CIRN

CANADIAN IMMUNIZATION RESEARCH NETWORK

ANNUAL REPORT

2018-19

CONTENTS

ABOUT THE **CANADIAN IMMUNIZATION RESEARCH NETWORK** (CIRN)

The Canadian Immunization Research Network (CIRN) is a national network of key vaccine researchers who develop and test methodologies related to the evaluation of vaccines as they pertain to safety, immunogenicity and effectiveness, and program implementation and evaluation.

The eight networks are comprised of:

- **CANVAS**: Canadian National Vaccine Safety Network
- **CTN**: Clinical Trials Network
- **SOS**: Serious Outcomes Surveillance Network
- **SIC**: Special Immunization Clinic Network
- **PCN**: Provincial Collaborative Network
- **SSHN**: Social Sciences and Humanities Network
- **ModERN**: Modeling and Economics Research Network
- **RLN**: Reference Laboratory Network

CIRN hopes to further strengthen Canada's research capacity, evidence base, and expertise in the field of immunization and vaccines for vaccine-preventable diseases, and continue to play a pivotal role in mentoring early-career researchers, recruiting new investigators, providing opportunities for trainees, and delivering meaningful engagement of stakeholders at all research stages.

Letter from the **MANAGEMENT COMMITTEE**

The CIRN Management Committee is pleased to present our ninth annual report. This year was focused on several new research projects and programs, and making strides to improve the operational support that the Network Management Office can provide in order to allow CIRN to undertake important vaccine and infectious disease related research across Canada.

This past fall, the network undertook a labor-intensive stakeholder engagement process which served to inform the 2018-19 call for project proposals. Seven new projects were funded for year three of the grant (2019-2020), many of which are interdisciplinary and will rely on expertise spanning networks.

CIRN is currently in the process of planning the network's project intake for years four and five of the grant. Stakeholders will be consulted to determine research priorities of public health importance through directed engagement efforts at advisory meetings and planned teleconferences through the CIRN NMO.

2019

CIRN MANAGEMENT COMMITTEE

Dr. Scott Halperin, CIRN NPA

Dr. Julie Bettinger, Network Lead, CANVAS

Dr. Joanne Langley, Network Lead, CTN

Dr. Shelly McNeil, Network Lead, SOS Network

Dr. Melissa Andrew, Network Lead, SOS Network

Dr. Karina Top, Network Lead, SIC Network

Dr. Natasha Crowcroft, Network Lead, PCN

Dr. Jeff Kwong, Network Lead, PCN

Dr. Eve Dubé, Network Lead, SSHN

Dr. Marc Brisson, Network Lead, ModERN

Dr. Shelly Bolotin, Network Lead, RLN

Dr. Todd Hatchette, Network Lead, RLN

Dr. David Scheifele, Member-at-Large

Dr. Mark Loeb, Member-at-Large

Dr. Philippe De Wals, Member-at-Large

Dr. Shelley Deeks, Member-at-Large

Dr. Gaston De Serres, Member-at-Large

Ms. Emily Adkins Taylor and **Ms. Erin Schock**, representing the Public Health Agency of Canada

Ms. Suzete Dos Santos, representing the Canadian Institutes of Health Research

Network **LEADS**

Dr. Scott Halperin

Nominated Principal Applicant, CIRN

Dr. Halperin is a Professor of Pediatrics and Microbiology and Immunology at Dalhousie University. As the Director of the Canadian Center for Vaccinology, Nominated Principal Investigator of CIRN, Co-Principal Investigator of the Immunization Monitoring Program, Active (IMPACT), and Executive Committee member of the Canadian Association for Immunization Research and Evaluation (CAIRE), he has played a foundational role in the establishment of these Canadian collaborative research networks undertaking evaluative vaccine research. His research focuses on the diagnosis, treatment, and prevention of pertussis and other vaccine-preventable diseases.

Dr. Julie Bettinger

Lead ▸ Canadian National Vaccine Safety Network

Dr. Bettinger is an Associate Professor at the Vaccine Evaluation Center in the Department of Pediatrics at the University of British Columbia, and a Michael Smith Foundation for Health Research Scholar. Her research interests include vaccine safety and vaccine preventable diseases as well as attitudes and beliefs around immunization uptake and use. She is the epidemiologist for the Canadian Immunization Monitoring Program, Active (IMPACT), an active surveillance network for vaccine preventable diseases and vaccine adverse events in 12 tertiary care pediatric hospitals across Canada.

Dr. Joanne Langley

Lead ▸ Clinical Trials Network

Dr. Langley is a Professor of Pediatrics and Community Health and Epidemiology at Dalhousie University, Head of the Division of Pediatric Infectious Diseases and holds the CIHR-GSK Chair in Pediatric Vaccinology. She currently serves as Associate Director (Clinical Evaluation Unit) of the Canadian Center for Vaccinology, and her main research interests are in the epidemiology and prevention of respiratory infections, particularly Respiratory Syncytial Virus and influenza, and immunization decision making.

Dr. Shelly McNeil

Lead ▸ Serious Outcomes Surveillance Network

Dr. McNeil is a Professor of Medicine and Pediatrics (Infectious Diseases) and Clinician Scientist at Dalhousie University. She is Deputy Head/Chief of the Department of Medicine and Chief of the Division of Infectious Diseases at the Nova Scotia Health Authority. Dr. McNeil is also the Deputy Director of the Canadian Center for Vaccinology, and her research focuses on immunization policy, evaluation of the epidemiology of vaccine-preventable diseases in adults with a focus on the elderly and pregnant women, and the assessment of the effectiveness of vaccines in the prevention of serious outcomes in adults and clinical trials of new vaccines targeted at adolescent and adult populations.

Dr. Melissa Andrew

Lead ▸ Serious Outcomes Surveillance Network

Dr. Andrew is an Associate Professor of Medicine and consultant in Geriatric Medicine at Dalhousie University, and an Associate Member of the Canadian Center for Vaccinology. As part of the Canadian Immunization Research Network, she is Co-Principal Investigator of the Serious Outcomes Surveillance (SOS) Network, where she studies how frailty impacts both vaccine effectiveness and clinical outcomes of influenza and pneumococcal infections in older people.

Dr. Karina Top

Lead ▸ Special Immunization Clinics Network

Dr. Top is an Associate Professor of Pediatrics and Community Health and Epidemiology at Dalhousie University and Investigator at the Canadian Center for Vaccinology. Dr. Top's research focuses on vaccine safety, management of patients who have experienced adverse effects following immunization (AEFI), and vaccine safety and effectiveness in immunocompromised patients.

Dr. Natasha Crowcroft

Lead ▸ Provincial Collaborative Network

Dr. Crowcroft is Director of the Centre for Vaccine Preventable Diseases, Professor at the Department of Laboratory Medicine and Pathobiology and the Dalla Lana School of Public Health, University of Toronto, Canada, and Adjunct Scientist at ICES. Dr. Crowcroft is an internationally recognized expert in immunization who provides expertise to the World Health Organization and Gavi. She was a member of the Canadian National Advisory Committee on Immunization (NACI) from 2008-13, is a current member of the CIRN Management Committee and co-lead for the Provincial Collaborative Network.

Dr. Jeff Kwong

Lead ▸ Provincial Collaborative Network

Dr. Kwong is Program Leader for the Populations and Public Health Research Program at the Institute for Clinical Evaluative Sciences (ICES), and a scientist at Public Health Ontario. Dr. Kwong is also a family physician at the Toronto Western Family Health team, and an Associate Professor in the Department of Family and Community Medicine at the Dalla Lana School of Public Health at the University of Toronto. His research interests include infectious diseases epidemiology and health services research using linkable data, influenza vaccine and vaccination program evaluation, and assessing the burden of infectious diseases.

Dr. Eve Dubé

Lead ▸ Social Sciences and Humanities Network

Dr. Dubé is a medical anthropologist. Since 2008, she has been a member of the Scientific Group on Immunization at Québec National Institute of Public Health. She is also a researcher at the Research Center of the CHU de Québec-Université Laval. She is an Invited Professor in the department of Anthropology and an Adjunct Professor in Social and Preventive Medicine at Université Laval in Quebec City. Most of her research focuses on the socio-cultural aspects of vaccination. She is also interested in vaccine hesitancy and doing various projects in that field. She was a member of the WHO working group on Vaccine Hesitancy.

Dr. Marc Brisson

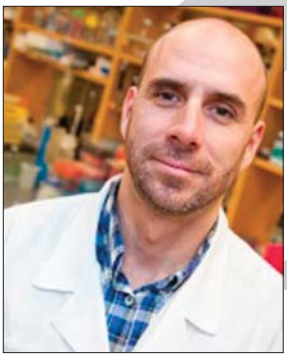
Lead ▸ Modeling and Economics Research Network

Dr. Brisson is a full Professor at Université Laval where he leads the esearch Group in Mathematical Modeling and Health Economics of Infectious Diseases. His research aims at developing mathematical models that predict the effectiveness and cost-effectiveness of interventions against infectious diseases to help policy decision-making. His current research mainly focuses on human papillomavirus and varicella-zoster-virus vaccines. He has a BSc in Actuarial Science, a certificate in Statistics and an MSc in Epidemiology from Université Laval, and a PhD in Health Economics from City University in London, England.

Dr. Shelly Bolotin

Lead ▸ Reference Laboratory Network

Dr. Bolotin is a scientist at Public Health Ontario and an Assistant Professor at the Dalla Lana School of Public Health and the Department of Laboratory Medicine and Pathobiology at the University of Toronto. Her research program utilizes a multi-disciplinary approach to evaluate whether our population is adequately protected from vaccine-preventable diseases. Applying a public health lens, Dr. Bolotin's studies combine epidemiological and microbiological methods to answer questions related to population immunity and vaccine effectiveness, and determine our future risk for outbreaks or epidemics.



Dr. Todd Hatchette

Lead ▸ Reference Laboratory Network

Dr. Hatchette is the Chief of Service for the Division of Microbiology, QEII Health Science Center and the Director of the Virology and Immunology. He is a Professor in the Department of Pathology with a cross-appointments in the Departments of Immunology and Microbiology and Medicine where he is a consultant Infectious Diseases. As co-lead of the RLN, his work with CIRN has focused on providing laboratory support for the Seroepidemiology research stream led by Shelly Bolotin and the Serious Outcomes Surveillance network led by Shelly McNeil. In addition, Dr. Hatchette is the current President of the Association of Medical Microbiology and infectious Diseases (AMMI) Canada.

CANVAS

CANADIAN NATIONAL VACCINE SAFETY NETWORK

What is the CANVAS Network?

The Canadian National Vaccine Safety Network (CANVAS) assesses vaccine safety immediately after implementation of vaccine campaigns. CANVAS researches the effects and effectiveness of vaccines on Canadians to assure safety in the research and administration of vaccines.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
1	11	7	8

NETWORK HIGHLIGHTS

The network completed its tenth annual influenza vaccine safety surveillance campaign in 2018, with more than 47,000 participants providing safety data. Adults and parents of children vaccinated with the seasonal influenza vaccine participated in web-based active surveillance of vaccine safety by completing an online survey for health events occurring in the first seven days after vaccination; participants who received the influenza vaccine in 2017 and participated in the study served as unvaccinated controls. They received an online survey 7-14 days before the start of the immunization campaign. CANVAS submitted weekly safety reports to the Public Health Agency of Canada from October to December 2018, with safety information on the following seven influenza vaccines captured: Flumist, Fluviral, Vaxigrip, Agriflu, Fluzone, Influvac and Fluad. No unexpected side effects were observed in adults or children following the 2018 influenza vaccine campaign, although in both 2017 and 2018, higher rates of events were reported following seasonal influenza vaccination than in the pre-vaccination period. This signal was associated with several seasonal influenza vaccine products.

WHAT'S NEXT?

CANVAS will continue influenza safety surveillance for 2019, and in addition to monitoring seasonal vaccine safety, the network will continue to monitor vaccine safety for other and new vaccines (such as meningococcal B vaccine) and provide a platform for vaccine acceptability studies.

CO-INVESTIGATORS

Julie Bettinger, Network Lead

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CTN

CLINICAL TRIALS NETWORK

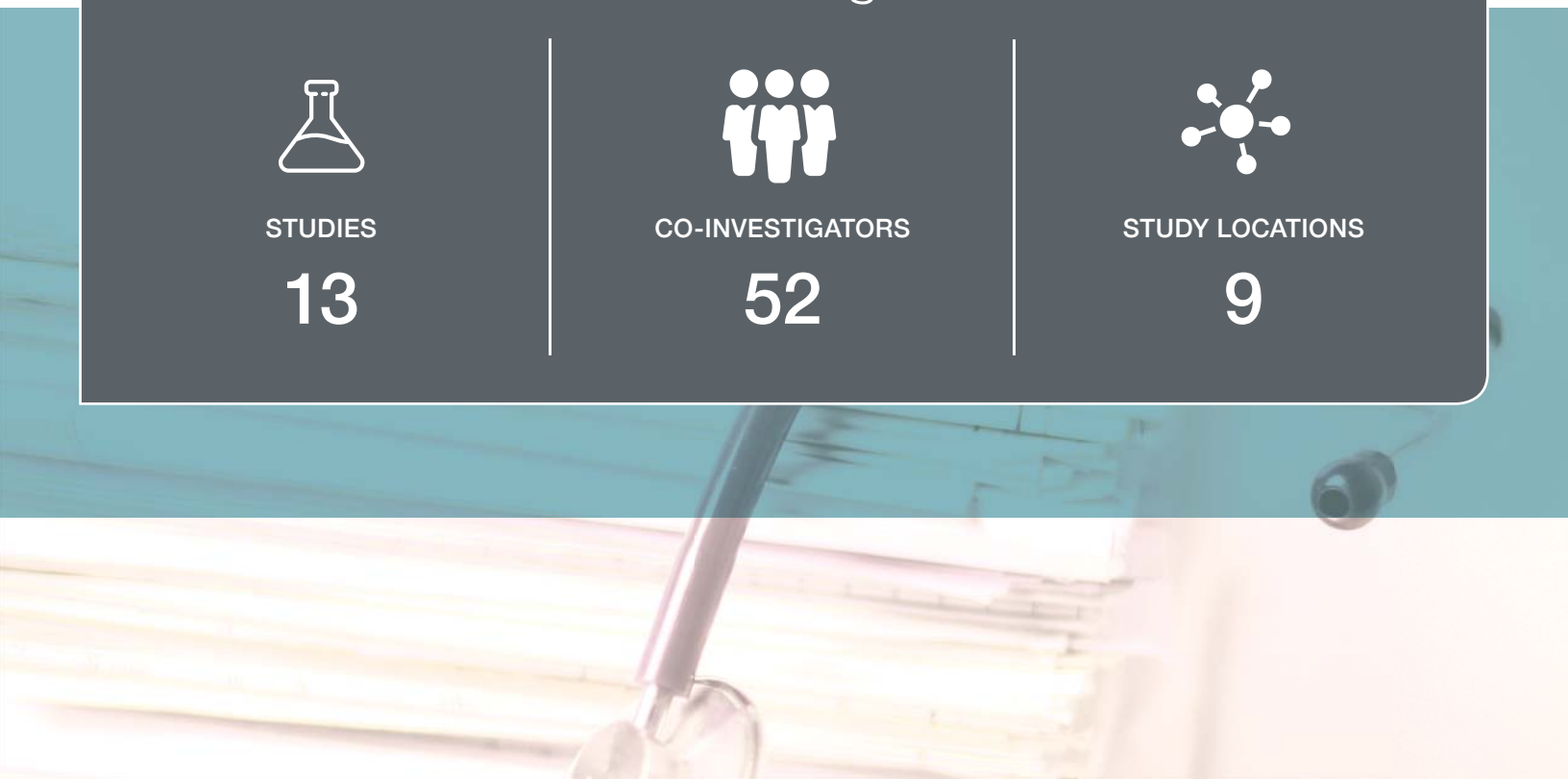
What is the CTN?

The Clinical Trials Network (CTN) answers public health questions about immunization and vaccines by conducting randomized controlled clinical trials. The network primarily focuses on research questions that are specific to Canada, and aims to maintain the capacity to rapidly conduct clinical trials in order to capture emerging infectious disease issues such as pandemic influenza, by engaging multiple investigators and study sites across the country.

Studies assess such topics as adverse events following immunization, immunogenicity, different dosing schedules/numbers of doses, and vaccine use in special populations. The CTN collaborates with public health authorities, industry, and academic institutions to plan and conduct this work.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS
13	52	9



NETWORK HIGHLIGHTS

CTN continues to undertake important clinical research across Canada through numerous ongoing studies. Led by Dr. Brenda Coleman out of the University of Toronto, *Impact of repeated vaccination against influenza on influenza antibody titres and laboratory-confirmed illness* aimed to determine the vaccination history (starting in 1990, as possible) of participants of the Influenza Cohort Study, which was conducted in 2010/11 – 2013/14. This data would be used to compare the pre-season hemagglutinin (HI) titres of participants by history, adjusting for age, sex, season, and study site. The study was completed in 2018, with outcomes demonstrating that repeated annual influenza vaccination does not impact vaccine effectiveness in adults.

WHAT'S NEXT?

Being the only infectious disease related vaccine clinical trial network in Canada, CTN's primary goal is to increase the trial capacity for Canadian researchers and provide the institutional infrastructure necessary to make CTN a truly pan-Canadian network. In May 2019, CIRN funded *Burden Ethnographic Modeling Evaluation Qaujilisaaqtuq (BEMEQ) RSV*, a multi-network study that will take place in Inuit communities in Nunavut and spans several disciplines, including social sciences, modelling, and disease burden. This project will explore knowledge, attitudes and beliefs, values and behaviors (KABB) and structural/contextual barriers related to RSV preventative interventions in Inuit communities, estimate the burden of RSV in LRTI-H in <12-month-olds from Inuit communities, and use modeling and simulations to evaluate the potential impact of RSV preventive interventions on the disease burden in infants in Nunavut and the cost effectiveness of these strategies.

CO-INVESTIGATORS

Joanne Langley, Network Lead

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SOS

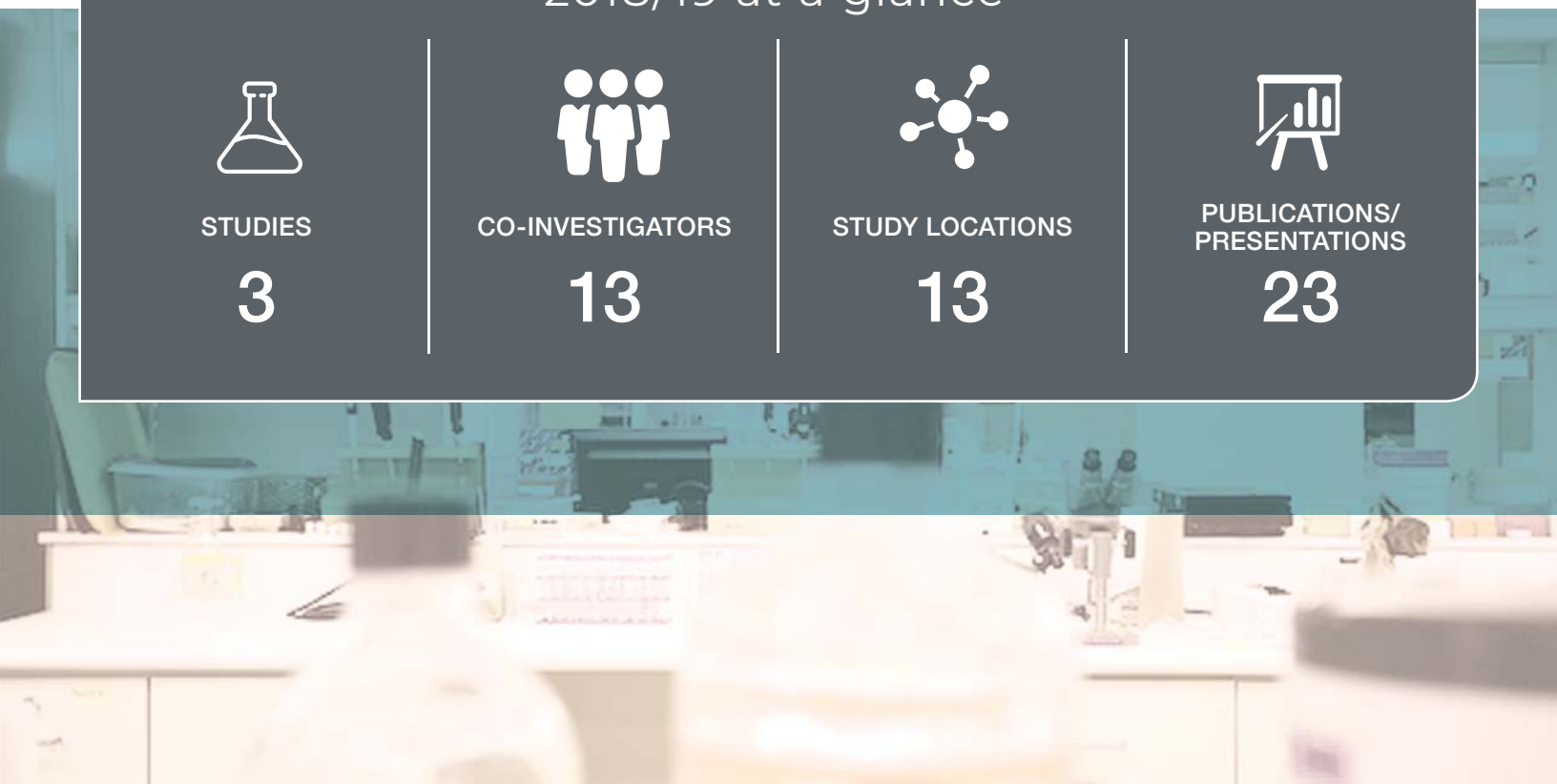
SERIOUS OUTCOMES SURVEILLANCE NETWORK

What is the SOS Network?

The Serious Outcomes Surveillance (SOS) Network is a hospital-based surveillance network that collects information about adults who are admitted to hospital with influenza or pneumonia. SOS provides real-time regular reports to the Public Health Agency of Canada and the National Advisory Committee on immunization to inform public health decision-making. Established in 2009, the SOS Network monitors annual seasonal influenza vaccine effectiveness (VE) in the prevention of hospitalization of adults with confirmed influenza illness, and is also examining the burden of influenza illness to the health care system among adults hospitalized by this disease. The SOS Network has become a core infrastructure in Canada's influenza surveillance program and informs decisions around prevention of severe outcomes due to influenza and pneumonia.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
3	13	13	23



NETWORK HIGHLIGHTS

The network continues to demonstrate the importance of vaccines as a key part of an overall strategy for healthy aging, and leads the field in the study of the impact of frailty and how frailty is used to measure the effectiveness of vaccines. SOS data have demonstrated that 15% of people 65 years of age and older admitted to the hospitals with influenza don't get back to their usual baseline of activity, and may never get that function back. Enrollment for *Sentinel surveillance for pneumococcal disease among Canadian adults* ended in December 2017, with an active surveillance period of February 2016 – March 2018. Data has been cleaned and analysis is currently ongoing to assess the cost of hospitalized pneumococcal CAP in Canada, and the impact of CAP on functional outcomes in older adults.

WHAT'S NEXT?

For the 2018-19 influenza season, surveillance of influenza vaccine effectiveness was funded through an external contract with Public Works Canada via the Public Health Agency of Canada, which will continue into the 2020-21 influenza season (with the potential for further extension). Two additional sites were added to the network this season to expand geographic coverage, and research will continue to focus on hospitalized influenza burden of disease, and interim/end of season vaccine effectiveness (with a continued focus on outcomes relevant to older adults including frailty/function).
The network's collaboration with the Global Influenza Hospital Surveillance Network (GIHSN) will be maintained as the SOS Network continues to contribute Canadian data in an effort to calculate global vaccine effectiveness estimates.

CO-INVESTIGATORS

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SIC

SPECIAL IMMUNIZATION CLINICS NETWORK

What is the SIC Network?

The Special Immunization Clinics (SIC) Network was established across Canada in 2013 by infectious disease specialists and allergists to provide expert advice to patients who had experienced adverse events following immunization (AEFI), and those who have medical conditions that may affect their immunizations.

There are 11 Special Immunization Clinics across Canada, and the network's focus is to improve the management of patients with potential contraindications to vaccination, as well as those with AEFI who require additional doses of the implicated vaccine(s). The network also provides in-depth investigation, diagnosis, and management of patients presenting with AEFI of special public health interest, with the clinics being optimal as a platform for observational research.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
4	44	11	10

NETWORK HIGHLIGHTS

The ongoing SIC study *Managing patients with Adverse Events Following Immunization (AEFI) or potential contraindictations to vaccination* evaluates patients with potential contraindications to vaccination and those with adverse events following immunization who require additional dose of the implicated vaccine. The network provides in-depth investigation, diagnosis and management of patients presenting with AEFI of special public health interest, and estimates the probability of recurrence of AEFIs upon revaccination in children and adults, compares the clinical severity of recurrent AEFI to that of its first occurrence, and identifies risk factors of recurrences. It also estimates the safety of vaccinating compromised patients (e.g. kidney transplant, immune deficiency conditions) or those with potential contraindications.

WHAT'S NEXT?

Patients with AEFI continue to be referred to the clinics, and an in-depth analysis of re-immunization acceptance and outcomes of patients with AEFI seen in SIC from June 2013-2018 is planned. Further, the newly funded *Optimizing Varicella Immunization in Children with Solid Organ Transplant to Prevent Disease and Improve Long-Term Health* will evaluate the implementation of a new guideline for live varicella vaccination in solid organ transplant recipients.

CO-INVESTIGATORS

Karina Top, Network Lead

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Parent partners: Elaine Yong, founder, The Addison Fund

Collaborators: Upton Allen, MD, Hospital for Sick Children, University of Toronto

PCN

PROVINCIAL COLLABORATIVE NETWORK

What is the PCN?

The Provincial Collaborative Network (PCN) brings together leading researchers from multiple provincial governments, public health agencies, and research institutes to conduct a wide range of public health-relevant research and evaluation. PCN studies characteristically do not involve collecting information directly from people or clinical studies, but rather bring together a range of existing types of large-scale data to answer important questions efficiently and effectively. These studies increase the evidence base to inform immunization strategies and programs in Canada and beyond.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
8	88	5	19

NETWORK HIGHLIGHTS

This past May, CIRN funded *The benefits of pneumococcal immunization programs for preventing invasive pneumococcal disease (IPD), acute otitis media (AOM), community-acquired pneumonia (CAP) in British Columbia and Ontario.* Led by Dr. Fawziah Lalji out of the University of British Columbia, this study aims to strengthen policy-relevant evidence on prevention of pneumococcal disease in order to optimize decision-making. Investigators on the pneumococcal project are also part of a separate study looking at the benefit of pneumococcal vaccination for seniors, which will offer the opportunity to leverage resources and find synergies to elevate each individual project. Initiation activities such as data access requests and contract drafting for both studies are underway.

WHAT'S NEXT?

PCN goals for 2019-2020 include continuing to seek opportunities for partnerships, such as ICES, the Vector Institute, Alberta Health, PopDataBC, and the newly launched Centre for Vaccine Preventable Diseases at the University of Toronto. The network also hopes to access multi-provincial data through the new CIHR-funded Strategy for Patient-Oriented Research (SPOR) Canadian data platform, and plans to explore how it can mobilize the knowledge generated by PCN studies to maximize their impact on health outcomes. Though the projects within the network are diverse, they share similar challenges in terms of access to data at one end of the research lifecycle, and in translating research for policy at the other end.

CO-INVESTIGATORS

Natasha Crowcroft, Network Lead
Jeff Kwong, Network Lead

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Susan Richardson
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SSHN

SOCIAL SCIENCES AND HUMANITIES NETWORK

What is the SSHN?

The Social Sciences and Humanities Network is a multidisciplinary network of social scientists and humanities researchers across Canada to examine the ethical, legal, and social implications of vaccine programs. SSHN projects focus on vaccine acceptance and vaccine hesitancy with the goal of generating evidence and approaches that will enable vaccination programs, healthcare providers, and policy decision-makers to address vaccine hesitancy and achieve greater vaccination acceptance.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
7	44	7	9

NETWORK HIGHLIGHTS

The SSHN study *Determinants of HPV vaccine uptake in school-based programs in Canada* is looking at gaining a better understanding of the determinants of HPV vaccine uptake in school-based vaccination programs in Canada in order to identify promising strategies to increase HPV vaccine acceptance and uptake in schools. Phase 1 of the study has been completed, which included an environmental scan to gain an overview of the HPV vaccination program. Phase 2 of the study is currently underway, which involves conducting individual/group interviews in person or via telephone with decision-makers and public health experts at local or regional levels, immunization managers and school principals at local levels and schools nurses, teachers and parents and students (if 12 years or older). Additionally, project teams will undertake community engagement research to develop partnerships with Inuit communities in Nunavut and Nunavik to expand the project into these communities.

WHAT'S NEXT?

Investigators will be participating in the newly funded CTN RSV project, a multi-disciplinary study that will have SSHN researchers exploring knowledge, attitudes, beliefs, and behaviors (KABB) and structural/ contextual barriers related to childhood vaccination and RSV prevention in Inuit communities in Nunavik and Nunavut. Protocol development is underway. Additionally, another newly funded study will make use of the SSHN expertise and team members: *A multifaceted evaluation of provincial maternal Tdap immunization programs* will strive to inform the implementation of Tdap programs by evaluating demand-side and access side components.

CO-INVESTIGATORS

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ModERN

MODELING AND ECONOMICS RESEARCH NETWORK

What is the ModERN?

The Modeling and Economics Research Network continues to focus on conducting epidemiological analyses, mathematical modeling, and economic analyses to study the cost-effectiveness and population-level effectiveness of public health interventions and work toward its goal of building modeling capacity in an effort to help inform immunization policy decisions in Canada.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
2	25	2	1

NETWORK HIGHLIGHTS

A new network study being led by Dr. Shannon MacDonald of the University of Alberta was funded this past May 2019. *Using dynamic transmission and economic modelling to inform RSV immunization policy* will develop a Canadian RSV transmission model with an economic component to model disease outcomes and disease and intervention costs with the ultimate goal of providing NACI with a model to test the cost-effectiveness of future RSV vaccines licensed in Canada.

WHAT'S NEXT?

The network will continue building capacity to help inform immunization policy decisions in Canada, and begin work on the aforementioned RSV study as well as the CTN-driven project *Burden Ethnographic Modeling Evaluation Qaujilisaaqtuq (BEMEQ) RSV*, which will utilize expertise from within ModERN by using modeling and simulations to evaluate the potential impact of RSV preventive interventions on the disease burden in infants in Nunavut and the cost effectiveness of these strategies.

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Niel Hens

Erin Kirwin

Philippe Lemieux-Mellouki

Salah Mahmud

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Beate Sander

Chantal Sauvageau

Larry Svenson

Jordan Tustin

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RLN

REFERENCE LABORATORY NETWORK

What is the RLN?

The Reference Laboratory Network (RLN), comprised of a group of provincial Public Health laboratories, the National Microbiology Laboratory, and various academic research laboratories, collects and manages the archive of material collected in CIRN studies, retaining sera and other biological material for future studies.

The network focuses on studies of population immunity to vaccine-preventable diseases. as well as supporting laboratory testing for studies led by other networks (notably providing influenza testing for several on-going or completed studies for members of CIRN and the SOS Network surveillance studies). The network has built a national infrastructure to conduct research studies, with additional capacity to conduct responsive research or laboratory testing during a public health emergency.

2018/19 at a glance

STUDIES	CO-INVESTIGATORS	STUDY LOCATIONS	PUBLICATIONS/ PRESENTATIONS
8	16	4	4

NETWORK HIGHLIGHTS

The network will soon begin work on the study *Is Ontario prepared for the return of Measles?* which will evaluate whether population immunity in Ontario is sufficient to avoid large outbreaks, and to predict when waning immunity may become a risk to measles control.

WHAT'S NEXT?

The network is also focused on promoting inclusion into the RLN of investigators from other CIRN networks who are using laboratory methods, and has planned an international workshop funded through CIRN, CIHR, and CAIRE on sero-epidemiology as part of the upcoming CIRN Annual General Meeting in November 2019.

CO-INVESTIGATORS

Shelly Bolotin, Network Lead
Todd Hatchette, Network Lead

Luis Barreto

Marc Brisson

Natasha Crowcroft

Shelley Deeks

Jonathan Gubbay

Scott Halperin

Lakshmi Krishnan

Jeff Kwong

Tony Mazzulli

Elizabeth McLachlan

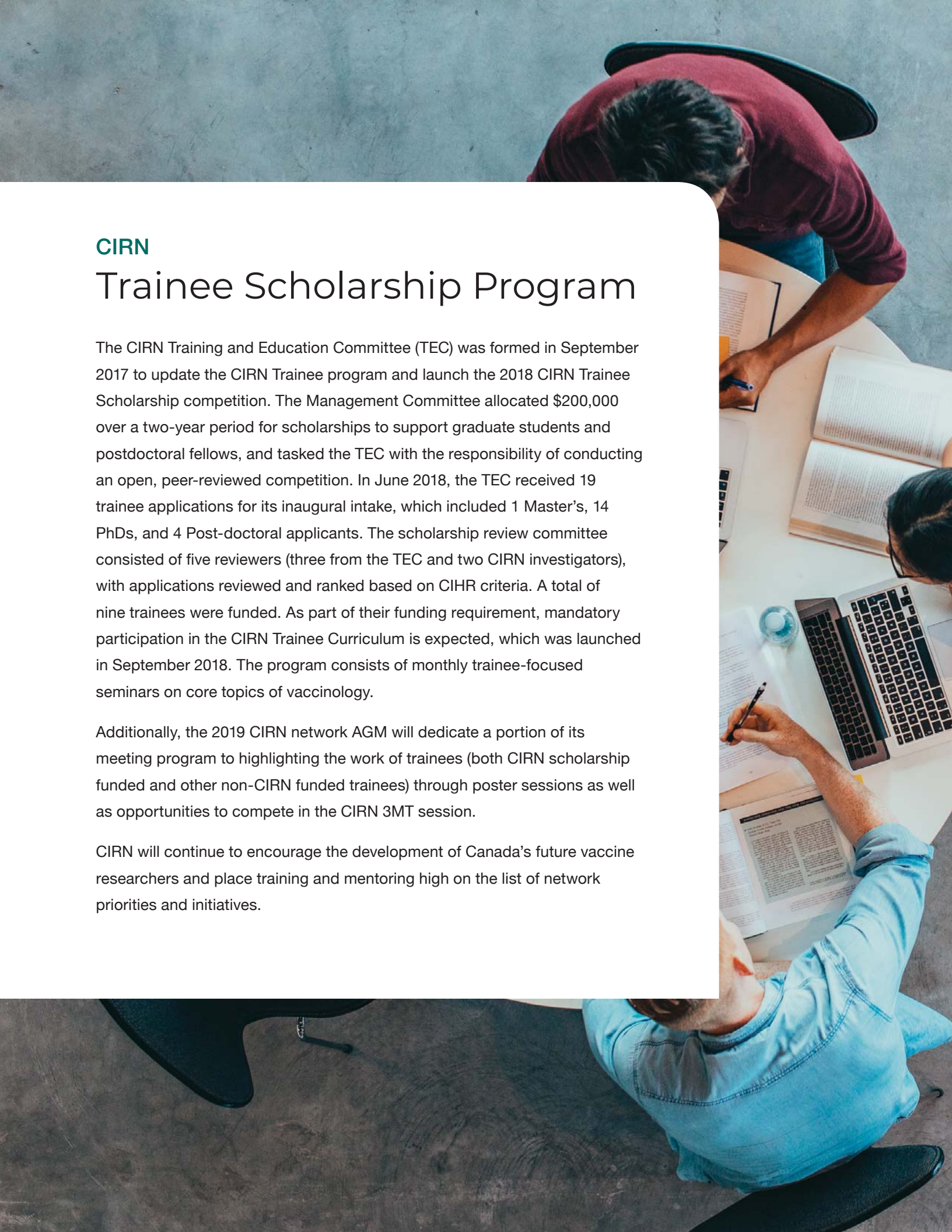
Jim Richards

Bouchra Serhir

Alberto Severini

Brian Ward

Sarah Wilson



CIRN

Trainee Scholarship Program

The CIRN Training and Education Committee (TEC) was formed in September 2017 to update the CIRN Trainee program and launch the 2018 CIRN Trainee Scholarship competition. The Management Committee allocated $200,000 over a two-year period for scholarships to support graduate students and postdoctoral fellows, and tasked the TEC with the responsibility of conducting an open, peer-reviewed competition. In June 2018, the TEC received 19 trainee applications for its inaugural intake, which included 1 Master's, 14 PhDs, and 4 Post-doctoral applicants. The scholarship review committee consisted of five reviewers (three from the TEC and two CIRN investigators), with applications reviewed and ranked based on CIHR criteria. A total of nine trainees were funded. As part of their funding requirement, mandatory participation in the CIRN Trainee Curriculum is expected, which was launched in September 2018. The program consists of monthly trainee-focused seminars on core topics of vaccinology.

Additionally, the 2019 CIRN network AGM will dedicate a portion of its meeting program to highlighting the work of trainees (both CIRN scholarship funded and other non-CIRN funded trainees) through poster sessions as well as opportunities to compete in the CIRN 3MT session.

CIRN will continue to encourage the development of Canada's future vaccine researchers and place training and mentoring high on the list of network priorities and initiatives.

Financial Report

TERM OF THE PHAC/CIHR GRANT FUNDING

April 2009 - March 2019

PHAC/CIHR GRANT TO 2019

PCIRN $18,428,728

CIRN $11,616,345.16

CIRNII $4,033,334

TOTAL PHAC/CIHR GRANT TO 2019

$34,078,407

INDUSTRY FUNDING ASSIGNED TO **RESEARCH STUDIES 2009-2019**

$23,847,702

TOTAL NUMBER OF NETWORK RESEARCH STUDIES FUNDED 2009-2019

72

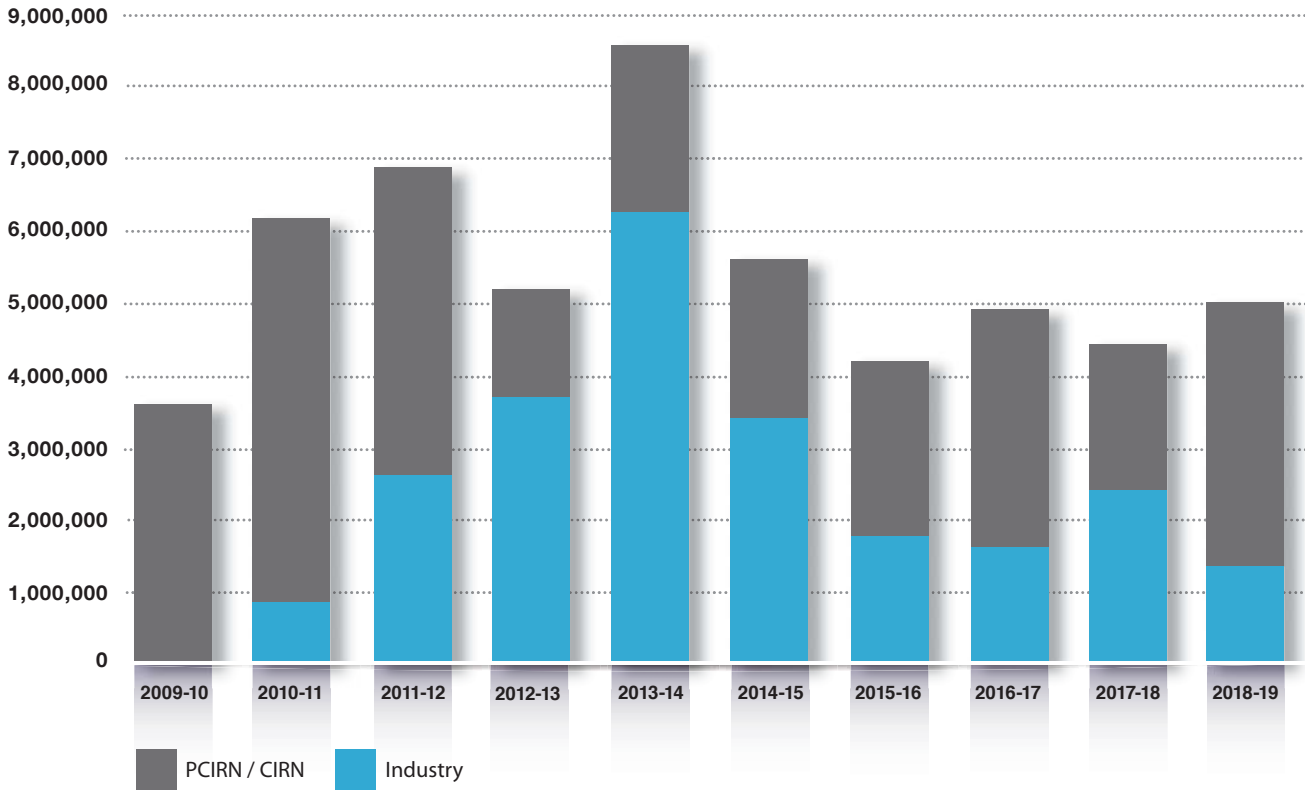
TOTAL NUMBER OF PARTICIPATING **INVESTIGATORS** & **CONTRIBUTORS** TO DATE

200+

TOTAL NUMBER OF PARTICIPATING **INSTITUTIONS** & **ORGANIZATIONS** TO DATE

40

TOTAL NETWORK FUNDING TO MARCH 31, 2019 $59 MILLION



2018/19 PUBLICATIONS, ABSTRACTS AND PRESENTATIONS

CIRN uses an integrated approach to disseminating knowledge as well as training. The network provides a highly collaborative, team-oriented framework for delivering research impact.

CANADIAN NATIONAL VACCINE SAFETY NETWORK, CANVAS

- Coleman B, DeSerres G, McCarthy A, Isenor J, Top K, Valiquette L, Vanderkooi O, Kellner J, Tai C, Bettinger J. Recurrent adverse events following vaccination with influenza vaccine can lead to vaccine hesitance in adults: CANVAS 2017/18 results from the Canadian Immunization Research Network. Canadian Immunization Conference, Ottawa, ON. December 4-6, 2018.

- Ahmed M, Valiquette L, Vanderkooi O, Coleman B, De Serres G, Top K, Isenor J, Kellner J, McCarthy A, Singer J, Naus M, Bettinger J. Investigating the effect of seasonal influenza vaccination on the development of anesthesia/paresthesia, headaches, and seizures, Canadian Immunization Research Network (CIRN), 2012-2016. Canadian Immunization Conference, Ottawa, ON. December 4-6, 2018.

CLINICAL TRIALS NETWORK, CTN

- Langley J, Gantt S, Quach C, McNeil S, Halperin S, Diaz-Mitoma F, Anderson D. An enveloped virus-like particle (eVLP) cytomegalorvirus (CMV) vaccine is immunogenic and safe: preliminary results of a first-in-humans (FiH) Canadian Immunization Network (CIRN) Clinical Trials Network (CTN) – VBI vaccines study [abstract]. In: Oral Abstracts of Canadian Immunization Conference 2018; 2018 Dec 4–6; Ottawa ON. p. 6.

- Langley J, Gantt S, Quach C, Bettinger J, Halperin S, Much J, McNeil S, Ward B, McKinnon-Cameron D, Ye L, Marty K, Scheifele D, Alcantara J. Preparedness for and response to meningococcal outbreaks: a Canadian Immunization Research Network (CIRN) Clinical Trials Network (CTN) randomized controlled trial (RCT) of two schedules of 4CMenB vaccine in adolescents and young adults [abstract]. In: Oral Abstracts of Canadian Immunization Conference 2018; 2018 Dec 4–6; Ottawa ON. p.30.

- Jiang L, McGeer A, McNeil S, Katz K, Loeb M, Muller M, Holness L, Simor A, Langley J, Powis J, Coleman B. Which healthcare workers work with acute respiratory illness? Evidence from Canadian acute care hospitals during four winters from 2010/2011 to 2013/2014 [abstract poster]. In: Poster Abstract Program of Canadian Immunization Conference 2018; 2018 Dec 4–6, Ottawa ON. pp. 35–36.

- Coleman B, Hatchette T, Katz K, Powis J, McNeil S, Langley J, Loeb M, Drews S, Simor A, Muller M, McGeer A. Hemagglutinin-inhibition (HI) assay titres: levels associated with protection against laboratory-confirmed influenza [abstract poster]. In: Poster Abstract Program of Canadian Immunization Conference 2018; 2018 Dec 4–6, Ottawa ON. p. 36.

- Hopman H, Langley J, Crowcroft N, Cesuroglu T. Incorporation of health economic evaluations into immunization decision-making in Canada: barriers, facilitators and next steps [abstract poster]. In: Poster Abstract Program of Canadian Immunization Conference 2018; 2018 Dec 4–6, Ottawa ON. Abstract 144.

- 268. Espinoza Moya M, Crowcroft N, Quach-Thanh C, Halperin S, Desai S, Langley J, Lerch R, Bolotin S, Bjornson G, Sale J, De Wals P, Upshur R, Tran D. Addressing the immunization research-to-policy gap in Canada: collaborative development of an integration pathway to assist strategic planning [abstract poster]. In: Poster Abstract Program of Canadian Immunization Conference 2018; 2018 Dec 4–6, Ottawa ON. Abstract 148.

- 269. McCarthy J, Langley J, ElSherif M, MacKinnon-Cameron D, Inglis K, Makonyere J, Halperin S. The development of rVSV-ZEBOV 'Canada's vaccine for ebola': a programmatic approach to clinical trials at the Canadian Immunization Research Network [abstract poster]. In: Poster Abstract Program of Canadian Immunization Conference 2018; 2018 Dec 4–6, Ottawa ON. Abstract 150.

- McNeil S, Langley J. Why flu is still nothing to sneeze at: Evidence-based vaccine recommendations for older adults. Presented at: Canadian Immunization Conference 2018; 2018 Dec 4–6; Ottawa ON.

- Co-interviewed (with Dr. C. Sanders) regarding CIRN-funded Hia project exploring experiences and attitudes toward vaccination among Indigenous people in northern Ontario. Interview conducted by physician-journalist, Dr. Miriam Shuchman, for Canadian Medical Association Journal. Article forthcoming (2019).

- Sanders, Chris, Kristin Burnett, Marina Ulanova, Donna Halperin, Scott Halperin, and on behalf of Canadian Immunization Research Network. 2019. "Space and Place in Rural Health: Immunization and Vaccine Access in Northern Ontario." To be presented at Canadian Society for the Sociology of Health, Vancouver, BC (June 07-08).

- Marina Ulanova, Eli Nix, Raymond Tsang, Vic Eton, William McCready. Carriage of Haemophilus influenzae Type A among Children in Rural Northwestern Ontario. Canadian Immunization Conference, December 3-6, 2018, Ottawa. Oral Abstract Program, p. 26. Oral presentation.

- Burnett, Kristin, Chris Sanders, Marina Ulanova, Donna M. Halperin, Scott A. Halperin, on behalf of Canadian Immunization Research Network (CIRN). 2018. "Vaccine Uptake among Indigenous People in Northern Ontario is Influenced by Geography and Prior Relationships with Health Care Workers: Results of a Prospective Qualitative Study Sponsored by the Canadian Immunization Research Network." Presented at Canadian Immunization Conference, Ottawa, ON (December 05).

- Cerqueira A, Tsang R, Jamieson F, Ulanova M. Continuing surveillance of Haemophilus influenzae in Northwestern Ontario and the emergence of serotype a as a significant cause of invasive disease. Canadian Immunization Conference, December 3-6, 2018, Ottawa. Poster Abstract Program, p.28. Poster Presentation.

- Eli B. Nix, Joshua Choi, Christina Anthes, Gabrielle N. Gaultier, Joelle Thorgrimson, Andrew D. Cox, Raymond S.W. Tsang, William G. McCready, Douglas Boreham, Marina Ulanova on behalf of The Canadian Immunization Research Network. Natural Immunity to Haemophilus influenzae Type A in First Nations Adults Living in Communities with Different Burden of Invasive Disease. AMMI-CACMID 2018, Vancouver, May 2-5, 2018. Oral presentation.

- Ulanova M, Eton V, Nix EB, Tsang RSW, McCready WG. Epidemiology of Haemophilus influenzae Type A disease in Rural Northwestern Ontario. Northern Health Research Conference, Oct 13-14, 2017, Thunder Bay. Oral presentation.

- A Cabrera, BSc, EB Nix, MD, Marina Ulanova, MD PhD, Manish Sadarangani, BM BCh DPhil. New enzyme immunoassay for detecting naturally-acquired immunity against Haemophilus influenzae type a in pediatric saliva. Accepted abstract for ESPID.

- Can J Microbiol. 2019 Jun 26. doi: 10.1139/cjm-2019-0210. [Epub ahead of print] Continuing surveillance of invasive Haemophilus influenzae disease in Northwestern Ontario emphasizes the importance of serotype a and non-typeable strains as causes of serious disease: A Canadian Immunization Research Network (CIRN) Study.

PROVINCIAL COLLABORATIVE NETWORK, PCN

- Crowcroft N, et al. Pertussis vaccine effectiveness in a frequency matched population-based case-control Canadian Immunization Research Network study in Ontario 2009-2015. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Crowcroft N, et al. Pertussis vaccine effectiveness in a frequency matched population-based case-control Canadian Immunization Research Network study in Ontario, Canada 2009-2015. The Ontario Public Health Convention (TOPHC) 2019, Toronto, ON, March 27-29, 2019.

- Crowcroft N, et al. The challenges of assessing pertussis vaccine effectiveness in the field: A Canadian Immunization Research Network Study. 12th International Symposium on Bordetella, Brussels, Belgium, April 9-12, 2019.

- Donelle J, et al. Vaccine coverage among children with epilepsy in Ontario, Canada. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Righolt C, et al. Vaccine coverage among children with epilepsy in Manitoba, Canada: A Canadian Immunization Research Network Study. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Donken R, et al. Comparable Vaccine Effectiveness Against Cervical Intraepithelial Neoplasia After Vaccination With Two Or Three Doses Of The Quadrivalent Human Papillomavirus Vaccine. Eurogin 2018, Lisbon, Portugal, December 2-5, 2018.

- Donken R, et al. Immunogenicity of Two Compared With Three Doses of The Quadrivalent Hpv Vaccine up to 10 Years Post-Vaccination: Phase III Post licensure Randomized Trial. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Racey CS, et al. Rates of Cervical Intraepithelial Neoplasia In Women in British Columbia: A Data Linkage Evaluation of the School-Based HPV Immunization Program. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Marty K, et al. No Prevalent HPV16/18 Infections after Two-Doses Of HPV Vaccine in Girls; An Interim Analysis from the Quadrivalent HPV Vaccine Evaluation Study. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Donken R, et al. Effectiveness of one-dose of Quadrivalent HPV vaccine against HSIL and CIN; a data-linkage study. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Dobson S, et al. Immunogenicity up to 10 years of two compared with three doses of the quadrivalent HPV vaccine: phase III postlicensure randomized trial. 32nd International Papillomavirus Conference, Sydney, Australia, October 2-6, 2018.

- Donken R, et al. After a two-dose schedule in girls no prevalent HPV16/18 infections were found; an interim analysis from the quadrivalent HPV vaccine evaluation study. 32nd International Papillomavirus Conference, Sydney, Australia, October 2-6, 2018.

- Donken R, et al. Effectiveness of one-dose of quadrivalent HPV vaccine against HSIL and CIN; a data-linkage study. 32nd International Papillomavirus Conference, Sydney, Australia, October 2-6, 2018.

- Racey CS, et al. Rates of Cervical Intraepithelial Neoplasia In Women in British Columbia: A Data Linkage Evaluation of the School-Based HPV Immunization Program. 32nd International Papillomavirus Conference, Sydney, Australia, October 2-6, 2018.

- Donken R, et al. No Prevalent HPV16/18 Infections among girls vaccinated with a two-dose schedule; an interim analysis from the Quadrivalent HPV Vaccine Evaluation Study. 37th Annual Meeting of the European Society for Paediatric Infectious Diseases. Malmö, Sweden, May 28-June 2, 2018.

- Jung JKH, et al. The impact of repeated vaccination over 10 previous seasons on protection against influenza in older adults: a test-negative design study across the 2010-2011 to 2015-2016 influenza seasons in Ontario, Canada. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Grewal R, et al. Human papillomavirus (HPV) vaccine uptake in gay, bisexual, and other men who have sex with men (gbMSM) in Montreal, Toronto, and Vancouver, a Canadian Immunization Research Network (CIRN) study. Canadian Association for HIV Research Conference. Vancouver, BC, April 26-29, 2018.

- Grewal R, et al. Human papillomavirus (HPV) vaccine uptake in gay, bisexual, and other men who have sex with men (gbMSM) in Montreal, Toronto, and Vancouver, a Canadian Immunization Research Network (CIRN) study. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

- Grewal R. Advancing evidence-based human papillomavirus vaccination delivery for gay, bisexual and other men who have sex with men and people living with HIV. Canadian Immunization Conference 2018, Ottawa, ON, December 4–6, 2018.

REFERENCE LABORATORY NETWORK, RLN

- Bolotin S, Severini A, Hatchette T, McLachlan E, Savage R, Hughes SL, Wang J,Deeks SL, Wilson S, Brisson M, Halperin SA, Gubbay J, Mazzulli T, Serhir B, Ward BJ, Crowcroft NS, on behalf of the Immunity of Canadians and Risk of Epidemics (iCARE) Network. Assessment of population immunity to measles in Ontario, Canada: A Canadian Immunization Research Network (CIRN) Study. Human Vaccines & Immunotherapeutics. 2019 May 16.

- McLachlan E, Scholz H, Bolotin S, Crowcroft NS, Hatchette TF, Jackson C, Severini A. Calibration and evaluation of quantitative antibody titers for varicella-zoster virus using the BioPlex 2200. Journal of clinical microbiology. 2019 Jun 5.

- Bolotin, S. Waning Immunity in the era of measles elimination – is there cause for concern? University of Toronto Vaccines Sciences Symposium. May 16, 2019 (Presentation)

- Bolotin, S. Waning Immunity in the era of measles elimination – is there cause for concern? PHACtually speaking (National PHAC rounds). June 20, 2019 (Presentation)

SPECIAL IMMUNIZATION CLINIC NETWORK, SIC

- Top K. Immunizing immunocompromised patients: Resources for clinicians. Presented at: Canadian Immunization Conference 2018; 2018 Dec 4; Ottawa, ON

- Deeks S, Top K, Harris T, Anyoti H. Safety in numbers: A collaborative workshop to build capacity in the surveillance and management of adverse events following immunization in Canada. Canadian Immunization Conference 2018; 2018 Dec 5; Ottawa, ON.

- Top K, Cole T. ABCs of AEFIs: An approach to adverse events following immunization for primary care providers. 92nd annual Dalhousie Fall Refresher, Dalhousie University; 2018 Dec 7; Halifax, NS.

- KA Top and the Special Immunization Clinic Network Investigators. Managing Adverse Events Following Immunization: Resource for Public Health. 2019 Jan 16. URL: http://cirnetwork.ca/publications/aefi/

- Top K. Managing patients with adverse events following immunization in the Special Immunization Clinic Network [webinar]. Presented at: Public Health Ontario Grand Grounds; 2019 Feb 5; Toronto, ON.

- KA Top. Special Immunization Clinic Network: Update on managing adverse events following immunization. Western Canada Immunization Forum; 5 March 2019; Vancouver, BC.

- Top K, Tapiéro B, Vaudry W, Pernica J, Pham-Huy A, Gantt S, Rassekh S, Price V, Sung L, Morris S, McConnell A, Rubin E, Chawla R, Jadavji T, Halperin S. Prospective evaluation of diphtheria-tetanus-polio-Haemophilus influenza type b (DTaP-IPV-Hib) and pneumococcal vaccination in children who completed chemotherapy for acute lymphocytic leukemia: A Canadian Immunization Research Network Study. In: Canadian Immunization Conference 2018 Oral Abstract Program; 2018 Dec 4–6, Ottawa, ON. p.5.

- KA Top. Waning immunity and vaccine responses among children who completed chemotherapy for acute lymphoblastic leukemia. Vaccine Evaluation Centre & Vaccines, Infections and Host Defense Academic Rounds, BC Children's Research Institute; 4 March 2019; Vancouver, BC.

- Karina A. Top, Bruce Tapiero, Anne Pham-Huy, Jeffrey M. Pernica, Wendy Vaudry, Victoria Price, S. Rod Rassekh, Lillian Sung, Soren Gantt, Athena McConnell, Shaun K. Morris, Rupesh Chawla, Scott A. Halperin. Evaluation of diphtheria-tetanus-acellular pertussis-polio-Haemophilus influenzae type b in children who completed chemotherapy for acute lymphoblastic leukemia: A Canadian Immunization Research Network Study. European Society of Pediatric Infectious Diseases 2019; 9 May 2019; Ljubljana, Slovenia. [Poster].

- Karina A. Top, Bruce Tapiero, Anne Pham-Huy, Jeffrey M. Pernica, Wendy Vaudry, Shaun K. Morris, Victoria Price, S. Rod Rassekh, Lillian Sung, Soren Gantt, Athena McConnell, Earl Rubin, Rupesh Chawla, Scott A. Halperin. Waning immunity against Streptococcus pneumoniae, pertussis, and tetanus in children treated for acute lymphoblastic leukemia: A Canadian Immunization Research Network Study European Society of Pediatric Infectious Diseases 2019; 9 May 2019; Ljubljana, Slovenia. [oral presentation].

SERIOUS OUTCOMES SURVEILLANCE NETWORK, SOS

- Nichols MK, Andrew MK, Hatchette TF, Ambrose A, Boivin G, Bowie W, Chit A, Dos Santos G, ElSherif M, Green K, Haguinet F, Halperin SA, Ibarguchi B, Johnstone J, Katz K, Lagacé-Wiens P, Langley JM, LeBlanc J, Loeb M, MacKinnon-Cameron D,McCarthy A, McElhaney JE, McGeer A, Poirier A, Powis J, Richardson D, Schuind A, Semret M, Shinde V, Smith S, Smyth D, Stiver G, Taylor G, Trottier S, Valiquette L, Webster D, Ye L, McNeil SA; Serious Outcomes Surveillance Network of theCanadian Immunization Research Network (CIRN), the Toronto Invasive Bacterial Diseases Network (TIBDN)Influenza vaccine effectiveness to prevent influenza-related hospitalization and serious outcomes in Canadian adults over the 2011/12 through 2013/14 influenza seasons: A pooled analysis from the Canadian Immunization Research Network (CIRN) Serious Outcomes Surveillance (SOS Network)

- Nichols MK, Andrew MK, Ye L, Hatchette TF, Ambrose A, Boivin G, Bowie W, Dos Santos G, Elsherif M, Green K, Haguinet F, Katz K, Leblanc J, Loeb M, MacKinnon-Cameron D, McCarthy A, McElhaney JE, McGeer A, Powis J, Richardson D, Semret M, Sharma R, Shinde V, Smyth D, Trottier S, Valiquette L, Webster D, McNeil SA; Serious Outcomes Surveillance (SOS) Network of the Canadian Immunization Research Network (CIRN)The impact of prior season vaccination on subsequent influenza vaccine effectiveness (VE) to prevent influenza-related hospitalizations over four influenza seasons in Canada.

- Mulpuru S, Li L, Ye L, Hatchette T, Andrew MK, Ambrose A, Boivin G, Bowie W, Chit A, Dos Santos G, ElSherif M, Green K, Haguinet F, Halperin SA, Ibarguchi B, Johnstone J, Katz K, Langley JM, LeBlanc J, Loeb M, MacKinnon-Cameron D, McCarthy A, McElhaney JE, McGeer A, Powis J, Richardson D, Semret M, Shinde V, Smyth D, Trottier S, Valiquette L, Webster D, McNeil SA; Serious Outcomes Surveillance (SOS) Network of the Canadian Immunization Research Network (CIRN). Effectiveness of Influenza Vaccination on Hospitalizations and Risk Factors for Severe Outcomes in Hospitalized Patients with Chronic Obstructive Pulmonary Disease (COPD)

- Baselga-Moreno V, Trushakova S, McNeil S, Sominina A, Nunes MC, Draganescu A, Unal S, Koul P, Kyncl J, Zhang T, Kuatbayeva A, Ben-Salah A, Burtseva E, Puig-Barberà J, Díez-Domingo J; Global Influenza Hospital Surveillance Network (GIHSN) Influenza epidemiology and influenza vaccine effectiveness during the 2016-2017 season in the Global Influenza Hospital Surveillance Network (GIHSN).

- Schembri J, Gillis HD, Lang ALS, Warhuus M, Martin I, Demczuk W, ElSherif M, McNeil SA, LeBlanc JJ Multi-target plasmid controls for conventional and real-time PCR-based serotyping of Streptococcus pneumoniae

- LeBlanc JJ, Elsherif M, Ye L, MacKinnon-Cameron D, Ambrose A, Hatchette TF, Lang AL, Gillis HD, Martin I, Demczuk W, Andrew MK, Boivin G, Bowie W, Green K, Johnstone J, Loeb M, McCarthy A, McGeer A, Semret M, Trottier S, Valiquette L, Webster D, McNeil SA. Is Streptococcus Pneumoniae Serotype 3 Masking PCV13-Mediated Herd Immunity In Adults Hospitalized With Community Acquired Pneumonia? (Presentation)

- LeBlanc JJ, Gillis HD, Demczuk WHB, Griffith A, Martin I, Warhuus M, Lang ALS, ElSherif M, McNeil SA. (2018) PCR-Based Discrimination Of Emerging Streptococcus Pneumoniae Serotype 22f And 33f (Presentation)

- McNeil S. Summary of the evidence around high-dose flu vaccine and NS surveillance data on influenza 17/18 season (Presentation)

- McNeil S. Monitoring of influenza vaccine effectiveness (Presentation)

- Nichols MK, Andrew MK, Ye L, Hatchette TF, Ambrose A, Boivin G, Elsherif M, Green K, Johnstone J Katz K, Leblanc JJ, Loeb M, MacKinnon-Cameron D, McCarthy A, McElhaney JE, McGeer A, Poirier A, Powis J, Richardson D, Semret M, Smyth D, Trottier S, Valiquette L, Webster D, Ye L, McNeil SA; on behalf of the CIRN SOS Network Investigators and the Toronto Invasive Bacterial Diseases Network (TIBDN) Investigators 2016/2017 Preliminary End of Season VE and BOD (Presentation)

- Gillis HD, Lang ALS, ElSherif M, Demczuk W, Martin I, McNeil SA, LeBlanc JJ. Streptococcus pneumoniae serotyping: assessing the performance of a PCR- and sequencing-based testing algorithm (Presentation)

- LeBlanc JJ, ElSherif M, Ye L, MacKinnon-Cameron D, Ambrose A, Hatchette TF, Martin I, Andrew MK, Boivin G, Bowie W, Green K, Johnstone J, Loeb M, McCarthy A, McGeer A, Semret M, Trottier S, Valiquette L, Webster D, McNeil SA. PCV13 Serotype Trends Over Time In Hospitalized Pneumococcal Community Acquired Pneumonia In Canada: Which Method(S) Work Best? (Presentation)

- McParland C, Nichols MK, Andrew MK, Hatchette TF, Ye L, Elsherif M, McNeil SA on behalf of the Canadian Immunization Research Network (CIRN) Serious Outcomes Surveillance (SOS) Network Investigators. Influenza BoD over the 11-14 influenza seasons (Presentation)

- Nichols MK, Andrew MK, Ye L, Hatchette TF, Ambrose A, Boivin G, Elsherif M, Green K, Johnstone J Katz K, Leblanc JJ, Loeb M, MacKinnon-Cameron D, McCarthy A, McElhaney JE, McGeer A, Poirier A, Powis J, Richardson D, Semret M, Smyth D, Trottier S, Valiquette L, Webster D, Ye L, McNeil SA; on behalf of the CIRN SOS Network Investigators and the Toronto Invasive Bacterial Diseases Network (TIBDN) Investigators. 2016/2017 End of Season VE and BOD. (Presentation)

- McNeil S.Why flu is still nothing to sneeze at: evidence-based vaccine recommendations for older adults (Presentation)

- Andrew MK, McElhaney JE, McNeil SA on behalf of SOS Network Investigators. Living better longer: the role of new vaccines in healthy aging (Presentation)

- McNeil S. Waning protection of influenza vaccine? Early- vs. late-season influenza vaccine effectiveness estimates over 3 seasons in Canada: An analysis from the Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (Presentation)

- Andrew MK, McElhaney JE, McNeil SA on behalf of SOS Network Investigators. Influenza surveillance case definitions miss a substantial proportion of older adults hospitalized with laboratory-confirmed influenza: A report from the Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (Presentation)

- McParland C, Nichols MK, Andrew MK, Hatchette TF, Elsherif M, Ye L, McNeil SA on behalf of the Canadian Immunization Research Network (CIRN) Serious Outcomes Surveillance (SOS) Network Investigators. A comparative evaluation of disease caused by Influenza A and B during the 2011-2014 influenza seasons in Canada: An analysis from the Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (Presentation)

- Nichols MK, Andrew MK, Ye L, Hatchette TF, Ambrose A, Boivin G, Elsherif M, Green K, Johnstone J Katz K, Leblanc JJ, Loeb M, MacKinnon-Cameron D, McCarthy A, McElhaney JE, McGeer A, Poirier A, Powis J, Richardson D, Semret M, Smyth D, Trottier S, Valiquette L, Webster D, Ye L, McNeil SA; on behalf of the CIRN SOS Network Investigators and the Toronto Invasive Bacterial Diseases Network (TIBDN) Investigators. 2016/2017 Influenza BOD and End of Season VE estimates for preventing influenza related hospitalization among Canadian adults: An analysis from the Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (Presentation)

- Gillis HD, Lang ALS, ElSherif M, Demczuk W, Martin I, McNeil SA, LeBlanc JJ. Streptococcus pneumoniae serotyping: assessing the performance of a PCR- and sequencing-based testing algorithm (Presentation)

- Schembri J, Gillis HD, Lang ALS, Warhuus M, Martin I, Demczuk W, ElSherif M, McNeil SA, LeBlanc JJ. Multi-target plasmid controls for conventional and real-time PCR-based serotyping of Streptococcus pneumoniae. (Presentation)

- LeBlanc JJ, ElSherif M, Ye L, MacKinnon-Cameron D, Ambrose A, Hatchette TF, Martin I, Andrew MK, Boivin G, Bowie W, Green K, Johnstone J, Loeb M, McCarthy A, McGeer A, Semret M, Trottier S, Valiquette L, Webster D, McNeil SA PCV13 Serotype Trends Over Time In Pneumococcal Community Acquired Pneumonia: Which Method(S) Work Best? (Presentation)

SOCIAL SCIENCES AND HUMANITIES NETWORK, SSHN

- E Dube, D Gagnon, K Kaminsky, CR Green, M Ouakki, JA Bettinger, N Brousseau, E Castillo, NS Crowcroft, SM Driedger, D Greyson, DB Fell, A Gagneur, M Guay, SA Halperin, S MacDonald, D Halperin, S Meyer, NM Waite, K Wilson, HO Witteman, MH Yudin, JL Cook, and the Canadian Immunization Research Network. Vaccination Against Influenza in Pregnancy: A Survey of Canadian Maternity Care Providers. J Obstet Gynaecol Can. 2019 Apr;41(4):479-488. doi: 10.1016/j.jogc.2018.09.007. Epub 2018 Nov 6.

- E Dube, D Gagnon, P Clément, JA Bettinger, JL Comeau, S Deeks, M Guay, S MacDonald, NE MacDonald, H Mijovic, J Paragg, C Rubincam, C Sauvageau, A Steenbeck, S Wilson, and the Canadian Immunization Research Network. Challenges and opportunities of school-based HPV vaccination in Canada.Hum Vaccin Immunother. 2019 Jan 11:1-6. doi: 10.1080/21645515.2018.1564440.

- A Gagneur. From PromoVac studies to a provincial health program. (Oral presentation) Vaccine hesitancy international meeting of the Fondation Mérieux, Annecy, France. September 23, 2018.

- A Gagneur. From PromoVac studies to a provincial health program. (Oral presentation) Scientific conference of the European Centre for Disease Prevention and Control, Stockholm, Sweden. September 28, 2018.

- E Dube. Do existing communication materials on vaccination support informed parental decision-making? A study of the Canadian Immunization Research Network (CIRN). (Oral Presentation) 40th Annual North American Meeting of the Society for Medical Decision Making, Montreal, QC. October 17, 2018.

- M Vivion. Communication materials to enhance vaccine acceptance: Do existing tools adhere to best practices in risk communication? A study of the Canadian Immunization Research Network. (Oral Presentation) 2018 Canadian Immunization Conference, Ottawa, ON. December 5, 2018

- E Dube. Barriers and enabling factors of school-based HPV vaccination programs: Multi-provincial study conducted by the Canadian Immunization Research Network. (Oral Presentation) 2018 Canadian Immunization Conference, Ottawa, ON. December 5, 2018

- M Driedger. Shifting Vaccine Hesitant Attitudes – What Works? (Invited speaker) 2018 Canadian Immunization Conference, Ottawa, ON. December 6, 2018

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MODELING AND ECONOMIC RESEARCH NETWORK, ModERN

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