: *Keeoukaywin* (visiting) is a Métis land and community-centred research methodology enabling individuals, families, and communities to explore health and wellness through mutual care, kinship, and support. This methodology bridges feminist and Indigenous ways of being. *Keeoukaywin* brings people together around *lii taab* (the kitchen table) to share knowledge of community health in a research space that is inclusive and allows traditionally informed knowledge transfer.

METHODS: Using *keeoukaywin*, this mixed-methods study partners with the Métis Nation of Alberta to explore the complex relationships between HPV vaccine attitudes and behaviours, and the Métis experience of HPV vaccination. *Keeoukaywin* is practiced in this research through a relational approach to all aspects of the research, from the conceptualization of research questions to methods, data collection and analysis, reporting and knowledge translation activities. It includes a cross-sectional survey assessing parents of eligible Métis children's attitudes toward HPV vaccination and data from a retrospective cohort study of HPV vaccine coverage among Métis children in Alberta. There is a dialogue between these findings and stories shared during intentional visits with Métis families to collect qualitative experiences of accessing HPV vaccination in Alberta communities.

RESULTS: We will present a protocol for using *keeoukaywin* in mixed methods vaccine research and preliminary findings from the ongoing process of visiting in this study.

CONCLUSIONS: *Keeoukaywin* provides an innovative Indigenous research methodology for engaging in Métis specific research with Métis people, governments, public health systems, and the academy. Centring Métis' ways of knowing and doing research as a Métis researcher is essential to research that honours *wahkohtowin* (kinship) obligations and responsibilities in a way that is strength-based and community-engaged.

Poster Presentations

1. **Sarah Buchan:** EVENTS OF MYOCARDITIS/PERICARDITIS FOLLOWING BNT162b2 VACCINATION IN INDIVIDUALS AGED 12-17 IN ONTARIO, CANADA
2. **Cassandra Freitas:** AN EPIDEMILOGICAL INVESTIGATION OF SARS-CoV-2 INFECTION AND COVID-19 OUTCOMES AMONG PEOPLE LIVING WITH HIV IN ONTARIO: A DOCTORAL DISSERTATION PROTOCOL
3. **Gabrielle Gaultier**: COMPREHENSIVE CHARACTERIZATION OF HUMORAL IMMUNE RESPONSES TO COVID-19 VACCINATION IN CHILDREN AND ADULTS IN CANADA: AN INTERIM ANALYSIS FROM THE SEVERE ACUTE RESPORATORY SYNDROME-RELATED CORONAVIRUS 2 PREVALENCE IN CHILDREN AND YOUNG ADULTS IN BRITISH COLUMBIA (SPRING) STUDY
4. **Fahima Hassan**: ESTIMATING THE ASSOCIATION BETWEEN ACUTE SARS-CoV-2 INFECTION AND FEBRILE SEIZURE IN CHILDREN USING THE CANADIAN IMMUNIZATION MONITORING PROGRAM-ACTIVE (IMPACT)
5. **Sherilyn Houle**: VAXCHECK: DEVELOPMENT AND TESTING OF COMMUNITY PHARMACY-BASED VACCINATION REVIEWS USING A CONTINUOUS QUALITY IMPROVEMENT APPROACH
6. **Nazaire Kouadio:** EVALUATING OF A COVID-19 SEROLOGICAL DIAGNOSTIC KIT: Q-PLEX SARS-CoV-2 HUMAN IgG QUANTITATIVE (4-PLEX) QUANSYS BIOSCIENCES
7. **Brynn McMillan**: LONGITUDINAL EVALUATION OF SARS-CoV-2 ANTIBODY RESPONSE USING DRIED BLOOD SPOT SAMPLES FOLLOWING VACCINATION WITH THREEE AND FOUR DOSES OF mRNA-1273, BNT162b2 AND/OR ChAdOx1-S IN ADULTS AGED 50 AND ABOVE: INTERIM ANALYSIS FROM THE PREVENT-COVID STUDY
8. **Pierre-Philippe Piché-Renaud**: SAFETY AND IMMUNOGENICITY OF LIVE-ATTENUATED VARICELLA VACCINE IN SOLID ORGAN TRANSPLANT RECIPIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS
9. **Pierre-Philippe Piché-Renaud**: COVID-19 VACCINE EFFECTIVENESS AGAINST OMICRON INFECTION AND HOSPITALIZATION IN 5 TO 11 YEARS OLD CHILDREN: A TEST-NEGATIVE DESIGN
10. **Larry Seye**: KINETICS OF ANTI-SARS-CoV-2 ANTIBODY EVOLUTION AFTER COVID-19 VACCINE IN SENEGALESE VOLUNTEERS
11. **Janna Shapiro:** EFFECT OF DISEASE-MODIFYING ANTIRHEUMATIC DRUGS ON THE ANTIBODY RESPONSE TO FOUR DOSES OF COVID-19 mRNA VACCINES IN CHILDREN WITH AUTOIMMUNE AND RHEUMATIC DISEASES
12. **Phyumar Soe**: COVID-19 VACCINE SAFETY AMONG OLDER ADULTS AGED 65 AND ABOVE: A CANADIAN IMMUNIZATION RESEARCH NETWORK (CIRN) STUDY
13. **Dana Unninayar**: THE VACCINE IMMUNOGENICITY AND SAFETY IN IMMUNODEFICIENT PATIENTS (VISID) STUDY: IMMUNOLOGICAL RESPONSES OF PATIENTS WITH PRIMARY AND SECONDARY IMMUNODEFICIENCIES TO SARS-CoV-2 BNT162b2 AND mRNA-1273 VACCINES, AND BREAKTHROUGH INFECTIONS IN CANADA
14. **Danica Wolitski:** THE EFFECT OF COVID-19 VACCINES ON POST-COVID CONDITION HEALTH CARE LABOUR DEMAND