



INFO-VACCINE

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Public Health
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In collaboration with:



8th Canadian Immunization Conference

Please note that due to time constraints, we were unable to make the full INFO-Vaccine available in French. However, full French copies in pdf will be available online at www.publichealth.gc.ca following the Conference.

Veuillez noter qu'étant donné le court échéancier, il nous est impossible d'offrir la version française complète de l'INFO-Vaccine. Cependant, après la conférence, les copies complètes en version française en format pdf seront disponibles en ligne www.santepublique.gc.ca

REGISTRATION ISSUE

Sunday Edition

8th Canadian Immunization Conference

November 30 – December 3, 2008

Sheraton Centre / Toronto, Ontario



Welcome to Toronto!

Please Plan to Attend:

CIC 2008 ACCREDITED SYMPOSIA

Monday, December 1

Advances in Influenza Vaccination
(Dominion Ballroom) 6:30 - 8:30 am

A Pneumococcal Vaccine Program Report Card: "A" Student or Summer School Attendee?
(Civic Ballroom) 7:00 - 8:30 am

Tuesday, December 2

Update on the Control of Invasive Meningococcal Disease in Canada and the Use of a Quadrivalent Meningococcal Polysaccharide Diphtheria Toxoid Conjugate Vaccine Against Serogroups A, C, Y, and W-135
(Dominion Ballroom) 6:30 - 8:30 am

Zoster and Post-Herpetic Neuralgia: Is This a Disease Worth Preventing? A Burning Question
(Civic Ballroom) 6:30 - 8:30 am

Wednesday, December 3

Advances in Protection Against Pneumococcal Disease
(Civic Ballroom) 7:00 - 8:30 am

Dr. John Waters Memorial Lecture: Canada's world-class immunization program

Canada has developed and implemented a "world-class" immunization program and some of the successes will be singled out by Dr. David Scheifele, Professor of Pediatrics, University of British Columbia, Vancouver, during his Dr. John Waters Memorial Lecture on Sunday afternoon.

"We have been a world leader in vaccine use and have achieved excellent disease control in the population," Dr. Scheifele told INFO-Vaccine. Key among those who had a hand in bringing vaccination policies to the fore was Dr. Waters himself.

A close colleague of Dr. Scheifele's, Dr. Waters was Alberta's senior public health officer who stood out among his peers as being a passionate advocate for Canadian immunization programs. His exceptional interest in disease prevention won him repeated nominations by his peers to represent them on the National Advisory Committee on Immunization (NACI) where he served for at least 15 years—"probably one of the longest serving representatives to NACI ever," Dr. Scheifele recalls.

There is a long list of Canadian programs that have made Dr. Scheifele's honours list, as he will describe. Dr. Scheifele also credits efforts the country as a whole has made to adopt vaccines as they were developed and incorporate them early in widespread universal immunization programs.

Vaccine manufacturers should be acknowledged, too, for their contribution to vaccine programs. For example, one of the largest clinical trials ever conducted



Dr. David Scheifele

Allocution à la mémoire du Dr John Waters : Le Canada, chef de file en immunisation

Le Canada a élaboré et mis en place un programme d'immunisation de premier ordre, dont le Dr David Scheifele, professeur titulaire de pédiatrie, University of British Columbia, Vancouver, fera l'éloge dimanche après-midi, dans son allocution à la mémoire du Dr John Waters.

«Le Canada est un chef de file en vaccination et est parvenu à un taux enviable de maîtrise des infections dans sa population», affirme le Dr Scheifele. Le Dr Waters lui-même a joué un rôle de premier plan dans la promotion de la vaccination.

Le Dr Scheifele était un proche collaborateur du Dr John Waters, grand spécialiste de la santé publique en Alberta et ardent défenseur des programmes d'immunisation canadiens. Conscients de son intérêt exceptionnel pour la prévention, ses pairs l'ont choisi à maintes reprises comme représentant auprès du Comité consultatif national de l'immunisation (CCNI), où il a siégé pendant au moins 15 ans, «ce qui le hisse, à n'en pas douter, au rang des vétérans du CCNI», souligne le Dr Scheifele.

Le Dr Scheifele fera l'éloge de nombreux programmes qui honorent le Canada. Il salue également le pays tout entier pour les efforts déployés en vue de l'adoption des vaccins au fur et à mesure de leur développement et de leur intégration rapide aux programmes de vaccination universelle.

Il a tenu à souligner également l'apport des fabricants de vaccins. A titre d'exemple, l'un des plus vastes essais cliniques en vaccination est l'essai sur le

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Thank you to this year's supporters!



Continued from page 1

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in the annals of vaccination was the Salk vaccine trial involving 1.8 million children: a Canadian company supplied all of the vaccine for that trial and Canada was the second country after the US to license and use the revolutionary new polio vaccine.

Another “incredibly effective” vaccination program in Canada was against *Haemophilus influenzae* type b. “Up to the mid-1980s, *H. influenzae* type b was the leading cause of meningitis in children,” Dr. Scheifele indicated, “and today, it’s practically eradicated.” Other newer vaccines that are already making a big difference to childhood infection rates are the meningococcal vaccine, the pneumococcal vaccine and the varicella vaccine.

The resounding success of immunization programs in Canada is not, as Dr. Scheifele cautioned, an indication to be less vigilant. On the contrary, “we risk becoming victims of our own success,” he warned, “as the diseases we have been targeting have been so well controlled that parents aren’t familiar with them anymore.” Never having seen polio, for example, parents, and even young healthcare professionals, cannot truly appreciate how devastating an infectious illness can be and why every effort must be made to ensure it never re-surfaces.

Indeed, public scepticism surrounding vaccine use is already having an impact on uptake, where acceptance of even standard childhood vaccines is less than ideal here in Canada.

“We have to do a better job of marketing the value of the newer vaccines to the general public because inevitably, they are going to be less familiar with the diseases we want to prevent,” stresses Dr. Scheifele. “It’s just the hazard of success.”

Dr. Scheifele will deliver the Dr. John Waters Memorial Lecture on Sunday, November 30, at 14:00-15:00, Grand Ballroom West/Centre.

vaccin Salk, auquel 1,8 million d’enfants ont participé. Or, tous les vaccins inoculés pendant cette étude ont été fournis par une entreprise canadienne, et le Canada a été le deuxième pays, après les États-Unis, à homologuer le vaccin antipolio, révolutionnaire à l’époque.

Autre programme d’immunisation «incroyablement efficace» au Canada : la vaccination contre Haemophilus influenzae de type b. «Jusqu’au milieu des années 1980, la bactérie H. influenzae de type b était la principale cause de méningite chez les enfants, rappelle le Dr Scheifele. Aujourd’hui, l’infection est pour ainsi dire éradiquée.» Plus récents, les vaccins antiméningococcique, antipneumococcique et antivarielle ont d’ores et déjà abaissé considérablement l’incidence des infections chez l’enfant.

Le Dr Scheifele y va cependant d’une mise en garde : ces réussites retentissantes ne doivent pas endormir notre vigilance, bien au contraire. Car, explique-t-il, «toute médaille a son revers. Les maladies auxquelles nous nous sommes attaqués sont aujourd’hui si rares que les parents ne les connaissent pas.» Un parent, voire un jeune professionnel de la santé, qui n’a jamais côtoyé la polio, par exemple, n’est pas vraiment conscient des ravages que peut faire une maladie infectieuse et ne comprend pas forcément pourquoi on doit prendre tous les moyens nécessaires pour empêcher une infection de refaire surface.

Déjà, le scepticisme du grand public se répercute sur la couverture vaccinale, qui est loin d’être optimale au Canada, même pour les vaccins de base de l’enfance.

«Nous devons faire valoir avec plus de conviction les bienfaits des nouveaux vaccins auprès du grand public, car, c’est inévitable, les infections que nous cherchons à prévenir seront de moins en moins connues, insiste le Dr Scheifele. C’est, en quelque sorte, la rançon de la gloire.»

Le Dr Scheifele prononcera son allocution à la mémoire du Dr John Waters le dimanche 30 novembre, de 14 h à 15 h, Grand salon ouest/centre.

Travel Bursary Program (Addendum to final program)

The purpose of the travel bursary is to increase access to the conference for individuals or organizations with limited funding. The travel bursary program’s objective is to provide support to one individual per province/territory to attend the conference. The ability to select one representative per province/territory is dependent on the applications received. For the 2008 Conference, 12 bursaries were awarded to winners from across Canada. Bursary recipients must be Canadian residents and healthcare workers, and must have submitted a qualifying essay with their applications stating why they wanted to attend this Conference, and how they planned to share the knowledge gained at the conference with others in their organizations and/or communities.

The 2008 Travel Bursary recipients are:

Newfoundland and Labrador:
Marlee Steele-Rodway

Nova Scotia: Deirdre Mombourquette

New Brunswick: Mariette Leblanc

Quebec: Vanessa Delisle, Joanne Aubé-Maurice

Ontario: Hong Ge, Rouhani Setareh

Manitoba: Michelle Johnson

Alberta: Alena Tse, Emily Medd

British Columbia: Jamie Pringle, Mary Furey

CIC fills important professional education niche

Professional education is an extremely important niche that the Canadian Immunization Conference fills, says executive director of the Canadian Paediatric Society (CPS), Marie Adèle Davis, as those who promote vaccination must be equipped with the latest evidence-based information to address any public concern.

“Our overall goal is to ensure and improve the health and well-being of children in Canada and, obviously, immunization as a preventive health measure is absolutely key to that,” Davis told *INFO-Vaccine*. On the other hand, parents who seek advice on immunization have access to a wide range of information from public media and the Internet, not all of which is accurate. “Thus, it’s very important that those in a position to educate the public have the most current understanding of issues so they can respond appropriately to patient questions with the very latest in facts,” said Davis.

The CPS executive director also considers it critical for Canadian healthcare professionals to have their own immunization meeting in Canada. “We have different issues surrounding immunization here than in the rest of the world—different populations, for example, including First Nations people, the Inuit and the Métis,” she explains. For each of these communities, it is vital to work with health representatives so that they can convey the importance of having their children immunized and ensure good immunization rates. Canada also welcomes a highly diverse



Marie Adèle Davis

demographic to its shores every year and the policies and procedures needed to deal with their immunization status likely differ from those of other countries.

“Canadians also want Canadian information,” added Davis, “and this conference allows us to present information about what is happening here.” Partnerships, in turn, are equally important to the work of the CPS, notably, their partnership with the Public Health Agency of Canada, with whom they run two pediatric surveillance programs, each of them quite unique. For example, the Canadian Immunization Monitoring

Program Active (IMPACT) allows researchers to assess how many children are still being hospitalized for vaccine-preventable diseases such as varicella. “It also allows us to look at how effective our vaccine programs are,” Davis added.

IMPACT also assesses rates of adverse events following immunization. Findings from this program allow public health officials to say with “a great amount of confidence that the vast, vast majority of people who are vaccinated do not suffer any negative effects,” as Davis underlined.

Regarding innovation, Davis enthused, “We have a very vibrant vaccine research environment here in Canada and we truly do have world-class researchers working in this field and it’s important for not only the international community to know what Canadians are doing but for Canadians to appreciate what we are doing as well.” □

CAIRE’s new vaccinology research program for students

The Canadian Association for Immunization Research and Evaluation (CAIRE) has launched a new initiative this year that will interest students who are seeking a career in medicine to choose one furthering the science of vaccination.

The Vaccinology Student Research Program invites students interested in vaccine-related research to the meeting to whet their appetite for carrying out research in the field once their initial studies are over. “We have to ‘grow’ scientists that are going to create our research in the future and so this program recognizes those with an interest in vaccinology research and we are really pleased at the response we got to it,” CIC scientific chair Dr. Margaret Russell, University of Calgary, told *INFO-Vaccine*.

The inaugural invitees to the meeting this year include:

Andrea Kitta

Memorial University of Newfoundland

A shot in the dark: Lay perception of inoculations and anti-vaccination discourse

Katie Young

Research Institute of the McGill University Health Centre

Development of native and recombinant mumps virus subunit nasal vaccines using protollin technology

Brian Reikie

University of British Columbia

Neonatal vaccination: Immunological mechanisms driving immune memory development in neonates

Michael Campitelli

University of Toronto

Influenza vaccine effectiveness in the community-dwelling elderly in Ontario

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CIC 2008: expanding and improving to meet public health needs

This year's Canadian Immunization Conference promises to be bigger and better than ever, as organizers get set to welcome over 1200 participants to its multi-faceted educational venues covering all matters of immunization.

"Our conference has grown dramatically over the years," says Dr. Arlene King, Director General, Centre for Immunization and Respiratory Infectious Disease, Public Health Agency of Canada (PHAC).

The Conference's bi-annual growth of almost 200 participants each Conference, in Dr. King's words, "attests to the interest in immunization in Canada by the public health and primary health communities, as well as the quality of the program."

Delegates can select from 164 scientific abstracts at the 8th Canadian Immunization Conference, 20 of them being presented orally during concurrent sessions, and the remainder being presented as posters in the exhibition hall. Fourteen delegates will have a chance to



Dr. Arlene King

participate in the meeting thanks to the Travel Bursary program sponsored by PHAC. Once again, the winner of the grade-six Canadian Immunization Poster Contest will attend the Conference Opening Ceremonies to unveil the winning poster. Additionally, there will be four industry-sponsored satellite symposia, each featuring a different aspect of immunization and disease prevention of interest to the public and health practitioners alike.

Among the many educational highlights at the Conference is the release of the Immunization Competencies for Health Professionals, which is the result of a collaboration of federal, provincial and territorial governments and stakeholders and was developed through the Canadian Immunization Committee. The document provides a framework for education that will allow health professionals to gain the knowledge and skills they need to effectively deliver immunization and to communicate its importance to their patients.

"We have to have quality assurance in our immunizations programs across the country," Dr. King stresses, "and immunization competencies help consolidate this core knowledge we all need to meet the needs of the population."

The public is now entering clinics and offices armed with information, and misinformation, about immunization from many different sources. In order to be able to counter immunization controversies and myths, providers have to be prepared to address the public's concerns—and what better way than to hear the latest on evidence-based medicine as it relates to public health and immunization than here at the meeting.

Last but not least, the CIC serves to rekindle public health's own interest in disease prevention. "The problem with immunization is that many diseases are now out of sight, out of mind," Dr. King notes. "So this meeting gives immunizers themselves a shot in the arm; it gives them an opportunity to be reinvigorated about the importance of their work and it gives them a chance to share their stories of successes and challenges with their peers." □

CIC 2008: Education, partnership and innovation

Education, partnership and innovation all make perfect sense as the themes of this year's CIC meeting as they precisely reflect the goals of all agencies involved, including the Canadian Public Health Association (CPHA).

As pointed out by Debra Lynkowski, CEO of the CPHA, many of the successful public health initiatives tend to operate under the radar. "We only seem to be aware of how much positive impact public health has when the system breaks down," she told INFO-Vaccine. "So there is always a risk for public health initiatives to be taken for granted."

Thus, one of the reasons why the CIC meeting is so important for delegates is that it serves as a kind of "cheerleading" event to encourage attendees to continue to promote immunization and educate the public about it. Health care providers also have a "great deal of influence" with their patients in terms of immunization, as Lynkowski pointed out. "So this is also an opportunity to ensure that we press those messages forward and share our success stories and expertise with others."



Debra Lynkowski

As for partnership, the CPHA serves as the secretariat for the Canadian Coalition for Immunization Awareness and Prevention, a working group of 21 non-governmental organizations out of a total of 28 members, all working together in a "unique and powerful" partnership involving varying initiatives. "We've hopefully become aware that we can't operate in silos any longer," Lynkowski remarked, "so in order to ensure that you have an efficient and effective response we really need to ensure there is coordination and communication across all jurisdictions. So partnership is again an excellent theme for the conference."

Lastly, innovation is as important in the development and implementation of vaccination as it is for any other type of medical intervention. Here, there is much to discuss: new ways to boost immunogenicity; new delivery systems; new vaccines under development.

"Globalization is happening across infectious diseases as it is across all things and we need new approaches to the development and delivery of vaccines and continued innovation to keep up with it," Lynkowski concluded. □

Meeting at a Glance:

Sunday, November 30

13:00-14:00
Opening Session
Welcome and Introduction
Canadian Immunization Poster Contest Announcement
(Grand Ballroom West/Centre)

14:00-15:00
Plenary I. Dr. John Waters Memorial Lecture
Immunization: Past, Present and Future
(Grand Ballroom West/Centre)

15:00-16:00
Health Break and Poster Viewing
(Osgoode Ballroom)

16:00-17:30
Concurrent Sessions (1 to 7)
(Dominion Ballroom North)
Please see final program for details

17:30-19:00
Welcome Reception and Networking
Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

Monday, December 1

08:30-10:00
Plenary II. New Vaccines in Canada - From Concept to Implementation: The HPV Story
(Grand Ballroom West/Centre)

10:00-10:30
Health Break – Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

10:30-12:30
Plenary III. Communicating the Benefits and Risks with Clarity and Confidence
(Grand Ballroom West/Centre)

12:30-13:30
Lunch and Poster Viewing and Lunchtime Workshops
(Osgoode Ballroom, Sheraton Hall)

12:30-13:30
Lunchtime Workshops
Plain Language
(Windsor West)

13:30-15:00
Concurrent Sessions (1 to 7)
(Dominion Ballroom North)
Please see final program for details

15:00-16:00
Health Break – Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

16:00-17:30
Concurrent Sessions (1 to 6)
(Dominion Ballroom North)
Please see final program for details

18:30-19:30
Reception and Networking

(Grand Ballroom Foyer)

19:30-01:00
Conference Banquet
(Grand Ballroom West/Centre)

Tuesday, December 2

08:30-10:00
Plenary IV. Celebrating Canadian Innovation in New Vaccines and Vaccine Delivery
(Grand Ballroom West/Centre)

10:00-10:30
Health Break – Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

10:30-12:30
Plenary V. Evidence Base for Immunization Programs including the Distinguished Lecture in Canadian Immunization
(Grand Ballroom West/Centre)

12:30-13:30
Lunch - Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

12:30-13:30
Lunchtime Workshops
Writing for Journals
(Windsor West)

12:30-13:30
Cold Chain Strategies - "Tips and Tricks of the Trade"

(Grand Ballroom East)

13:30-15:00
Concurrent Sessions (1 to 7)
(Dominion Ballroom North)
Please see final program for details

15:00-16:00
Health Break – Exhibit and Poster Viewing
(Osgoode Ballroom, Sheraton Hall)

16:00-17:30
Concurrent Sessions (1 to 7)
(Dominion Ballroom North)
Please see final program for details

Wednesday, December 3

08:30-10:00
Plenary VI. Pandemic Influenza: Critical Knowledge Gaps and Canadian Efforts to Bridge Them
(Grand Ballroom West/Centre)

10:00-10:30
Health Break – Poster Viewing
(Osgoode Ballroom)

10:30-12:20
Plenary VII. The Bottom Line: Hot Topics & Ask the Experts
(Grand Ballroom West/Centre)

12:20-12:30
Closing Remarks

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Research from bench to population highlighted at this year's CIC

Research from the bench to the population and beyond will be peppered throughout the 8th annual Canadian Immunization Conference, testimony to the scope of what scientists across Canada are now doing in vaccine research. "This is the largest number of abstract submissions we've ever had and we're delighted about it and think it supports the fact that there is growth and interest and recognition of the importance of research related to vaccine and vaccination programs," enthused Dr. Margaret Russell, University of Calgary, scientific chair of the CIC.

Here are some of the pearls singled out by the scientific committee:

Intradermal influenza vaccine elicits superior immune responses in adults: A randomized controlled phase III trial. Lead author: Melanie Saville. Older patients are known to develop more severe illness from influenza and to die from it than younger patients, as do those who do not respond well to the influenza vaccine. This new technique, which delivers the injection between the layers of the skin, has been shown to improve immune response in older patients and represents a real step forward in influenza control. [P142]

Epidemiology of measles outbreak in Toronto: 2008. Lead author: Michael Finkelstein. This study identified that adults born in the 1970s were still susceptible to measles, highlighting the importance of adult immunization. It also supports a second dose of the MMR vaccine for individuals born in 1970 or later, as is recommended by various provinces. [Oral 08]

Hepatitis A vaccine use by Canadian travellers is inadequate: Results of a nationwide survey. Lead author: Carol LaJeunesse. The risk of acquiring hepatitis A may be low at home but it can be very easily acquired abroad and Canadians are frequent international travellers. According to the survey, a distressingly large proportion of travellers do not receive the vaccine prior to travelling and are thus at risk. [P133]

Real-time post-marketing surveillance of influenza vaccine safety and immunogenicity. Lead author: Barbara Law. This study illustrates how committed Canada is to ensuring vaccine safety by continuing to monitor vaccines that are already licensed and in use. [Oral 05]

Anti-HBs and immune memory 10 years after the vaccination of preadolescents with Engerix-B. Lead author: Vladimir Gilca. This study provides evidence that "immune memory" persists for many years following hepatitis B vaccination and that there is no need to routinely provide a booster shot of the vaccine. [Oral 03]

Dose-ranging study of a subunit RSV vaccine in the elderly. Lead author: Joanne Langley. Respiratory syncytial virus (RSV) can cause severe illness among the elderly and a vaccine is needed to protect them against this infection. This study is the first step towards hopefully the eventual development of such a vaccine. [Oral 04]

Evaluation of the three-dose schedule of conjugate pneumococcal vaccine in British Columbia. Lead author: Maureen Anderson. In 2007, BC began a program for infants that included three doses of the pneumococcal vaccine instead of four doses. This study shows that the shorter program continues to protect children well against pneumococcal infection and that it has been well accepted. [P64]

Innovation in immunization: Enhancing access for under-immunized children in Capital Health. Lead author: Richard Golonka. This study based in the Edmonton area shows how important it is to use strategies to reach under-immunized children as they work. [P36]

Knowledge, attitudes and beliefs of Canadian parents about acute otitis media and its prevention by immunization: Results of a telephone survey. Lead author: Ève Dubé. Investigators explored parental willingness to have their children vaccinated with a new pneumococcal vaccine that protects against otitis media. Many parents indicated they would be willing, especially those whose children had already had an episode of otitis media. It is important to ascertain the acceptability of new technologies in order to plan for their funding. [P21]

Immunogenicity and safety analysis of an inactivated protollin-based nasal vaccine for mumps virus. Lead author: Katie Young. This study details the early development of a new mumps vaccine that can be given intranasally rather than by injection as the current mumps vaccine must be. Though still early, this study shows it may be possible to develop an alternative route of administration for the mumps vaccine. [P91]

Immunization of neonates: Greater protection, stronger and broader immune responses and a unique memory T-cell profile. Lead author: Brian Reikie. This study compared immune responses achieved when newborn mice were vaccinated to those obtained when older animals were vaccinated. Findings suggest that vaccinating newborns might be more effective than waiting until they are older. This has important implications as it may indicate very young infants may be protected against diseases with future vaccine technologies. [P20]

Innovation in Immunization: helping under-immunized children

Many children who were previously under-immunized in the Capital Health region have been reached through a new multi-faceted immunization program designed to target communities who are higher risk of being under-immunized.

Richard Golonka, a Masters student in epidemiology, Capital Health, Edmonton, noted that regional immunization statistics in Capital Health are routinely monitored and tracked according to the age of the children or their grade in school. "Analysis of this data revealed that certain populations have immunization rates below Capital Health targets," he indicated.

Four general strategies were then launched to improve immunization rates. These included enhanced community outreach; facilitation of attendance at immunization clinics; identification and immunization of under-immunized grade 9 students in high-risk schools; and increasing access to research-based information to address immunization myths.

Access to under-immunized children was improved through the use of on-site immunization clinics at daycares, the addition of extra evening clinics, and the provision of taxi vouchers and bus passes to help get children to the immunization sites. Education was also provided to daycare workers at on-site clinics and information sheets were developed in which immunization controversies could be discussed by community health nurses to increase public awareness of immunization. School-based immunization programs were also generally well accepted and fostered a relationship between healthcare providers, schools and parents.

"Language barriers exist among many of the under-immunized population," Golonka noted, "while accessing acute and up-to-date immunization records for new or mobile Albertans is difficult. [However], the Innovation in Immunization program managed to reach and immunize many children who were previously under-immunized." □

ADDENDUM TO FINAL PROGRAM

- Dr. Kumanan Wilson is currently at the University of Ottawa and is no longer at the Toronto General Hospital.
- Jill Walker of Northern Health Authority is an additional speaker for Concurrent Session 3 of 6 on Monday, December 1, 16:00-17:30, "The A.S.K. Approach to Immunization Communication: Communication Tools and Strategies for the Front Line."

ADDENDUM TO EXHIBITION GUIDE

- CardioMed Supplies Inc. has been added to our list of Exhibitors. They are in Booth #116 in the Exhibit Hall.



Look for INFO-Vaccine this week:

Issue # 2 on Monday

Issue # 3 on Tuesday



INFO-Vaccine is published three times by Medical Education Network Canada Inc. for the 8th Canadian Immunization Conference. The purpose of INFO-Vaccine is to promote events organized by the CIC, and to bring delegates closer together by fostering a sense of community spirit at the meeting.

Full French and English content available on-line at www.publichealth.gc.ca

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8th Canadian Immunization Conference

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Update on the Pentavalent Rotavirus Gastroenteritis Vaccine

Toronto - The precipitous decline in the incidence of rotavirus (RV) gastroenteritis in the US following introduction of the RV vaccine comes as a pleasant surprise. Only two years after the introduction of the RV vaccine, the combined incidence of hospitalizations and emergency room (ER) visits related to RV gastroenteritis has decreased by 100%, suggesting a strong and rapid herd immunity effect from the new vaccine. The remarkable reduction in the burden of disease associated with RV gastroenteritis is good news for parents and children alike, as the infection afflicts almost every child before the age of five, and is frequently passed on to other members of the family when an infant becomes ill. IMPACT, a Canadian surveillance program being presented here at the CIC, is currently gathering data on RV infections that present to the ER in an effort to gauge the cost to the health care system to treat this infection.

By Pam Harrison

Rotavirus (RV) is a major cause of gastroenteritis among infants and young children worldwide and is the most frequent cause of hospitalization for dehydrating diarrhea and vomiting in industrialized countries. It is evident that protecting infants and young children from this important cause of morbidity has significant clinical implications.

As reported during the recent ICAAC/IDSA meeting in Washington in October 2008, the live, oral, pentavalent RV vaccine reduced RV-related hospitalizations and emergency room (ER) visits by 100% during the 2007 to 2008 RV season, typically January through May of each year. Data were derived from a national post-licensure observational study which was based on a review of health insurance claims from approximately 61,000 infants in the US. From this cohort, 33,135 received all three doses of the RV vaccine as recommended while 27,954 did not.

Rather than rely on historical comparisons, the study compared those who received the RV vaccine with controls of a similar age who did not. This allowed investigators to generate an estimate of vaccine effectiveness during routine vaccination. It may be important to note, however, that the diagnosis of RV in this study did not require laboratory confirmation.

Analyses showed that the vaccine reduced the combined incidence of hospitalizations and ER visits related to RV gastroenteritis to 0.0 vs. 3.7 events per 1000 patient-years, with both hospitalizations and ER visits being reduced by 100%. "Thus, what we must be seeing here is herd immunity," observed Dr. Paul Offit, Director, Vaccine Education Center, Children's Hospital of Philadelphia, Pennsylvania, and co-developer of the pentavalent RV vaccine. Equally significant, the vaccine reduced medical care costs associated with RV-related hospitalizations and ER visits by 100%—to \$0.0 vs. \$12,021 per 1000 patient-years. The live, oral, pentavalent RV vaccine is indicated to prevent RV gastroenteritis caused by the serotypes G1, G2, G3, G4 and G serotypes that contain P1A[8] and is recommended for infants between the ages of six and 32 weeks, to be given as a three-dose series.

This remarkable success story was already apparent even one season after it had been approved by regulatory officials in 2006. In a separate presentation at IDSA, Dr. Steven Hatch, University of Massachusetts, Worcester, had reported that their hospital treated an average of about 65 cases of RV gastroenteritis per year before the vaccine was licensed. This fell

to 37 during the 2007 season, the first full RV season following the licensure of the vaccine, and to three by the end of the 2008 season.

Recent Clinical Data

In an earlier report from the Centers for Disease Control (CDC) and Prevention in Atlanta, Georgia, researchers reported a significant reduction in the incidence of RV disease and associated medical care following the introduction of the live, oral pentavalent RV vaccine compared to previous years (*Morbidity and Mortality Weekly Report* June 26, 2008). Using data from two different surveillance systems, CDC investigators found that there was a marked reduction in the number of positive laboratory tests for RV gastroenteritis during the 2007 to 2008 RV season at 18% compared to a median of 41% from July 1991 through to June 2006. Data for this analysis was provided by the National Respiratory and Enteric Virus Surveillance System.

A second analysis, based on data provided by the New Vaccine Surveillance Network, noted a marked reduction in hospitalizations and ER as well as clinic visits related to RV gastroenteritis during the 2008 season compared with either 2006 or 2007. For example, among those children who presented to hospitals, ERs or outpatient clinics with acute gastroenteritis, 207 children had RV gastroenteritis in 2006, 259 had it in 2007 and only 18 children had evidence of RV gastroenteritis in 2008.

Additional data have demonstrated the impact of the new pentavalent RV vaccine on disease incidence. Researchers at Quest Diagnostics, Madison, New Jersey, calculated that they performed, on average, 27,625 RV tests during the peak season during the three years before the vaccine was licensed; of these, approximately one-quarter were positive for the virus. During the December 2007 to June 2008 season, the company carried out almost as many tests but fewer than 8% of them were positive for RV. This suggests that the number of positive RV tests fell approximately 70% over the last few years, even though only about 50% of eligible infants have been vaccinated.

These findings again support a rapid and impressive herd immunity effect with the new oral vaccine. "When babies are first infected with RV, they excrete tremendous amounts of RV in their stool so it affects not only the infant but everyone else

around them,” Dr. Offit explained. “So with the vaccine, you are decreasing a lot of viral shedding and further exposure to the virus.” This does not imply that infants will no longer require the RV vaccine series, he hastened to add. Like influenza, RV is still circulating throughout the community even when there is significant herd immunity, he noted. “You can eliminate polio... but you cannot eliminate influenza or RV,” Dr. Offit cautioned.

When developing the vaccine, Dr. Offit and colleagues found that the main challenge was to separate out viral pathogenicity from viral immunogenicity. “The hope was then to create a recombinant vaccine that contains the genes that produce the antibodies that protect infants against disease but not the genes that contain the proteins that make them sick.”

Burden of Disease

A comprehensive measurement of the burden of disease caused by RV here in Canada is expected to be published in December. As pediatricians, however, both Dr. Offit and Dr. John Yaremko, Associate Professor of Pediatrics, McGill University, Montreal, Quebec, already understand how the infection can affect a family. “I think what drove it home for me is that we saw a child in our ER die from RV gastroenteritis,” Dr. Offit recalled. The mother had done everything she was told to do for the sick infant but only about 24 hours after symptom onset, the child’s vomiting had been so severe and persistent that there was nothing the ER team could do to stave off the ravages of dehydration caused by the gastroenteritis.

Dr. Yaremko himself has seen his share of RV gastroenteritis and neither he nor the parents find it trivial. “There is no question that RV is the most common cause of gastroenteritis in children under the age of 5 and especially under the age of 2,”

he confirmed. In fact, almost all children develop at least one episode of the illness before their second birthday, he added. What is different about gastroenteritis caused by RV is that not only do children develop diarrhea, vomiting and fever with it, “they are much more likely to get dehydrated from this virus.” Although oral hydration can sometimes reverse this dehydration, it is more of a challenge to rehydrate very young children, he added—“so they end up in the ER for intravenous rehydration and all of its associated costs.”

Furthermore, it is not just the infant who is afflicted by this very unpleasant infection. Because RV is so contagious, it is very common for at least one other family member to be affected with RV as well. The soon to be published study will reveal that up to 50% of the families surveyed were getting at least a second case of RV gastroenteritis. This included about one-third of the parents who then had to miss work, not only to take care of their sick infant but also to take care of themselves.

“RV gastroenteritis is well worth preventing because the illness is severe and unpleasant, it is very common, and second and third cases often occur in the families when infants get sick,” Dr. Yaremko stated. “From a societal point of view, RV infection has a very high cost because it is associated with so many office and ER visits and hospitalizations. If we can avoid all of this, prevention probably will save money down the road.”

IMPACT, a surveillance program of the Public Health Agency of Canada, is currently tracking RV infection rates in children hospitalized for gastroenteritis. As noted by Dr. Nicole Le Saux, Division of Infectious Diseases, Children’s Hospital of Eastern Ontario, and one of the principal investigators of IMPACT, “The other aspect of the RV surveillance program is to look at the characteristics of the children who come to the ER with RV gastroenteritis and to see how much it costs in the ER as there is a lot of it in the community.” □

For more information relevant to IMPACT, please plan to attend:

“Vaccinated Children Among Hospitalized Meningococcal Cases Across Canada, IMPACT 2002-2006.” Sunday, November 30-Monday, December 1, 2008, Osgoode Ballroom, Sheraton Centre Toronto Hotel.

“Trivalent Influenza Vaccine Effectiveness Against Infant/toddler Hospitalization During Three Canadian Winters: A Report from the Immunization Monitoring Program - Active (IMPACT).” Sunday, November 30-Monday, December 1, 2008, Osgoode Ballroom, Sheraton Centre Toronto Hotel.

“Genetic Analysis of Invasive Neisseria Meningitidis Strains in Canada Monitored by the IMPACT Program from 2002 to 2006.” Sunday, November 30-Monday, December 1, 2008, Osgoode Ballroom, Sheraton Centre Toronto Hotel.

“The Effect of Routine Vaccination on Invasive Pneumococcal Infection in Canadian Children: 2000-2007. A Report from the IMPACT Network.” Sunday, November 30, 16:00-17:30, Grand Ballroom, Sheraton Centre Toronto Hotel.

Please plan to attend the plenary session with Dr. Paul A. Offit:

“Communicating the Benefits and Risks with Clarity and Confidence: Communicating Science to the Public.” Monday, December 1, 2008, 10:30-12:30, Grand Ballroom West/Centre, Sheraton Centre Toronto Hotel.

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Medical Education Network Canada Inc. 132, chemin de l’Anse, Vaudreuil, Quebec J7V 8P3
E-mail: mednet@mednet.ca / Web site: www.mednet.ca **Please e-mail us at our address to receive reports on-line.**

INFO-VACCINE

Clinical Supplement



8th Canadian Immunization Conference

Toronto, Ontario / November 30-December 3, 2008

Vaccination and Global Health: Healing the World One Vaccine at a Time

Toronto - Despite our best scientific efforts, infectious diseases continue to threaten communities around the world. The challenge to stave off the ravages of the three most significant contributors to global morbidity and mortality—HIV infection, tuberculosis and malaria—remain daunting and will require a united humanitarian effort to not just treat those who are already infected but ideally, to prevent infection with vaccines that are currently in development. Because infectious diseases disproportionately affect the developing world, attention needs to be focused on their needs as well as those of children in the developed nations. Efforts are particularly urgent for young children, for whom many infections remain fatal, for example, *Streptococcus pneumoniae*, rotavirus and *Haemophilus influenzae*. Continuous innovations in vaccine development have and will have a great impact on global health, as researchers here will discuss during the scientific sessions.

By Pam Harrison

Public health practitioners can be inordinately proud of the contribution they continue to make to worldwide health. Through their efforts to both advocate and deliver vaccines against a spectrum of infectious agents, the world is a healthier, more productive place. Looking only at the number of deaths from measles alone, better coverage and targeted measles vaccination campaigns in Africa reduced mortality rates by 91% between 2000 and 2006. All of those now alive thanks to better measles coverage have the potential to contribute to the social and economic fabric of their community. Smallpox was once responsible for more deaths worldwide than all other infectious diseases combined yet today, smallpox does not exist, thanks to the vaccine developed by Dr. Edward Jenner in the late 1700s.

In his book *Vaccinated*, international infectious disease expert Dr. Paul Offit, Professor of Pediatrics, University of Pennsylvania, Philadelphia, identifies the most devastating outbreak of an infectious disease in medical history as the 1918 influenza pandemic, which killed between 50 and 100 million people worldwide, all within a single year. Mass immunization campaigns against the influenza virus today have significantly reduced morbidity and mortality attributable to this infection alone.

Indeed, the World Health Organization (WHO) salutes immunization as among the most cost-effective health investments medicine has ever offered to the world. Globally, experts estimate that vaccines prevent up to three million deaths every year and that 750,000 children are spared serious disability from disease outbreaks, with attendant reductions in hospitalizations and related healthcare costs that disease prevention implies.

Protecting Young Children

At the same time, WHO reminds us that we have some distance to go, especially when it comes to protecting young children. Statistics based on 2002 data and published by WHO in 2004 indicate that in children under the age of five years, malaria still claims 29% of their young lives; pneumococcal disease, 17%; measles, 13%; rotavirus, 10%; *H. influenzae*, 9%; HIV infection, 9%; and pertussis, 7% (www.who.int/whr/2004/en/index.html).

Each year, malaria alone is responsible for over a million deaths worldwide, largely in children under the age of five, although strides are currently being made against this disease. In a joint effort by the Malaria Vaccine Initiative at the Program for Appropriate Technology in Health, a non-profit organization, a promising malaria candidate vaccine is being fast-tracked. In a pilot study with the Walter Reed Army Institute of Research, six out of seven volunteers were found to be protected from malaria following vaccination with the candidate vaccine. A subsequent field trial in adults in West Africa supported by the WHO also showed that the vaccine was 70% effective in providing protection against malaria over a short-term follow-up. Also in West Africa, in a phase II clinical trial of infants (the most vulnerable group for malaria) exposed to *Plasmodium falciparum*, the vaccine was 65% effective against the infection over a follow-up interval of three months and was 35% effective against clinical disease as measured over a six-month interval after the first dose.

Globally, rotavirus causing severe gastroenteritis is responsible for one child's death every minute, while

HIV/AIDS is the leading cause of death among adults between the ages of 15 and 59. Preclinical and phase I/II trials are also taking place in an effort to develop vaccines against HIV, tuberculosis, hepatitis E and dengue fever, which together could make an unfathomable contribution to global health.

Closer to Home

If world health issues remain omnipresent and pressing, infectious disease also touches all of us closer to home, including common infectious diseases of childhood. Prior to the introduction of the 7-valent pneumococcal conjugate (PCV7) vaccine, between 472,000 and 590,000 episodes of acute otitis media (AOM) occurred each year in Canada, most necessitating a physician visit.

Even today, AOM is the leading cause of childhood healthcare visits, according to Ève Dubé, PhD, Équipe de recherche en vaccination, Institut national de santé publique du Québec, Quebec City, who will be presenting a study on the knowledge, attitudes and beliefs of Canadian parents about AOM at this year's meeting. In the survey carried out by Dr. Dubé and colleagues, 32% of over 500 parents and guardians of children between the ages of six months and five years reported that their child had experienced at least one episode of AOM during the last 12 months, and 27% of survey participants indicated that their child had had three or more episodes. Over 93% of these episodes resulted in a physician visit and mostly all of them were treated with an antibiotic. The mean duration of each episode was almost six days and often resulted in a transitory loss in quality of life for both the child and parents.

The PCV7 vaccine has been shown to modestly reduce the number of AOM episodes due to the seven serotypes contained in the vaccine but it does not protect against *H. influenzae*-mediated AOM, nor against *Moraxella catarrhalis*, another common bacterial cause of AOM. Approximately one-quarter of all bacterial cases of AOM are attributable to non-typeable *H. influenzae*, suggesting that a vaccine that targets both *S. pneumoniae* and *H. influenzae* could significantly affect the incidence of AOM here at home.

In a symposium on Wednesday morning, physicians will learn more about the changing epidemiology of *S. pneumoniae* disease here and elsewhere, as well as future pneumococcal vaccines that may help prevent an incremental proportion of pneumococcal-related disease in young children. Dr. Stephen Pelton, Professor of Pediatrics and Epidemiology, Boston University Schools of Medicine and Public Health, and Director of Pediatric Infectious Diseases, Boston Medical Center, Massachusetts, will discuss in detail why young children in particular are so susceptible to the development of AOM, the most common causes of it and what physicians may be able to offer in the future to prevent AOM in young children. Dr. Steven Black, Professor of Pediatrics, Center for Global Health, University of Cincinnati, Ohio, will explore in particular the changing epidemiology of pneumococcal disease in Canada, the US and other parts of the world, and the potential reasons for the shift to non-PCV7 serotype-attributable disease, not the least of which is antibiotic pressure from the macrolides. □

Please plan to attend:

“Advances in Protection Against Pneumococcal Disease.” Chair: B Tapiero. Wednesday, December 3, 2008, 7:00-8:30, Civic Ballroom North and South, Sheraton Centre Toronto Hotel.

This event is recognized by the Canadian Paediatric Society as an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada.

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Medical Education Network Canada Inc. 132, chemin de l'Anse, Vaudreuil, Quebec J7V 8P3
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