



PHAC/CIHR INFLUENZA RESEARCH NETWORK

2013 ANNUAL REPORT



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ABOUT PHAC/CIHR INFLUENZA RESEARCH NETWORK (PCIRN)

PCIRN was launched through a three-year grant of \$13.9 million from the Public Health Agency and CIHR in 2009. The network was originally designed to carry out a three year plan to develop and test procedures for evaluating a pandemic vaccine using seasonal influenza vaccine as a model. Following the declaration of the pandemic that same year, the investigators of the new network immediately revised research plans in order to evaluate the H1N1/09 vaccine. PCIRN was formed to consolidate the existing expertise in vaccine evaluation; increase the capacity to rapidly test candidate vaccines; create and strengthen links and facilitate two-way knowledge exchange amongst vaccine evaluation researchers and decision makers, and train the next generation of pandemic preparedness and influenza researchers.

In February 2012, network investigators successfully participated in a directed grant application offered by CIHR and PHAC, for an additional three years of funding of \$4.5 million, to 2015. In addition to public health funding, PCIRN has successfully leveraged its network to welcome substantial support from industry for a variety of studies since 2009.

PCIRN currently represents over 90 investigators at more than 30 institutions, including universities, hospitals, and provincial and regional agencies across Canada. Since its inception, PCIRN has initiated more than 40 research studies through its sub-networks, several of which are long-term studies moving into their fifth year of operation in 2013.



LETTER FROM THE MANAGEMENT COMMITTEE

During its first three year term from 2009-2012, PCIRN achieved substantial impact on Canadian influenza research and earned national and international recognition for its methods and outcomes. A total of 15 peer-reviewed publications, 71 scientific presentations, and 13 reports and summaries were produced during this time; 19 research trainees were also supported by the network.

In early 2012, PCIRN Investigators were invited by the Public Health Agency and CIHR to participate in a directed grant opportunity for \$4.5 million over three years (2012-15). We were successful in our application and obtained our new funding in the spring of last year.

The objectives of the network were clearly outlined in the grant opportunity, and our stated goals as a network are to:

- Continue to perform vaccine research to inform health policy in Canada
- Maintain an active research network capable of response to infectious disease threats in Canada
- Further develop collaborations between Canadian vaccine experts
- Train the next generation of pandemic influenza and vaccine researchers
- Perform applied public health research and vaccine evaluations of high priority for Canadian health decision makers

As part of our evolution as a network, our Management Committee proposed a restructuring of the network to better capitalize on our expertise and to leverage cross-study opportunities. PCIRN continues to operate as a “network of networks” through its six main arms:

- Clinical Trials Network, led by Dr. David Scheifele and Dr. Mark Loeb
- National Ambulatory Network, led by Dr. Julie Bettinger

- Special Immunization Clinics Network, led by Dr. Gaston De Serres
- Serious Outcomes Surveillance (SOS) Network, led by Dr. Shelly McNeil and Dr. Melissa Andrew
- Program Delivery and Evaluation Network, led by Dr. Jeff Kwong
- Reference Laboratory Network, led by Dr. Brian Ward

The restructuring of our core operations has been enhanced with the addition of several new Principal Investigators who are voting members of our Management Committee. In addition we have formed a new Research Oversight Committee comprising five international experts, and our new Stakeholders Advisory Committee, which includes more than 20 members from provincial and territorial public health as well as industry.

PCIRN is indeed well positioned to move forward with our objectives of creating a sustainable and valuable long-term enhancement to Canada’s research landscape. As we conclude our fourth year of operations, we want to again extend a thank you to all of our co-investigators whose efforts have resulted in another year of important influenza research in Canada.

PCIRN Management Committee, March 2013

Dr. Scott Halperin, NPI

Dr. Melissa Andrew, PI

Dr. Julie Bettinger, PI

Dr. Gaston De Serres, PI

Dr. Jeff Kwong, PI

Dr. Mark Loeb, PI

Dr. Shelly McNeil, PI

Dr. David Scheifele, PI

Dr. Brian Ward, PI

PCIRN PRINCIPAL INVESTIGATORS

DR. SCOTT HALPERIN, NOMINATED PRINCIPAL INVESTIGATOR, PCIRN

Dr. Halperin is a Professor of Pediatrics and Microbiology and Immunology at Dalhousie University and the Head of Pediatric Infectious Diseases at the IWK Health Centre in Halifax. He has lived in Halifax since 1985 where he is the director of the Canadian Center for Vaccinology. Dr. Halperin is also Co-Principal Investigator of the IMPACT network. His research focuses on the diagnosis, treatment, and prevention of pertussis and other vaccine-preventable diseases.

DR. DAVID SCHEIFELE, CO-PRINCIPAL INVESTIGATOR, CLINICAL TRIALS NETWORK

Dr. Scheifele is one of the original founders of the Vaccine Evaluation Center at the Child and Family Research Institute, and has been the Director for the past 20 years. His many interests include influenza, *Haemophilus influenzae* type b vaccines, pneumococcal infections and vaccines, and meningococcal infections and vaccines. Dr. Scheifele is a founding investigator of IMPACT, a surveillance network of 12 pediatric hospitals across Canada that actively monitors certain vaccine-preventable diseases and adverse events following immunization.

DR. MARK LOEB, CO-PRINCIPAL INVESTIGATOR, CLINICAL TRIALS NETWORK

Dr. Mark Loeb is Professor in the Departments of Pathology and Molecular Medicine and Clinical Epidemiology and Biostatistics at McMaster University. He holds the Michael DeGroote Chair in Infectious Diseases and is Division Director for Infectious Diseases at McMaster University. His research interests include influenza vaccine clinical trials and genetic epidemiologic studies.

DR. JULIE BETTINGER, PRINCIPAL INVESTIGATOR, NATIONAL AMBULATORY NETWORK

Dr. Bettinger is an Assistant 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 (specifically meningococcal and pneumococcal invasive infections), 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. GASTON DE SERRES, PRINCIPAL INVESTIGATOR, SPECIAL IMMUNIZATION CLINICS NETWORK

Dr. Gaston De Serres is a medical epidemiologist at the Institut national de santé publique du Québec and a professor of Epidemiology at the Faculty of Medicine at Laval University. Dr. De Serres works in the area of control and prevention of infectious disease with a focus on vaccine-preventable diseases and respiratory infections, vaccine effectiveness and vaccine safety.

DR. SHELLY MCNEIL, CO-PRINCIPAL INVESTIGATOR, SERIOUS OUTCOMES SURVEILLANCE (SOS) NETWORK

Shelly McNeil is a Professor of Medicine and an Infectious Diseases Consultant at the QEII Health Sciences Centre in Halifax. Dr. McNeil is cross-appointed as an Assistant Professor of Pediatrics. She is a Clinical Investigator at the Canadian Center for Vaccinology, Halifax, where her research focuses on health policy, the evaluation of vaccine-preventable diseases in the elderly and in pregnant women and in clinical trials of new vaccines targeted at adolescent and adult populations

DR. MELISSA ANDREW, CO-PRINCIPAL INVESTIGATOR, SERIOUS OUTCOMES SURVEILLANCE (SOS) NETWORK

Melissa Andrew is a staff geriatrician and Assistant Professor of Geriatric Medicine at Dalhousie University in Halifax. She completed her MD as well as residency training in Internal Medicine and Geriatrics at Dalhousie University. While a resident, she did a Masters of Public Health at the London School of Hygiene and Tropical Medicine on a Commonwealth Scholarship. In 2011, she completed her PhD in Interdisciplinary Studies at Dalhousie University on subject of social vulnerability in older people.

DR. JEFF KWONG, PRINCIPAL INVESTIGATOR, PROGRAM DELIVERY AND EVALUATION NETWORK

Dr. Kwong has been a Scientist at the Institute for Clinical Evaluative Sciences (ICES) since 2007, and a Scientist at Public Health Ontario since 2011, and is also a family physician at Toronto Western Hospital and an Assistant Professor in both the Department of Family and Community Medicine and the Dalla Lana School of Public Health at the University of Toronto. Dr. Kwong's main research interest is in influenza vaccine and vaccination program evaluation (vaccine coverage, vaccine effectiveness, vaccine safety, vaccination program strategies [e.g., universal, school-based]). Other areas of interest include infectious diseases epidemiology and health services research using linkable data.

DR. BRIAN WARD, PRINCIPAL INVESTIGATOR, REFERENCE LABORATORY NETWORK

Dr. Ward is a professor of Medicine & Microbiology at McGill University and Associate Director of the Research Institute of the McGill University Health Center (Fundamental Science). He is Co-Director of the McGill Vaccine Evaluation Center, Director of the National Reference Center for Parasitology, and Associate Director of the JD MacLean Tropical Diseases Center. His work includes both basic and applied research in the fields of immune responses, immunological correlates of protection and/or adverse events, vaccine development, and parasitology.

CLINICAL TRIALS NETWORK

During 2012, the Clinical Trials “RT09” study that compared 3 influenza vaccines in seniors was successfully concluded. Of the 911 participants immunized in the fall of 2011, 898 attended the 6-month follow-up visit in spring of 2012, a remarkable 98% study completion rate. Serologic tests and data analysis were completed over the subsequent months, leading to submission of the final manuscript for publication in early 2013. This study, the largest PCIRN trial to date, involved 9 centers and 4 laboratories, and included 2 nested studies within the main trial.

Initially the Clinical Trials Network had planned to conduct a vaccine effectiveness study in seniors for the 2012–13 season; however, this project was contingent on industry funding which was not obtained. Investigators quickly switched gears to focus on critical support of an existing, underfunded, three-year clinical trial under the direction of PCIRN PI Mark Loeb. Funding from PCIRN for *A Randomized Controlled Trial of Live Attenuated Vaccine versus Trivalent Inactivated Vaccine in Hutterite Children*, enabled the project team to bridge funding gaps and contributed to important aspects of the research.

The best choice of vaccine for vaccinating children in order to achieve herd immunity remains unknown. Given that live attenuated intranasal influenza vaccine (LAIV), confers immunity by inducing natural infection, has about a 50% greater protection against influenza in children compared to TIV, vaccinating children with LAIV as compared to TIV may substantially reduce community transmission of influenza. The goal of this study is to test whether immunizing children in Hutterite colonies with LAIV can significantly reduce laboratory-confirmed influenza in the entire community compared to TIV. Investigators hypothesize that 70% uptake of LAIV compared to a similar uptake of TIV among healthy children and adolescents will reduce

laboratory-confirmed influenza in LAIV colonies by 50% compared to TIV colonies.

The clinical trial of LAIV/TIV in Hutterite Children will continue during the 2013–14 and 2014–15 seasons. Official enrolment and consenting of the Hutterite colonies in Alberta and Saskatchewan began on Oct 22nd 2012. Colonies are randomized as soon as consenting is complete. The colony is only randomized once during initial enrolment but will be re-consented annually. The table below shows the number of colonies and number of participants enrolled by group and province in season 1. 3453 participants have been enrolled from 48 colonies. All 48 colonies will be re-consented and vaccinated for the next season 2013–14.

Serology samples are collected at baseline, post-vaccination for healthy children and at the end of the season, both baseline and post-vaccination serology samples has been completed. End of season blood draws will be initiated after season 1 surveillance is closed. Serology samples will be collected for the next season 2013–2014. CT is hoping to increase enrolment for season 2 of the study, and have implemented few steps such as a monthly newsletter for non-participating colonies to keep them updated on study activities, with research assistants keeping open lines of communication with non-participating colonies, and PI visits to colonies.

In addition to the Hutterite trial, the PCIRN Clinical Trials team is working on development of training and capacity-building projects at its network of clinical trial sites to help enhance performance. Several potential projects using the Clinical Trials network are planned for the 2013/14 including:

- Safety of Flumist in children with CF
- Evaluation of quadravalent influenza vaccine in pediatric patients
- Evaluation of an avian influenza vaccine in adults

LAIV vs. TIV Enrolment Summary

Province	Colonies Enrolled	Randomized	Vaccinated	Vaccinated Group (VG)	Other Group (OH)
Alberta	31	31	31	661	1659
Saskatchewan	17	17	17	256	877
Total	48	48	48	917	2536

NATIONAL AMBULATORY NETWORK

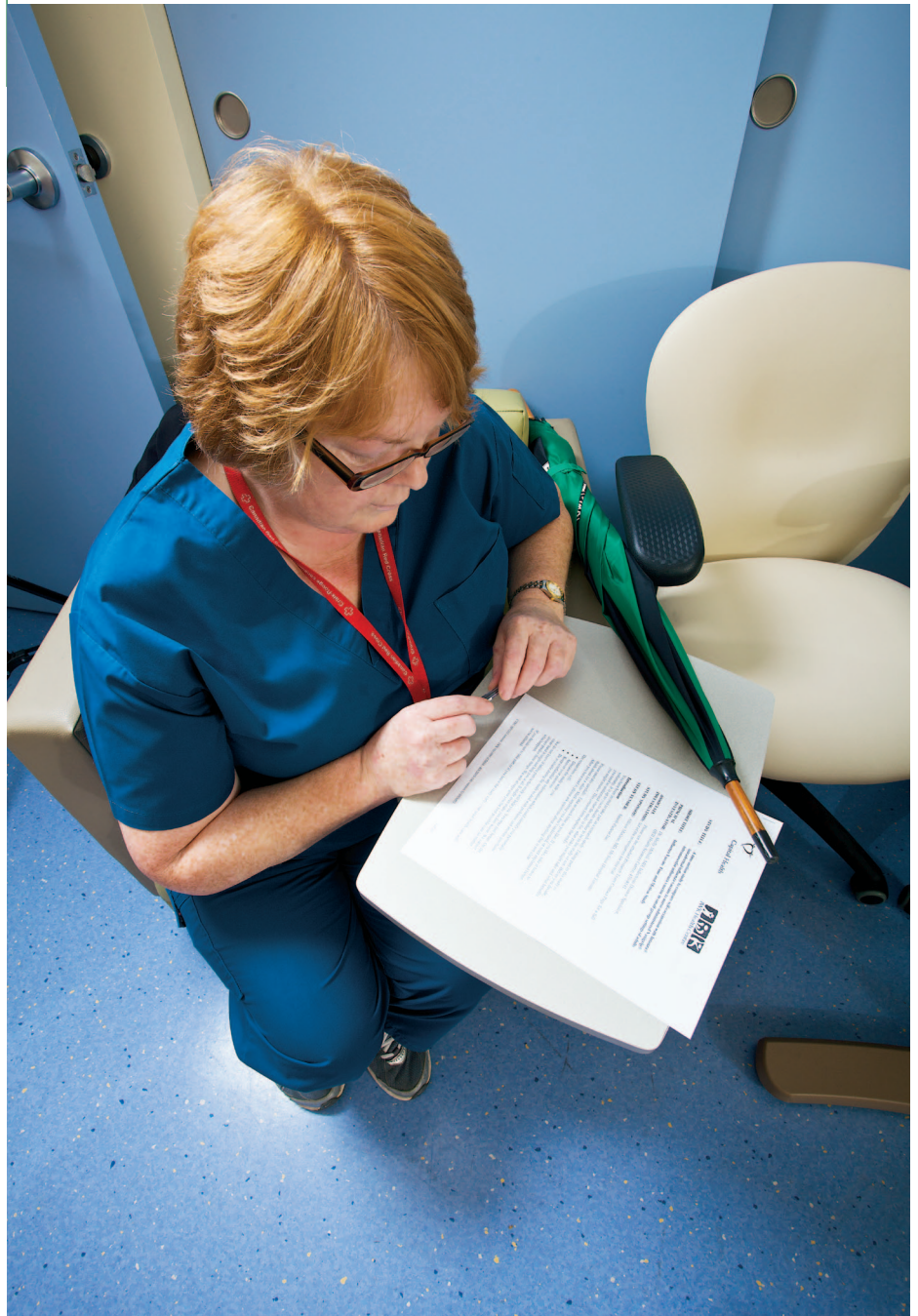
The National Ambulatory (NA) Network was formed by PCIRN in 2012 as a natural evolution of the Vaccine Safety Surveillance study (2009–11). The Network manages eight sub-sites in provinces across Canada and represents a current safety cohort of thousands of Health Care Workers (HCW). Annually, the Network studies Adverse Events Following Immunization (AEFI) shortly after the start of provincial influenza campaigns. The Network managed two studies in 2012–13:

- Active Surveillance of Adverse Events Following Immunization among Health Care Workers Immunized With the Influenza Vaccine
- Active Surveillance of Adverse Events Following Immunization among Children Immunized With the Influenza Vaccine.

In 2012 the NA Network surveillance in health care workers (HCW) was expanded to 8 sites in 5 provinces with almost 9,000 HCW responding to the 7-day safety survey. Additionally, the NA Network pilot tested surveillance in over 1,200 parents of immunized children at one site. In late October 2012, at the request of the Public Health Agency, the network was able to provide an early safety brief to public health after concerns were raised in Italy around the Agriflu vaccine, which contained tiny clumps of virus particles. Early results from the NA Network showed a similar rate of health events in HCW immunized with Agriflu when compared to unimmunized HCW and HCW immunized with other vaccine products.

In 2013–14 the National Ambulatory network will continue its surveillance in HCW and expand surveillance among parents of immunized children and adults 65 years of age and older. The goals this year will be to

increase the participation rate, to expand the number of sites enrolling children (to reach a goal of 10,000 children) and to provide results to public health by early November. As with the HCW group, a control group will be included for the children in order to determine baseline rates for common events.



SPECIAL IMMUNIZATION CLINICS NETWORK

The Special Immunization Clinics (SIC) Network was introduced as a new PCIRN network as part of the 2012 application for renewed funding, under Dr. Gaston De Serres. Dr. De Serres' success in leading PCIRN studies in both anaphylaxis following immunization and in egg allergic patients vaccinated with influenza vaccine in previous years was a natural precursor to the evolution of such a clinic network.

In 2012–13, the SIC Network was in its first stage and the work was dedicated to recruiting sites, preparing a detailed protocol describing the scope and activities of the SIC Network, preparing the standard forms and the mechanism to collect data on patients, developing the scientific basis for the management of patients and writing a management guide for patients with an adverse event following immunization (AEFI) or potential contraindication to vaccination.

In addition, an extensive literature review was conducted in preparation of the scientific management guide and a review article describing its findings will be written. A face-to-face meeting held in Montreal in February 2013 allowed all site investigators to discuss and agree on the procedures and management of the Special Immunization Clinics. All sites had submitted the protocol to their ethics boards and the SIC Network expects approval by the end of Spring 2013.

The SIC network has 13 sites in 6 provinces. The sites are mostly based in hospitals belonging to the IMPACT network and while the principal investigator in each site is an Infectious Disease specialist, allergists and co-investigators of other specialties will also participate depending upon the AEFI and medical condition to manage.

In 2013–14 the SIC Network will become fully operational and plans to:

- Start the clinical activities of Special Immunization Clinics
- Continue the review of the scientific evidence supporting the various recommendations with the objective of creating a virtual database that will include studies related to the safety of vaccinating patients who had AEFI or those with potential vaccine contraindications
- Write articles summarizing the evidence on the risk of recurrence of AEFI
- Conduct a survey (with the Canadian Pediatric Society) of pediatricians throughout the country to assess the frequency with which they manage patients with challenging AEFI and the need for Special Immunization Clinics to refer difficult cases
- Develop protocols to assess various AEFI (allergic reactions and oculo-respiratory syndrome, large local reactions)
- Expand the collaboration with the Public Health Agency of Canada and the various provincial and territorial ministries regarding the assessment and management of AEFIs
- Expand the collaboration with the networks assessing AEFI from Australia, Italy and the United States



SERIOUS OUTCOMES SURVEILLANCE (SOS) NETWORK

The Serious Outcomes Surveillance (SOS) Network currently represents 18 surveillance sites, including 43 sentinel teaching hospitals across Canada and 40,000 acute care beds. SOS sites are located in seven provinces – BC, Alberta, Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia. The SOS Network monitors the effectiveness of seasonal influenza vaccines by tracking the incidence and severity of disease in adults hospitalized with influenza, and also assesses the health and economic burden of influenza in Canadian adults, in order to better understand how vaccines can be used to prevent flu in adults and to understand risk factors for more severe disease. The network has recently expanded to include pneumococcal and invasive meningococcal surveillance as well.

SOS continued active surveillance for influenza and pneumococcal disease over the last year. As of April 2013, there were over 1500 hospitalized influenza positive cases identified within the network. In addition to assessment of serious outcomes related to influenza, this year SOS has also been conducting several sub-studies assessing frailty and immunosenescence in relation to influenza outcomes. In 2012 over 1400 cases of Community Acquired Pneumonia (CAP) were identified and 78 cases of Invasive Pneumococcal Disease (IPD).

SOS entered a new collaboration this season with the Public Health Agency of Canada (PHAC) providing them with weekly reports regarding influenza cases admitted and those resulting in ICU admission or death. These data were incorporated in their weekly FluWatch report.

Approximately 1500 influenza cases and 1800 influenza negative controls were enrolled in the influenza surveillance study. Participant

follow-up and data entry are still ongoing as of this report writing. Early estimates of Vaccine Effectiveness (VE) are consistent with data from other surveillance programs, though no other network evaluates VE against hospitalization and serious outcomes in Canada.

Surveillance for influenza and pneumococcal disease will continue for another year with ongoing funding from GSK and Pfizer. Sub-studies related to frailty and immunosenescence will continue with expanded participation within the network. Ongoing CIHR funding will support additional sub-studies aimed at enhancing the SOS Network Capacity to respond to emerging safety signals. Two protocols are being developed to establish methodologies, tools and resources and training to respond to evaluate relevant Adverse Events of Special Interest (AESI) following immunization. These protocols have the capacity to be amended rapidly if a potential safety signal is reported, and will allow for rapid response capacity as well as providing validation for ICD10 diagnostic coding for relevant AESI's.



PROGRAM DELIVERY & EVALUATION NETWORK

The Program Delivery and Evaluation (PDE) group undertook six projects in 2012–13. *Integrating Barcode Scanning of Vaccines into Public Health Settings, Phase II*, was conducted in Algoma Public Health in Ontario and First Nations communities in Alberta. Scanning vaccine data into immunization records improved data quality and was well-received by users.

Parental Perceptions of School-based Influenza Immunization (SBII) in Ontario saw 55 parents discussing the advantages and disadvantages of adding annual flu shots to school immunization programs. Several issues were identified with on-line recruitment strategies (multiple individual submissions, inaccurate data). Parents understood the benefits of SBII programs but expressed concerns about program delivery.

In the study *Online Perceptions of Measles and Measles Vaccination, Following the 2011 Outbreak in Quebec*, responses to on-line news articles about Quebec's 2011 measles outbreak were analyzed; 20% of individuals expressed negative perceptions of measles vaccination, but contributed 36% of total comments. Public health messages should address this group's concerns by emphasizing that immunization is a personal choice, and that the pharmaceutical industry is strictly controlled.

Evaluation of the Impact of Leadership in the Pre-implementation Period: 2012 BC Influenza Prevention Policy saw focus groups held with eight leadership teams in October 2012 to discuss the province-wide policy of influenza immunization or wearing a mask when in contact with patients during influenza season as a condition of service. Key strengths identified included: having a patient safety focus, provincial-level mandate, support of senior leadership, and consistent communications.

With the *Vaccine Sentiment Ontology* study, the team developed an automated method to monitor public attitudes towards vaccination by sampling blog posts on vaccines, manually annotating blog posts to use as a gold standard for automated text extraction, and developing an ontology to model existing knowledge about vaccination in online social media.

The *Healthcare Worker Immunization* study showed that Influenza immunization program planners believe immunization coverage in healthcare workers will continue to be sub-optimal using existing strategies. Although participants discussed mandatory immunization as a way to improve uptake, obstacles need to be addressed for this to be implemented successfully.

For the upcoming 2013-14 year the PDE group has a number of projects planned:

- ***Evaluating the use of Live Attenuated Influenza Vaccine (LAIV) and Trivalent Inactivated Influenza Vaccine (TIV) through School-based Influenza Immunization: a Randomized Controlled Trial*** will determine whether offering LAIV instead of TIV in a school-based setting improves vaccine coverage, as well as compare the costs of these programs, and obtain data to inform a future full-scale RCT.
- ***An Exploration of Public Perceptions of Vaccination Based on Comments in the Social Media*** will analyze responses to on-line news articles about vaccine preventable diseases including but not limited to HPV, pertussis, and seasonal influenza.
- ***A Study of the Impact of ImmunizeON, a new iPhone app, on Maternal Beliefs and Attitudes toward Pediatric Vaccination*** will assess the impact of using a smartphone app on immunization attitudes and provide pilot data for a pragmatic RCT of the impact of the ImmunizeON app versus sham app on on-time vaccination rates.
- ***Mixed Methods Examination of the 2012-2014 British Columbia Influenza Prevention Policy*** is an extension of the work conducted in year 4 to assess the condition of service policy in BC. Researchers will conduct a series of focus groups and surveys of healthcare facilities and healthcare workers to evaluate the implementation of the new policy.
- ***Vaccine Attitude Surveillance using Semantic Analysis (VASSA)*** will work to develop, evaluate, and apply on a large scale an automated method for monitoring on-line sentiments toward vaccines.

REFERENCE LABORATORY NETWORK

In 2012–13, the Reference Laboratory (RL) Network focused on the maintenance of competence for standard assays and assay support for PCIRN's various networks, maintenance and development of the PCIRN sample archive (biobank), and field testing and/or use of RL-developed novel assays as investigational tools for improved understanding of immune responses to vaccination or illness.

RL continued to offer lab testing support to other PCIRN themes, supporting clinical research and surveillance efforts. Tests offered included cell-mediated immunity, microneutralization, cross-protection, PCR, and HAI. This latter, a 'gold-standard' for influenza testing, continues to be offered in the standardized format established by RL, refined using up-to-date WHO standards, and quality-tested in collaboration with Canada's leading public health lab, NML. RL labs in Nova Scotia, Quebec, and British Columbia continue to constitute a valuable pandemic preparedness resource for Canada's public health system, via a geographically dispersed, 'surge capacity' for rapid diagnostic testing.

RL continued to maintain the archive of clinical samples established in previous years and to refine related processes, such as database establishment. This invaluable repository provides the means for PCIRN and other Canadian researchers to access valuable, supra-regional biological samples and reagents for future influenza-related research.

The RL-developed miniaturized anti-neuraminidase (anti-NA) assay, presently not available elsewhere in Canada, is now being exploited for investigational uses. (Antibodies to this major surface glycoprotein of influenza are currently not measured routinely and the NA antigen content of seasonal vaccines is not standardized, despite indications that anti-NA antibodies may reduce infection severity and be of special interest in the case of pandemic influenza). RL's novel IgG avidity assay has been in investigational use for some time, and was the basis of a recent peer-reviewed publication helping to shed light on immune responses to vaccination in children.

In 2013–14, RL will provide continued support for other PCIRN Networks, and provide maintenance and development of the PCIRN sample archive. In addition the RL group is investigating the possibility of several research projects:

- **Exploration of Anti-Neuraminidase Antibody Response to Influenza Vaccine** will use the improved higher-throughput assay developed by RL to investigate anti-NA responses in relation to drift changes in the H1 surface protein.
- **Understanding Influenza B Serology** will systematically compare different approaches to determine an optimal strategy for assessing influenza B virus using the HAI assay.
- **HAI Target Antigen Testing** will study the impact of using different target antigens (egg- vs tissue-culture-adapted, vs wt target antigens) on results of HAI and other influenza tests.
- **Non-Influenza Etiologies in ILI** addresses questions on the causes of ILI and investigates how our usual methods of estimating vaccine efficacy are affected by using this crude measure to select patients for further flu testing.
- HAI assay inherently poses many challenges to between-lab standardization. **Network-wide HAI; Quality Assurance** continues and builds upon previous RL work to standardize HAI protocols and outputs, adding capacity and further rigor.



PCIRN STUDENTS & TRAINEES

Each year PCIRN welcomes students from across the influenza research spectrum to participate in research projects and to receive funding support through PCIRN. Candidates are nominated by the Principal and Co-Investigators within the network and funding support is contingent on adherence to CIHR-level quality research. Students are encouraged to present their research at the PCIRN Annual Meeting, and also participate in the PCIRN curriculum, a web-based program based on case study discussions, with seminars held monthly.

MELANIE COURTOT is a PhD student based at the BC Cancer Research Centre whose research focuses on improving vaccine adverse events reporting. Her general research interest is to make biological and clinical data openly available on the web, and develop required methods to increase their integration and reproducibility.

SANELA GAJIC completed her Masters of Applied Health Services Research (MAHSR) at Dalhousie University with collaboration of the Atlantic Regional Training Centre (ARTC). Her thesis work was supervised by Dr. Shelly McNeil and focused on Outlining Healthcare Utilization in Order to Develop Evidence Based Data Collection Tools for Prospective Evaluation of the Economic Burden Due to Invasive Meningococcal Disease (IMD) in Canada.

AMANDA LANG is a post-doctoral fellow at Dalhousie University working on new diagnostic tools to detect influenza infections. Research interests include infectious diseases, vaccine development, clinical microbiology, influenza, and Streptococcus pneumoniae

SARAH MCALPINE is a post-doctoral fellow at Dalhousie University and her research interests include infectious diseases, immunity, vaccinology, influenza, and pertussis. She is working on evaluating new formulations of vaccines for influenza and pertussis.

MARIO ANDRES PIZZORNO is studying the processes underlying influenza genetic variability and antiviral resistance to develop novel preventative and therapeutic

modalities against emerging viruses as part of his PCIRN scholarship and masters at Laval University.

MIGUEL RETAMAL is a PhD student at Laval University and his studies are focused on characterization of the surface proteins of pH1N1. Miguel has broad industrial experience in development and production of novel vaccines and drugs and in immunology.

KATIE YOUNG holds a CIHR studentship for her PhD work that focuses on the evaluation of immune responses to virus-like particle (VLP) vaccines made in plants. A part of her work at the Research Institute of the McGill University Health Centre is focused on the development of eGFP-tagged VLP to develop novel, high-throughput serologic assays for influenza.

KAREN YAM is a post-doctoral fellow at the Research Institute of the McGill University Health Centre where she is developing novel humoral assays (eg: IgG avidity, IgG subclass distribution) to better understand protective immunity following influenza virus infection and influenza vaccination.

JOSELINE ZAFACK is a PhD student in epidemiology at the Centre Hospitalier Universitaire de Quebec where she is working on adverse events following immunization (AEFI) to evaluate the risk of of recurrence upon revaccination.

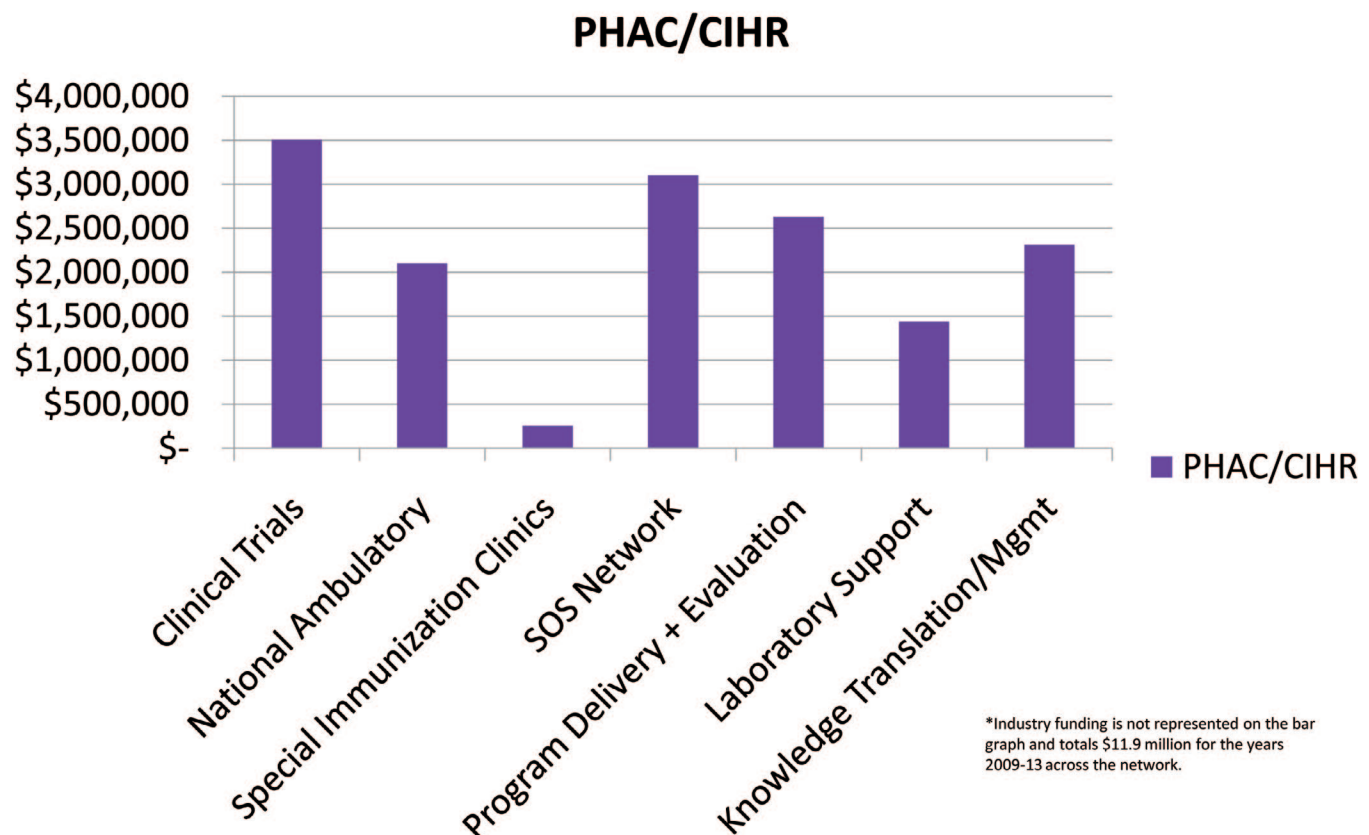


FINANCIAL REPORT

- Term of original PHAC/CIHR Grant Funding: **April 2009 – March 2012**
- Term of new PHAC/CIHR Grant Funding: **April 2012 – March 2015**
- Total PHAC/CIHR Grant to 2015: **\$18,426,459**
- Grant funding assigned to research studies 2012–13: **\$1,985,441**
- Industry funding assigned to research studies 2012–13: **\$3,667,192**
- Total number of network research studies funded 2009–2013: **60**
- Total number of participating investigators & contributors to date: **122**
- Total number of participating institutions and organizations to date: **35**

PCIRN FUNDING 2009-2013

Network funding to March 31, 2013: \$26.9 million*



PCIRN CO-INVESTIGATORS & CONTRIBUTORS 2012–13

CLINICAL TRIALS NETWORK

Bjornson, Gordean	UBC/CFRI
Coleman, Brenda	Mt. Sinai
Cooper, Ann	McMaster
Cooper, Curtis	OHRI
Dionne, Marc	Laval
Eskandrian, Sasha	McMaster
Fan, Shuyu	UBC/CFRI
Halperin, Scott	Dalhousie
Hatchette, Todd	Dalhousie/CDHA
Johnstone, Jennie	McMaster
Kollman, Tobias	UBC/CFRI
Lajeunesse, Carol	UBC/CFRI
Langley, Joanne	Dalhousie
Li, Yan	NML
Loeb, Mark (PI)	McMaster
MacKinnon-Cameron, Donna	Dalhousie
Magwood, Reagen	McMaster
Manning, Vanessa	McMaster
Marty, Kim	UBC/CFRI
McElhaney, Janet	AMRIC (formerly UBC)
McGeer, Allison	Mt. Sinai
McNeil, Shelly	Dalhousie/CDHA
Montolmoli, Emmanuel	Italy – University of Siena
Quach, Caroline	MUHC
Rubinstein, Ethan	U Winnipeg
Scheifele, David (PI)	UBC/CFRI
Vanderkooi, Otto	U Calgary
Ward, Brian	MUHC

NATIONAL AMBULATORY NETWORK

Bettinger, Julie (PI)	UBC/CFRI/BCCCH
Bowie, Bill	UBC/VGH
De Serres, Gaston	Laval/INSPQ
Fan, Shuyu	UBC/CFRI
Kellner, Jim	U Calgary
MacDonald, Judy	UBC/CFRI
Marty, Kim	UBC/CFRI
McCarthy, Anne	OHRI
McGeer, Allison	Mt. Sinai
McNeil, Shelly	Dalhousie, CDHA
Needham, Judy	UBC/CFRI
Valiquette, Louis	U Sherbrooke/CHUS
Vanderkooi, Otto	U Calgary

SPECIAL IMMUNIZATION CLINICS NETWORK

Benoit, Melanie	Laval
Boucher, Francois	Laval
De Serres, Gaston (PI)	Laval/INSPQ
De Almeida, Floriana	Laval
Dobson, Simon	UBC
Garipey, Marie-Claude	Laval
Halperin, Scott	Dalhousie
Jadavji, Taj	U Calgary
Lebel, Marc	Ste-Justine
McNeil, Shelly	Dalhousie/CDHA
Pernica, Jeffrey	McMaster
Pham-Huy, Anne	U Ottawa
Quach, Caroline	MUHC
Rouleau, Isabelle	Laval
Tan, Ben	U Saskatchewan
Tran, Dat	U Toronto
Top, Karina	IWK/Dalhousie
Valiquette, Louis	U Sherbrooke/CHUS
Vaudry, Wendy	U Alberta
Zafack, Joseline	Laval

SERIOUS OUTCOMES SURVEILLANCE NETWORK

Ambrose, Ardith	Dalhousie
Andrew, Melissa	Dalhousie
Boucher, François	Laval
Bowie, Bill	UBC/VGH
Coleman, Brenda	Mt. Sinai
Diaz Mitoma, Francisco	AMRIC
ElSherif, May	Dalhousie

Gajic, Sanela	Dalhousie
Katz, Kevin	North York Gen. Hosp
Leblanc, Jason	CDHA
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Pizzorno, Andres	CRCHUL
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PUBLICATIONS, ABSTRACTS, & PRESENTATIONS

CLINICAL TRIALS

Rubinstein E, Predy G, Sauvé L, Hammond G, Aoki F, Sikora C, Law B, Halperin S, Scheifele D. First Nations and Métis adults Responded Well to Adjuvanted H1N12009 Pandemic Vaccine. *CMAJ* 2011, 183(13):e1033-7.

Scheifele DW, Ward BJ, Dionne M, Vanderkooi O, Langley JM, Dobson S, Li Y, Law B, Halperin SA. Evaluation of Adjuvanted Pandemic H1N12009 Influenza Vaccine After One and Two Doses in Young Children. *Pediatric Infect Dis J.* 2011;30:402-7

Scheifele DW, Marty K, Lajeunesse C, Fan SY, Bjornson G, Langley JM, Halperin SA. Strategies for Successful Rapid Trials of Influenza Vaccine. *Clinical Trials.* December 2011; 8:699-704.

Langley JM, Scheifele DW, Quach C, Vanderkooi O, Dobson S, Ward B, Kellner J, McNeil S, MacKinnon-Cameron D, Smith B, Halperin SA. Safety and immunogenicity of 2010-2011 H1N1/2009-containing trivalent inactivated influenza vaccine in children 12 to 59 months of age who received AS03-adjuvanted H1N1/2009 pandemic vaccine. *Vaccine* 2012; 30:3389-3394.

Scheifele DW, Dionne M, Ward BJ, Cooper C, Vanderkooi OG, Li Y, Halperin SA. Safety and immunogenicity of 2010-2011 A/H1N1pdm09-containing trivalent inactivated influenza vaccine in adults previously given AS03-adjuvanted H1N1 2009 pandemic vaccine: results of a randomized trial. *Human Vaccines & Immunotherapeutics* 2013; 9(1):1-8. (RT06, in 2010)

Scheifele DW, Ward BJ, Dionne M, Vanderkooi OG, Loeb M, Coleman BL, Li Y. Compatibility of AS03-adjuvanted A/H1N1pdm2009 and seasonal trivalent inactivated influenza vaccines in adults: results of a randomized, controlled trial. *Vaccine* 2012;30:4728-4732.

Elevated Inflammatory Mediators in Adults with Oculo-respiratory Syndrome Following Influenza Immunization: A Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (PCIRN) Study. Mona Al-Dabbagha Keswadee Lapphraa David W. Scheifelea Scott A. Halperinb Joanne M. Langleyb Patricia Choa Tobias R. Kollmanna Yan Lic Gaston De Serresd Edgardo S. Fortuno IIIa Julie A. Bettinger*a (under review)

Adverse Neurologic reactions after both doses of pandemic H1N1 influenza vaccine with optic neuritis and demyelination. Lapphra K, Huh L, Scheifele DW *PIJD* 2011; 30 (1): 84-6.

Safety, Immunogenicity and Tolerability of Three Influenza Vaccines for Older Adults: Results of a Randomized, Controlled Comparison. Scheifele DW, McNeil S, Ward B, Dionne M, Cooper C, Coleman B, Loeb M, Rubinstein E, McElhaney J, Li Y, Montomoli E, Schneeberg A, Bettinger J, Hatchette, T Halperin SA, PHAC/CIHR Influenza Research Network Under review

Scheifele DW, Ward B, Dionne M, De Serres G, Langley J, Halperin S, Vanderkooi O, Kellner J, Dobson S, Sauvé LJ, Li Y, Law B. One Dose or Two? Results of a PCIRN Study of Dosing Requirements of Toddlers Given Adjuvanted H1N1 Influenza Vaccine During the 2009 Pandemic [abstract]. *Can J Infect Dis Med Microbiol.* 2010;21:181. Abstract 0016.

Scheifele DW, Ward B, Dionne M, De Serres G, Langley J, Halperin S, Vanderkooi O, Kellner J, Dobson S, Sauvé LJ, Kollmann T. Immunogenicity of AS03-Adjuvanted pH1N1 Influenza Vaccine in Young Canadian Children [abstract]. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC. Abstract Poster 1354.

Scheifele DW, Ward B, Dionne M, De Serres G, Halperin S, Vanderkooi O, Kellner J, Dobson S, Sauvé LJ, Kollmann T. Safety of an AS03-Adjuvanted pH1N1 Influenza Vaccine Given to Young Canadian Children [abstract]. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC. Abstract Poster 1363.

Scheifele DW, Dionne M, De Serres G, Loeb M, McGeer A, Vanderkooi O, Kellner J, Dobson S, Sauvé LJ, Li Y, Law B, Halperin S. PCIRN Study of Adults Given Monovalent, Adjuvanted H1N1 Vaccine with Concurrent or Delayed Trivalent Seasonal Influenza Vaccination [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster P141. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Cooper C, Haase D, Walmsley S, Klein M, Scheifele DW, Halperin S, Li Y, Law B, Smith B. PCIRN Randomized Trial to Compare the Immunogenicity of Adjuvanted Pandemic H1N1 2009 Vaccine with or Without a Second “Booster” Dose in HIV-infected Adults [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster P116. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Scheifele DW, Dionne M, De Serres G, Loeb M, McGeer A, Vanderkooi O, Kellner J, Dobson S, Sauvé LJ, Li Y, Law B, Halperin SA. PCIRN Study of Adults Given Monovalent, Adjuvanted H1N1 Vaccine With Concurrent or Delayed Trivalent Seasonal Influenza Vaccination [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 141. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Schiefele, DW. PCIRN Rapid Trials Theme, Year 1 and Year 2 Research Activities. Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

Scheifele, DW. PCIRN Rapid Trials Theme, Year 1 and Year 2 Research Activities. Presented at: 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC.

Cooper, C. Immediate and Long-term Immunogenicity and Efficacy of Adjuvanted Pandemic H1N12009 Vaccine With or Without Booster: A Randomized Trial in HIV Infected Adults. Presented at: 20th Annual Canadian Conference on HIV/AIDS Research; 2011 Apr 14-17; Toronto, ON. Oral Abstract 089. Also, *Can J Infect Dis Med Microbiol* 2011; 22(Suppl.B):35B-36B.

Scheifele, DW. Safety and Immunogenicity of Re-vaccination with H1N1-containing 2010-11 Seasonal Influenza Vaccine After Priming with 2009 Adjuvanted Pandemic Vaccine. Presented at: 14th Annual Conference on Vaccine Research of the National Foundation for Infectious Diseases; 2011 May 16-18; Bethesda, Maryland.

Langley, JM. Rapid Pre-season Trial of the Safety of 2010-2011 H1N12009-containing Trivalent Inactivated Influenza Vaccine (TIV) in Young Children 12 to 59 months of Age (YC) Who Received AS03-adjuvanted H1N12009 Pandemic Vaccine. Presented at: 14th Annual Conference on Vaccine Research of the National Foundation for Infectious Diseases; 2011 May 16-18; Bethesda, Maryland.

An Investigation of Inflammatory Mediators in Selected Adverse Events following Influenza Immunization in Adults. Al-Dabbagh M, Lapphra K, Scheifele D, Dobson S, Halperin S, Langley J, De Serres G, Kollmann T, Bettinger J. Poster presented at the 5th Annual Global Vaccine ISV Congress, October 2-4, 2011, Seattle, WA USA

Knowledge, Attitudes and Beliefs of Older Adults about Pneumococcal Immunization. Schneeberg, Amy; Bettinger, Julie A.; McNeil, Shelly; Ward, Brian; Dionne, Marc; Cooper, Curtis; Coleman, Brenda; Loeb, Mark; Rubinstein, Ethan; McElhaney, Janet; Scheifele, David; Halperin, Scott. Oral Abstract presented at the 2012 Canadian Immunization Conference, Vancouver, BC, December 2012

Randomized Controlled Comparison of 3 Seasonal Influenza Vaccines in Canadian Seniors: Immunogenicity Data from a PCIRN Trial. Scheifele, David McNeil, Shelley Dionne, Marc Ward, Brian; Cooper, Curtis Loeb, Mark; Coleman, Brenda McGeer, Allison Rubinstein, Ethan McElhaney, Janet Li, Yan Hatchette, Todd; Halperin, Scott. Oral Abstract presented at the 2012 Canadian Immunization Conference, Vancouver, BC, December 2012

Randomized Controlled Comparison of 3 Seasonal Influenza Vaccines in Canadian Seniors: Safety Observations from a PCIRN Trial. Scheifele, David McNeil, Shelley Dionne, Marc Ward, Brian; Cooper, Curtis Loeb, Mark; Coleman, Brenda McGeer, Allison Rubinstein, Ethan McElhaney, Janet Li, Yan Halperin, Scott. Poster Abstract presented at the 2012 Canadian Immunization Conference, Vancouver, BC, December 2012

RAPID IMPLEMENTATION (2009–12)

Johnson, M. PCIRN Rapid Implementation Year 1 Research Findings. Alberta Health Services Report. June 2010.

Sikora C, McKim R, Shaw N, Johnson M. Creative Assessment: the Development of a Mixed-Methods Evaluation Protocol for Pandemic Influenza Vaccination Clinics in Alberta [abstract]. In: Abstracts of the “Thinking Qualitatively Workshop Series” presented by the International Institute for Qualitative Methodology at the University of Alberta; 2010 May; Edmonton, AB

Sikora C, Mason-Lai P, McKim R, Johnson M. A Survey of Information Sources Utilized by Patients Attending pH1N1 Mass Vaccination Clinics in Alberta, Canada [abstract]. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC.

Sikora C, Mason-Lai P, McKim R, Johnson M. A Survey of Individual Patient Willingness for Self-Registration and Self-Immunization in Mass Vaccination Clinics in Alberta, Canada [abstract]. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC.

Sikora C, Mason-Lai P, McKim R, Johnson M. A Survey of Individual Patient Willingness for Self-Registration and Self-Immunization in Mass Vaccination Clinics in Alberta, Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 93. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234

Sikora C, McKim R, Johnson M. A Survey of Information Sources Utilized by Patients Attending pH1N1 Mass Vaccination Clinics in Alberta, Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 144. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234

Sikora C, McKim R, Johnson M. A Survey of Perceptions of Safety, Privacy and Data Security of Patients Attending pH1N1 Mass Vaccination Clinics in Alberta, Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 143. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234

Sikora C, McKim R, Johnson M. Patient Flow in Mass Vaccination Clinics: Identifying the Amount of Time Patients Stay in Key Areas of the 2009/10 pH1N1 Clinics in Alberta, Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 142. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234

Sikora C, McKim R, Johnson M. Staff Perceptions of Efficiency of Vaccine Delivery in the 2009/10 pH1N1 Mass Vaccination Campaign in Alberta, Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 145. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234

Sikora C, McKim R, Johnson M. Rapid Implementation of Pandemic Immunization Process: Lessons Learned and Future Plans. Insights Conference, School of Public Health, University of AB; 2010 November; Edmonton, AB.

Johnson, M. PCIRN Rapid Implementation Theme, Year 1 and Year 2 Research Activities. Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

Johnson, M. PCIRN Rapid Implementation Theme, Year 1 and Year 2 Research Activities. Presented at: 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC.

Smith M, Sikora C, Suttorp V, Devlin L, Johnson M. Staff Perceptions of an Alternate Consent Process in Influenza Immunization Clinics. Presented at: 17th Annual Qualitative Health Research Conference, 2011 October 25-27; Vancouver, B.C.

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Alberta Client Survey Results. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Alberta Focus Group Results. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Alberta Operational Report. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). A First Nation Community: RIVP Research Findings. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Saskatchewan Client Survey Results. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Saskatchewan Focus Group Results. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PHAC/CIHR Influenza Research Network, Rapid Implementation of Vaccine Programs (RIVP) Theme (2011). Saskatchewan Operational Report. Edmonton: University of Alberta, Department of Public Health Sciences. {Stakeholder Report}

PROGRAM DELIVERY AND EVALUATION

Writing Team, PCIRN Vaccine Coverage Theme. Why collect individual-level vaccination data? CMAJ 2010 182(3):273-274.

Kwong JC, Foisy J, Quan S, Heidebrecht CL, Kolbe F, Bettinger JA, Buckeridge DL, Chambers LW, Crowcroft NS, Dhalla IA, Sikora CA, Willison DJ, Pereira JA. ICES Reports: Canada's Response to Pandemic H1N1 Influenza: The Collection of Individual-Level Data at the Point of Vaccination. Healthcare Quarterly 2010;13(2):18-20.

Pereira JA, Quach S, Heidebrecht CL, Foisy J, Quan S, Finkelstein M, Sikora CA, Bettinger JA, Buckeridge DL, McCarthy A, Deeks S, Kwong JC. Pan-Canadian Assessment of Pandemic Immunization Data Collection: Study Methodology. BMC Medical Research Methodology 2010;10:51.

Foisy J, Quach S, Heidebrecht CL, Pereira JA, Quan SD, Guay M, Bettinger JA, Deeks SL, Brien S, Kwong JC. Perceptions of Frontline Staff Regarding Data Collection Methodologies Used During the 2009 A H1N1 Influenza Immunization Campaign in Canada. BMC Public Health 2010;10:796.

Heidebrecht CL, Foisy J, Pereira JA, Quan SD, Willison DJ, Deeks SL, Finkelstein M, Crowcroft NS, Buckeridge DL, Guay M, Sikora CA, Kwong JC. Perceptions of Immunization Information Systems for Collecting Pandemic H1N1 Immunization Data within Canada's Public Health Community: A Qualitative Study. BMC Public Health 2010; 10:523.

Quach S, Hamid JS, Pereira JA, Heidebrecht CL, Foisy J, Bettinger JA, Rosella L, Crowcroft NS, Deeks SL, Quan SD, Finkelstein M, Guay M, Buckeridge DL, Sikora CA, Kwong JC. Time and Motion Study to Compare Electronic and Hybrid Data Collection Systems during the Pandemic (H1N1) 2009 Influenza Immunization Campaign. Vaccine. 2011;29(10):1997-2003.

Pereira JA, Foisy J, Kwong JC, Heidebrecht CL, Quach S, Quan SD, Guay M, Sander B. A Cost Comparison of Electronic and Hybrid Data Collection Systems During Pandemic and Seasonal Influenza Vaccination Campaigns. BMC Health Services Research. 2011; 11:210.

Heidebrecht CL, Pereira JA, Foisy J, Quan SD, Finkelstein M, Deeks SL, Guay M, Bettinger JA, Kolbe F, Crowcroft NS, Sikora CA, Buckeridge DL, Kwong JC. Approaches to Immunization Data Collection Employed Across Canada During the Pandemic (H1N1) 2009 Influenza Vaccination Campaign. Canadian Journal of Public Health 2011; 22 (5): 349-354.

Pereira JA, Heidebrecht CL, Quach S, Quan SD, Finkelstein M, Bettinger JA, Deeks SL, Guay M, Buckeridge DL, Chambers L, Crowcroft NS, Sander B, Kalailieff D, Brien S, Kwong JC. Influenza Immunization Data: Can We Make Order Out of Chaos? *Healthcare Quarterly* 2011; Vol 14 (4):6-7.

Pereira JA, Quach S, Hamid JS, Heidebrecht CL, Quan SD, Nassif J, Diniz AJ, Van Exan R, Malawski J, Gentry A, Finkelstein M, Guay M, Buckeridge DL, Bettinger JA, Kalailieff D, Kwong JC. Exploring the feasibility of integrating barcode scanning technology into vaccine inventory recording in seasonal influenza vaccination clinics. *Vaccine* 2012 Jan 17;30(4):794-802.

Pereira JA, Quach S, Heidebrecht CL, Quan SD, Kolbe F, Finkelstein M, Kwong JC. Barriers to the use of reminder/recall interventions for immunizations: a systematic review. *BMC Medical Informatics and Decision Making* 2012;12:145.

Quach S, Pereira JA, Hamid JS, Crowe L, Heidebrecht CL, Kwong JC, Guay M, Crowcroft NS, McGeer A, Chambers LW, Quan SD, Bettinger JA. Measuring influenza immunization coverage among healthcare worker in acute care hospitals and continuing care organizations in Canada. *American Journal of Infection Control*; 2013;41(4):340-4

Quach S, Pereira JA, Hamid J, Heidebrecht CL, Crowcroft NS, Deeks S, Quan SD, Brien S, Kwong JC. Influenza vaccination coverage across ethnic groups in Canada. 2012;184(15):1673-81.

Brien S, Kwong, JC, Buckeridge DL. The determinants of 2009 pandemic A/H1N1 influenza vaccination: A systematic review. *Vaccine*: 30(7):1255-64.

Brien S, Kwong JC, Charland KM, Verma A, Brownstein JS, Buckeridge DL. (2012). Neighborhood determinants of 2009 pandemic A/H1N1 influenza vaccination in Montreal, Canada. *Am J Epidemiol* 2012;176(10):897-908

Heidebrecht CL, Quach S, Pereira JA, Quan SD, Kolbe F, Finkelstein M, Buckeridge DL, Kwong JC. Incorporating scannable forms into immunization data collection processes: a mixed-methods study. *PLoS One*. 2012; 7(12): e49627. Epub 2012 Dec 18.

Quach S, Pereira JA, Heidebrecht CL, Kwong JC, Guay M, Crowe L, Quan SD, Bettinger JA, on behalf of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network PCIRN Vaccine Coverage Theme Group; Canadian Healthcare Influenza Immunization Network. Health care worker influenza immunization rates: The missing pieces in the puzzle. *Am J Infect Control*: epub 2013 Feb 5.

Heidebrecht CL, Kwong JC, Finkelstein M, Quan SD, Pereira JA, Quach S, Deeks SL. Electronic Immunization Data Collection Systems: Development and Application of an Evaluation Framework. Submitted to *International Journal of Medical Informatics*

Heidebrecht CL, Foisy J, Kwong JC, on behalf of the PCIRN Vaccine Coverage Theme. Perceptions of Influenza Immunization Systems within Canada's Public Health Community [abstract]. In: Abstracts of the Canadian Public Health Association Conference; 2010 June 13-16; Toronto, ON. Abstract Poster 43.

Pereira JA, Quach S, Hao Dao H, Kwong JC, Deeks SL, Crowcroft NS, Quan SD, Guay M. Contagious comments: What was the online buzz about the 2011 Quebec measles outbreak? In press, *PLoS One*, April 2013.

Pereira JA, Foisy J, Kwong JC, Heidebrecht C, Quach S, Quan S, Guay M, Sander B. A Cost Comparison of Electronic and Hybrid Data Collection Systems in Ontario During Pandemic and Seasonal Vaccination Campaigns [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 89. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Foisy J, Heidebrecht C, Pereira JA, Quach S, Quan S, Guay M, Bettinger J, Deeks S, Kwong JC. Clinic Staff Perceptions of Data Collection Methodologies Used During the 2009 H1N1 Influenza Campaign in Canada [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 124. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Heidebrecht CL, Pereira JA, Quach S, Foisy J, Quan S, Finkelstein M, Deeks S, Guay M, Bettinger J, Crowcroft N, Kolbe F, Kwong JC. Approaches to Immunization Data Collection Employed Across Canada During the H1N1 Vaccination Campaign [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 128. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234.

Quach S, Pereira JA, Hamid J, Heidebrecht CL, Foisy J, Quan S, Bettinger J, Buckeridge D, Deeks S, Finkelstein M, Sikora C, Kwong JC. Time and Motion Study to Compare Electronic and Hybrid Data Collection Systems During the Pandemic (H1N1) 2009 Influenza Vaccination Campaign [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 138. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234

Heidebrecht CL, on behalf of the PCIRN Vaccine Coverage Theme. PCIRN Vaccine Coverage Theme: Overview of Research Activities [abstract]. Ontario Agency for Health Protection and Promotion Influenza Research Presentations (to Ontario's Chief Medical Officer of Health and representatives from Ontario's Ministry of Health and Long-Term Care. 2010; Toronto, ON.

Kwong, JC. PCIRN Vaccine Coverage Theme, Year 1 and Year 2 Research Activities. Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

Pereira, JA. PCIRN Vaccine Coverage Theme, Year 1 and Year 2 Research Activities. Presented at: 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC.

Kwong, JC, on behalf of the PCIRN Vaccine Coverage Theme. PHAC/CIHR Influenza Research Network (PCIRN) Vaccine Coverage Theme Workshop: Optimizing the Collection of Influenza Immunization Data. Presented at: The Ontario Public Health Convention (TOPHC): Joint Conference of OPHA/alPHA/OAHPP;2011 Apr 5-8; Toronto, ON.

Pereira JA, Nassif J. Automated Identification of Vaccines Project (AIVP): Examining the Feasibility of Recording Vaccine Inventory with Barcode Technology in Vaccination Clinics. Presented at: e-Health 2011: Enabling Healthy Outcomes Conference; 2011 May 29-Jun 1; Toronto, ON.

Pereira, JA. Integrating Automated Identification of Vaccine Products (AIVP) into Seasonal Influenza Vaccination Clinics Across Ontario: A Comparison of Vaccine Inventory Recording Methods by Time and Accuracy. Presented at: Canadian Public Health Association Conference; 2011 June 19-22; Montreal, QC.

Quach S, Pereira JA, Hamid JS, Crowe L, Heidebrecht CL, Kwong JC, Guay M, Crowcroft NS, McGeer A, Chambers LW, Quan SD, Bettinger JA, on behalf of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network PCIRN Vaccine Coverage Theme Group; Canadian Healthcare Influenza Immunization Network. Measuring influenza immunization coverage among healthcare worker in acute care hospitals and continuing care organizations in Canada. Presented at: The Ontario Public Health Convention (TOPHC): Joint Conference of OPHA/alPHA/OAHPP;2011; Toronto, ON.

Quach S, Pereira JA, Hamid J, Heidebrecht CL, Crowcroft NS, Deeks S, Quan SD, Brien S, Kwong JC. Influenza vaccination coverage across ethnic groups in Canada. Presented at: The Ontario Public Health Convention (TOPHC): Joint Conference of OPHA/alPHA/OAHPP;2011; Toronto, ON.

Quach S, Pereira JA, Hamid J, Heidebrecht CL, Crowcroft NS, Deeks S, Quan SD, Brien S, Kwong JC. Influenza vaccination coverage across ethnic groups in Canada. Presented at: Vaccine Science Symposium; 2011; Toronto, ON.

Pereira JA, Quach S, Heidebrecht CL, Quan SD, Kolbe F, Finkelstein M, Kwong JC. Barriers to the use of reminder/recall interventions for immunizations: a systematic review. Presented at: The Ontario Public Health Convention (TOPHC) ;2012 Apr 1-4; Toronto, ON.

Quach S, Pereira JA, Hamid JS, Crowe L, Heidebrecht CL, , Guay M, Crowcroft NS, McGeer A, Chambers LW, Quan SD, Bettinger JA, on behalf of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network PCIRN Vaccine Coverage Theme Group; Canadian Healthcare Influenza Immunization Network. Measuring influenza immunization coverage among healthcare worker in acute care hospitals and continuing care organizations in Canada. Presented at: Community and Hospital Infection Control Association; 2012 June; Regina, SK.

Pereira JA, Quach S, Dao HH, Kwong JC, Deeks SL, Crowcroft NS, Quan SD, Guay M. Contagious Comments: What's the Online Buzz About the 2011 Quebec Measles Outbreak? Presented at: Canadian Immunization Conference; 2012 Dec; Vancouver, BC.

Quach S, Pereira JA, Heidebrecht CL, Kwong JC, Guay M, Crowe L, Quan SD, Bettinger JA, on behalf of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network PCIRN Vaccine Coverage Theme Group; Canadian Healthcare Influenza Immunization Network. Health care worker influenza immunization rates: The missing pieces in the puzzle. Presented at: Canadian Immunization Conference; 2012 Dec; Vancouver, BC.

Quach S, Pereira JA, Heidebrecht CL, Kwong JC, Guay M, Crowe L, Quan SD, Bettinger JA, on behalf of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network PCIRN Vaccine Coverage Theme Group; Canadian Healthcare Influenza Immunization Network. Are mandatory influenza immunizations for healthcare workers necessary to improve poor immunization rates? Presented at: Canadian Immunization Conference; 2012 Dec; Vancouver, BC.

Macdougall D, Campbell A, McPherson C, Crowe L, Henry B, Kwong J, Russell M, Quach S, McCarthy A, Van Buynder P. A Qualitative Case Study of the 2012 BC Influenza Prevention Policy. To be presented at; Canadian Public Health Association Conference; June 2013; Ottawa ON.

NATIONAL AMBULATORY / SPECIAL IMMUNIZATION CLINICS / VACCINE SAFETY (2009–12)

Rouleau I, Drolet JP, Gosselin J, Wagner E, Sea SP, Rivard GE, Fan L, Fiola S, Lejtenyi D, Banerjee D, Lemire C, Moore A, Paradis L, Alizadehfar R, Des Roches, Chan ES, Stark D, Benoit M, De Serres G, on behalf of the PHAC-CIHR influenza Research Network (PCIRN). Biological markers in patients with allergic-like symptoms following pandemic influenza vaccination. [abstract]. In: Abstracts of the 10th Canadian Immunization Conference; 2012 December 3-5; Vancouver, BC.

Benoit M, Des Roches A, Paradis L, Gagnon R, Lemire C, Bégin P, Carr S, Chan ES, Paradis J, Frenette L, Ouakki M, De Serres G, on behalf of the PHAC-CIHR influenza Research Network (PCIRN). Egg-Allergic Patients can be Safely Vaccinated Against Influenza. In: electronic-poster of the 10th Canadian Immunization Conference; 2012 December 3-5; Vancouver, BC.

Gariépy MC, De Serres G, Benoit M, Bettinger J, Ou J, McIntyre P, Needham J, Coleman B, Bergeron C, Grenier C, Sleight K, Ouakki M, McCarthy A, McNeil S, Valiquette L, McGeer A, Stiver G, on behalf of the PHAC-CIHR influenza Research Network (PCIRN). Active Electronic Surveillance of a Large Number of Healthcare Workers (HCW) Following the Administration of 2011-2012 Influenza Vaccine. In: Abstracts poster of the 10th Canadian Immunization Conference; 2012 December 3-5; Vancouver, BC.

Gagnon R, Primeau MN, Des Roches A, Lemire C, Kagan R, Carr S, Ouakki M, Benoit M, De Serres G. Safe Vaccination of Egg-Allergic patients with an Adjuvanted Pandemic H1N1 Vaccine. *J Allergy Clin Immunol*. 2010 Aug; 126(2):317-23. Epub 2010 Jun 25.

Rouleau I, De Serres G, Drolet JP, Banerjee D, Lemire C, Moore A, Paradis L, Alizadehfar R, Des Roches A, Chan ES, Stark D, Benoit M, Skowronski DM. Allergic symptoms after pandemic influenza vaccination rarely caused by vaccine-specific IgE. *J Allergy Clin Immunol*. 2012 Dec; 130(6):1423-6.

Des Roches A, Paradis L, Gagnon R, Lemire C, Bégin P, Carr S et al Egg-allergic patients can be safely vaccinated against influenza *J Allergy Clin Immunol*. 2012 Nov; 130(5):1213-1216.

De Wals P, Deceuninck G, Toth E, Boulianne N, Brunet D, Boucher RM, Landry M, De Serres G. Risk of Guillain-Barré syndrome following A/H1N1 (2009) influenza pandemic vaccination in the province of Quebec, Canada. *JAMA*. 2012 Jul 11; 308(2):175-81

De Serres G, Gariépy MC, Coleman B, Rouleau I, McNeil S, Benoit M, McGeer A, Ambrose A, Needham J, Bergeron C, Grenier C, Sleight K, Kallos A, Ouakki M, Ouhoummane N, Stiver G, Valiquette L, McCarthy A, Bettinger J; PHAC-CIHR influenza Research Network (PCIRN). Short and long-term safety of the 2009 A/03-adjuvanted pandemic vaccine. *PLoS One*. 2012; 7(7):e38563. doi: 10.1371/journal.pone.0038563. Epub 2012 Jul 3.

Short and Long-Term Safety of the 2009 A/03-Adjuvanted Pandemic Vaccine Gaston De Serres, Marie-Claude Gariépy, Brenda Coleman, Isabelle Rouleau, Shelly McNeil, Mélanie Benoit, Allison McGeer, Ardith Ambrose, Judy Needham, Chantal Bergeron, Cynthia Grenier, Kenna Sleight, Arlene Kallos, Manale Ouakki, Najwa Ouhoummane, Grant Stiver, Louis Valiquette, Anne McCarthy, Julie Bettinger, on behalf of the PHAC-CIHR influenza Research Network (PCIRN) Research Article | published 03 Jul 2012 | *PLOS ONE* 10.1371/journal.pone.0038563

Bettinger, J. PCIRN National Ambulatory Network: 2012 Seasonal Influenza Vaccine Health Care Worker Surveillance: Interim Update for PHAC and Vaccine Vigilance Working Group; 2012 November 01.

Benoit M, Gariépy MC, Kallos A, Coleman B, Ambrose A, Rouleau I, McNeil S, McGeer A, Bettinger J, De Serres G. Safety of the 2010-2011 Influenza Vaccine in Health Care Workers (HCW) Previously Vaccinated in 2009 with Adjuvanted pH1N1 Vaccine [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 111. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234.

Gariépy MC, De Serres G, Rouleau I, Coleman B, Wilkinson K, Ouhoummane N, Benoit M, Ambrose A, McNeil S, McGeer A. Short and Long-term Active Electronic Surveillance of a Large Number of Healthcare Workers Following Administration of Adjuvanted pH1N1 Vaccine [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 127. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234.

Rouleau I, De Serres G, Benoit M, Toth E, Ménard S, Landry M, Grenier JL, Trudeau G, Tremblay M, Roussel R, Giroux S, Skowronski D. Anaphylaxis and Allergic-Like Reactions Following Administration of A/03-Adjuvanted Pandemic H1N1 Vaccine: Surveillance Summary from Quebec, Canada. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 139. Also, *Can J Infect Dis Med Microbiol* 2010; 21(4):173-234.

Gagnon R, Primeau MN, Des Roches A, Lemire C, Kagan R, Carr S, Ouakki M, Benoit M, De Serres G. Safe Vaccination of Egg-Allergic Patients with an Adjuvanted Pandemic H1N1 Vaccine. Presented at: 13th Annual Conference on Vaccine Research of the National Foundation for Infectious Diseases; 2010 Apr 26-28; Bethesda, Maryland.

De Serres G, Rouleau I, Coleman B, Wilkinson K, Ambrose A, Gariépy MC, McNeil S, McGeer A. Active Surveillance of a Large Number of Health Care Workers Following Administration of Adjuvanted pH1N1 Vaccine in 2009. Presented at: 13th Annual Conference on Vaccine Research of the National Foundation for Infectious Diseases; 2010 Apr 26-28; Bethesda, Maryland.

De Serres G, Rouleau I, Gariépy MC, Coleman B, Wilkinson K, Ouhoummane N, Benoit M, Ambrose A, McNeil S, McGeer A. Short and Long-term Active Electronic Surveillance of a Large Number of Healthcare Workers Following Administration of Adjuvanted pH1N1 Vaccine. Presented at: Options for the Control of Influenza Conference VII; 2010 Sep 3-7; Hong Kong SAR, China.

De Serres, G. PCIRN Vaccine Safety Theme, Year 1 and Year 2 Research Activities. Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

De Serres, G. PCIRN Vaccine Safety Theme, Year 1 and Year 2 Research Activities. Presented at: 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC.

SERIOUS OUTCOMES SURVEILLANCE

Kuster S, Coleman B, De Serres G, Loeb M, Johnstone J, McGeer A, McNeil S. Efficacy and Safety of adjuvanted 2009 pH1N1 Influenza Virus Vaccine in Healthy Adults. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC. Poster Abstract.

McNeil S, Johnstone J, Ambrose A, Loeb M, Russell M, Trotter S, Boivin G, McCarthy A, Henderson E, Stiver G, Halperin SA, McGeer A. Sentinel Surveillance for Influenza in Canadian Hospitals: Experience of the Public Health Agency/Canadian Institutes for Health Research (PHAC/CIHR) Influenza Research Network (PCIRN) Adult Serious Outcomes Surveillance Network. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC. Poster Abstract.

Guo, Y. Pandemic Influenza and pH1N1 Vaccination During Pregnancy. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21–24; Vancouver, BC. Oral Abstract.

Loeb M. PCIRN Vaccine Effectiveness Theme, Year 1 and Year 2 Research Activities. Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

McNeil, S., De Serres, G., Rouleau, I., et al. Active electronic safety surveillance of a large number of healthcare workers following administration of adjuvanted pH1N1 vaccine; Poster Presentation at: The Canadian Centre for Vaccinology (CCV) Annual Symposium, April 2010, Halifax, NS.

McNeil, S., De Serres, G., Rouleau, I., et al. Active electronic safety surveillance of a large number of healthcare workers following administration of adjuvanted pH1N1 vaccine; Poster Presentation at: 15th Annual Division of Infectious Diseases Research Day, QEII HSC, April 2010, Halifax, NS.

McNeil S. PCIRN Vaccine Effectiveness Theme, Year 1 and Year 2 Research Activities. Presented at: 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC.

McNeil S, Johnstone J, Ambrose A, Loeb M, Russell M, Trottier S, Boivin G, McCarthy A, Henderson E, Stiver G, Halperin SA, McGeer A. Sentinel Surveillance for Influenza in Canadian Hospitals: Experience of the Public Health Agency/Canadian Institutes for Health Research (PHAC/CIHR) Influenza Research Network (PCIRN) Adult Serious Outcomes Surveillance Network [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 101. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234.

Kuster S, McNeil S, De Serres G, Loeb M, Johnstone J, McGeer A, Coleman B. Were Healthcare Workers at Increased Risk of Pandemic H1N1 Infection? [abstract] In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 135. Also, Can J Infect Dis Med Microbiol 2010; 21(4):173-234.

Costain N*, Marrie T, McGeer A, Green K, Kuster S, Johnstone J, Loeb M, Ambrose A, Hatchette T, Russell M, Henderson E, Trottier S, Boivin G, McCarthy A, Stiver G, Halperin S, Langley J, MacKinnon-Cameron D, McNeil S. Clinical characteristics, risk factors, and outcome of pandemic H1N1 influenza (pH1N1)-associated pneumonia: Experience of the Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) Network; Poster Presentation at: 49th Annual Meeting of the Infectious Diseases Society of America, October 20-23, 2011, Boston, MA.

BL Coleman, AJ McGeer, SA McNeil. Do current definitions of influenza-like illness Accurately represent experiences for adults and children diagnosed with the 2009 H1N1 virus? Poster Presentation at: Fourth ESWI Influenza Conference, September 11-14, 2011, Malta.

McNeil S. Sentinel surveillance for influenza in hospitalized Canadian adults: Experience of the PHAC/CIHR Influenza Research Network Serious Outcomes Surveillance (SOS) Network. Presented at the Annual Meeting of the Flu-SurvNet, Centers for Disease Control and Prevention, Atlanta, GA, 2012 February 6.

McNeil S, McGeer A, Ambrose A, Johnstone J, Krajden O, Hatchette T, Leblanc J, Webster D, Loeb M, McCarthy A, Boivin G, Trottier S, Wang C, MacKinnon-Cameron D, Langley J, Halperin S, Andrew M, Valiquette L, Stiver G, Marrie T, Ricketson L. Active Surveillance for Community-Acquired Pneumonia and Invasive Pneumococcal Disease in Hospitalized Canadian Adults: Burden of Disease, Healthcare Utilization and Outcomes. In: Abstracts of the 8th International Symposium on Pneumococci and Pneumococcal Diseases, Igacu Falls, Brazil, 2012 March 11-15. Poster Abstract.

Gajic S, Audas R, and McNeil S. Outlining Healthcare Utilization for Invasive Meningococcal Disease to Quantify Economic Burden of Disease; Poster Presentation at: Infectious Disease Research Day & Canadian Center for Vaccinology Symposium, April 23-24, 2012, Halifax, NS.

Krajden O, Gajic S, ElSherif M, Wang C, MacKinnon-Cameron D, Johnstone J, McGee A, McNeil S. Performance Characteristics of the Public Health Agency of Canada Influenza-like-illness Case Definition in Predicting influenza in Hospitalized Canadian Adults: A PCIRN Serious Outcomes Surveillance Network Study; Poster Presentation at: Infectious Disease Research Day & Canadian Center for Vaccinology Symposium, April 23-24, 2012, Halifax, NS.

McNeil S, McGeer A, Green K, Ambrose A, Johnstone J, Hatchette T, Leblanc J, Webster D, Loeb M, McCarthy A, Boivin G, Trottier S, Wang C, MacKinnon-Cameron D, ElSherif M, Halperin S, Langley J, Andrew M, Valiquette L, Stiver G, Marrie T. Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network Serious Outcomes Surveillance Network: Seasonal versus Pandemic Vaccine Effectiveness in Prevention of Influenza-Related Hospitalization in Canadian Adults; Poster Presentation at: Dalhousie University : Department of Internal Medicine Research Day, May 17, 2012, Halifax, NS.

McNeil S, McGee A, Ambrose A, Johnstone J, Krajden O, Hatchette T, Lebranc J, Webster D, Loeb M, McCarthy A, Boivin G, Trottier S, Wang C, MacKinnon-Cameron D, Langley J, Halperin S, Andrew M, Valiquette L, Stiver G, Marrie T, Ricketson L. Active Surveillance for Community-Acquired Pneumonia and Invasive Pneumococcal Disease in Hospitalized Canadian Adults: Burden of Disease, Healthcare Utilization and Outcomes; Poster Presentation at: Dalhousie University : Department of Internal Medicine Research Day, May 17, 2012, Halifax, NS.

Krajden O, Gajic S, ElSherif M, Wang C, MacKinnon-Cameron D, Johnstone J, McGee A, McNeil S. Performance Characteristics of the Public Health Agency of Canada Influenza-like-illness Case Definition in Predicting influenza in Hospitalized Canadian Adults: A PCIRN Serious Outcomes Surveillance Network Study; Oral Presentation at: Dalhousie University : Department of Internal Medicine Research Day, May 17, 2012, Halifax, NS.

Gajic S, Audas R, and McNeil S. Outlining Healthcare Utilization for Invasive Meningococcal Disease to Quantify Economic Burden of Disease; Poster Presentation at: Annual Conference CAHSR (Canadian Association for Health Services and Policy Research), May 29-31, 2012, Montreal, QC.

Krajden O, Gajic S, ElSherif M, Wang C, MacKinnon-Cameron D, Johnstone J, McGee A, McNeil S. Performance Characteristics of the Public Health Agency of Canada Influenza-like-illness Case Definition in Predicting influenza in Hospitalized Canadian Adults: A PCIRN Serious Outcomes Surveillance Network Study; Poster Presentation at: IDSA, October 17-21, 2012, San Diego, CA, USA.

Seasonal and Pandemic Vaccine Effectiveness in the Prevention of Influenza-related Hospitalization in Canadian Adults. Shelly McNeil, Allison McGeer, Karen Green, Ardith Ambrose, Jennie Johnstone, Todd Hatchette, Jason LeBlanc, Duncan Webster, Mark Loeb, Anne McCarthy, Guy Boivin, Sylvie Trottier, Christina Wang, Melissa Andrew, Louis Valiquette, Grant Stiver. Poster Presentation at: IDSA, October 17-21, 2012, San Diego, CA, USA.

Active Surveillance for Community-acquired Pneumonia and Invasive Pneumococcal Disease in Hospitalized Canadian Adults: Burden of Disease, Healthcare Utilization, and Outcomes Shelly McNeil, Allison McGeer, Ardith Ambrose, Jennie Johnstone, Todd Hatchette, Jason LeBlanc, Duncan Webster, Mark Loeb, Anne McCarthy, Guy Boivin, Sylvie Trottier, Christina Wang, Donna MacKinnon-Cameron, Scott Halperin, Joanne Langley, Melissa Andrew, Louis Valiquette, Grant Stiver, Thomas Marrie. Poster Presentation at: IDSA, October 17-21, 2012, San Diego, CA, USA

Impact of Hospitalization due to Influenza on Frailty in Older Adults: Toward a Better Understanding of Influenza Burden of Disease. Shelly McNeil, Jennie Johnstone, Mike Rockwood, Donna MacKinnon-Cameron, Melissa Andrew. Poster Presentation at: IDSA, October 17-21, 2012, San Diego, CA, USA

Frailty, Influenza Vaccination and Hospitalization due to Influenza. Presented on behalf of the PCIRN Serious Outcomes Surveillance Network and TIBDN Investigators. TIBDN Education Day, Nov 16, 2012.

McNeil S, Johnstone J, Adrew M, Wang H, MacKinnon-Cameron D, Rockwood M, Linguyn Y. Impact of Hospitalization due to Influenza on Frailty in Older Adults: Toward a better understanding of influenza Burden of Disease; A PCIRN serious outcomes surveillance (SOS) Network Study; Poster Presentation at: Canadian Immunization Conference; December 3-5, 2012; Vancouver, BC.

McNeil S, McGeer A, Johnstone J, Andrew M, ElSherif M, Wang C, MacKinnon-Cameron D, Leblanc J, Hatchette T, Marrie T. PCIRN Active Surveillance for Community-acquired Pneumonia and Invasive Pneumococcal Disease in Hospitalized Canadian Adults: Burden of Disease, Healthcare Utilization and Outcomes; Poster Presentation at: Canadian Immunization Conference; December 3-5, 2012; Vancouver, BC.

Gajic S, Ambrose A, Audas R, McNeil S. Development of Evidence Based Healthcare Utilization Data Collection Tools for Prospective Evaluation of the Economic Burden Due to Invasive Meningococcal Disease (IMD) in Canada: a Public Health Agency of Canada/Canadian Institutes for Health Research Influenza Research Network (PCIRN) and PCIRN Serious Outcomes Surveillance Network; Poster Presentation at: Canadian Immunization Conference; December 3-5, 2012; Vancouver, BC.

Krajden O, Gajic S, ElSherif M, Wang C, MacKinnon-Cameron D, Johnstone J, McGee A, McNeil S. Performance Characteristics of the Public Health Agency of Canada Influenza-like-illness Case Definition in Predicting influenza in Hospitalized Canadian Adults: A PCIRN Serious Outcomes Surveillance Network Study; Poster Presentation at: Canadian Immunization Conference; December 3-5, 2012; Vancouver, BC.

Molecular DETECTION OF Streptococcus pneumoniae in NASOPHARYngeal swabs and deduction of "sero"types by Polymerase chain reaction (pCR) A. Wisner, J. LeBlanc, T. Hatchette, M. ElSherif, S. McNeil for the PCIRN Serious Outcomes Surveillance Network Investigators; Poster Presentation at Canadian Immunization Conference; December 3-5, 2012; Vancouver, BC.

Seasonal and Pandemic Vaccines Effectiveness in the Prevention of Influenza-related Hospitalization in Canadian Adults: A PCIRN Serious Outcomes Surveillance (SOS) Network Study; Oral Presentation at: Canadian Immunization Conference, December 3-5, 2012, Vancouver, BC.

Effectiveness of 2011/12 Seasonal Influenza Vaccines in the Prevention of Influenza-related Hospitalization in Canadian Adults: A PCIRN Serious Outcomes Surveillance (SOS) Network Study; Oral Presentation at: Canadian Immunization Conference, December 3-5, 2012, Vancouver, BC.

Monitoring Influenza Vaccine Effectiveness in Canadian Hospitals: The Serious Outcomes Surveillance (SOS) Network PHAC/CIHR Influenza Research Network. CDC Pandemic Preparedness Group Mar 26, 2013

REFERENCE LABORATORY

Kuster SP, Coleman BL, Raboud J, McNeil S, De Serres G, Gubbay J, Hatchette T, Katz KC, Loeb M, Low D, Mazzulli T, Simor A, McGeer AJ, for the Working Adult Influenza Cohort Study Group. Acute Care Hospital Workers and Risk of Influenza Infection during the 2009 H1N1 Influenza Pandemic. 2013 Emerg Infect Dis (in press)

Yam KK, Gupta J, Brewer A, Scheifele DW, Halperin S, Ward BJ, and PCIRN (Public Health Agency of Canada-Canadian Institute of Health Research Influenza Research Network). 2012. Unusual patterns of IgG avidity in some young children following two doses of adjuvanted pandemic H1N1 (2009) influenza vaccine. Clin Vaccine Immunol Apr; 20(4):459-67.

Ward BJ. Nanoparticle Vaccines for Influenza-VLP Vaccines Made in Plants. Presented at: Seminars in Vaccine Biology, Johns Hopkins School of Medicine; April 2009; Baltimore, MD.

Ward BJ. Animal and Human Studies of VLP Influenza Vaccines Made in Plants. Presented at: Seminars in Vaccine Biology, Johns Hopkins School of Medicine; April 2009; Baltimore, MD.

Brophy J, Ward BJ, Samson L, Read S, Bitnun A. Immunogenicity of AS03-adjuvanted H1N1 Pandemic Influenza Vaccine in HIV-infected Children. In Program: 19th Canadian Association for HIV Research (CAHR); May 2010; Saskatoon, SK. Poster Abstract.

Brophy J, Ward BJ, Samson L, Read S, Bitnun A. Immunogenicity of AS03-adjuvanted H1N1 Pandemic Influenza Vaccine in HIV-infected Children. In: Abstracts of the 48th Annual Meeting of Infectious Diseases Society of America; 2010 Oct 21-24; Vancouver, BC. Poster Abstract.

Ward BJ, Landry N, Tremblay S, Vézina L. VLP Influenza Vaccines Made in Plants. Presented at: Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

Young K, Couture M, D'Aoust MA, Lavoie PO, Vézina L, Ward BJ. Presented at: Presented at: CIHR Pandemic Preparedness Conference (PPRSI); 2010 November 12-13; Ottawa, ON.

Ward BJ. Animal and Human Studies of VLP Influenza Vaccines Made in Plants. Presented at: CAIRE Research Symposium, 2010 December 5; Quebec City, QC.

Young, K. A Plant-Made Virus-Like-Particle Vaccine Expressing eGFP: A New Tool to Track Immune Responses. Presented at: CAIRE Research Symposium, 2010 December 5; Quebec City, QC.

Young K, Couture M, D'Aoust MA, Lavoie PO, Vézina L, Ward BJ. A Plant-Made Virus-Like-Particle Vaccine Expressing eGFP: A New Tool to Track Immune Responses [abstract]. In: Abstracts of the 9th Canadian Immunization Conference; 2010 December 5-8; Quebec City, QC. Abstract Poster 58. Also, Can J Infect Dis Med Microbiol 2010; 21 (4):173-234.

Andrés Pizzorno, Xavier Bouhy, Yacine Abed, Guy Boivin. Generation and Characterization of Recombinant Pandemic Influenza A/H1N1 Viruses Resistant to Neuraminidase Inhibitors. Poster presentation. PCIRN Annual conference Apr 19-21, 2011, Ottawa, ON.

Karen K. Yam, David W. Scheifele, Brian J. Ward and the PCIRN RT-03 investigators. The Immunobiology of Oil-in-Water Adjuvants for Influenza Vaccines. Oral presentation. PCIRN Annual conference Apr 19-21, 2011, Ottawa, ON.

Karen Yam, Brian Ward. Immunobiology of oil-in-water adjuvants for influenza vaccines. Presentation- 5th International Soc for Vaccines Conference, Seattle, WA, Oct 2-4, 2011.

Karen K. Yam, Jyotsana Gupta, Elizabeth Allen, Brian Ward. Adjuvanted influenza vaccines in young and aged BALB/c mice. Poster. European Congress of Immunology, Glasgow, Scotland, 5-8 September, 2012.

Katie Young, Manon Couture, Marc-André D'aoust, Nathalie Landry, Louis Vézina, and Brian Ward. Innate and adaptive immune responses to plant-based H5 VLP by murine splenocytes. Poster. European Congress of Immunology, Glasgow, Scotland, 5-8 September, 2012.

Katie Young, Manon Couture, Marc-André D'aoust, Nathalie Landry, Louis Vézina, and Brian Ward. Innate and adaptive immune responses to plant-based H5 VLP by murine splenocytes. Poster. Canadian Immunization Conference Dec 2-5, 2012.

Wisner, A. L. S., LeBlanc, J., Hatchette, T., ElSherif, M., and McNeil, S. Molecular Detection of Streptococcus pneumoniae in Nasopharyngeal Swabs and Deduction of Serotypes by PCR. 10th Canadian Immunization Conference, Vancouver, BC, Canada, Dec 2-5, 2012.

Wisner, A. L. S., LeBlanc, J., Hatchette, T., ElSherif, M., and McNeil, S for the PCIRN Serious Outcomes Surveillance Network Investigators. Molecular Detection of Streptococcus pneumoniae in Nasopharyngeal Swabs and Deduction of Serotypes by Polymerase Chain Reaction (PCR). Presentation. ID Research Day, Halifax, NS, Canada, April 23-24, 2012

Wisner, A. L. S., LeBlanc, J., Hatchette, T., ElSherif, M., and McNeil, S. Molecular Detection of Streptococcus pneumoniae in Nasopharyngeal Swabs and Deduction of Serotypes by PCR submitted abstract for AMMI CACMID Annual Conference, Quebec City, QC, Canada, April 4-6 2013.

Theme work is listed chronologically by Publication, Abstract, and Presentation.



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