

IN THIS ISSUE

- Surveillance Update 1
- Case examples 2
- Highlights from the 8th CIC 3
- No evidence of a vaccine-autism link 5
- Upcoming Events 5
- Resources 6
- IMPACT center contacts 8



IMPACT

Canadian Immunization Monitoring Program, ACTive
Programme canadien de surveillance active de l'immunisation

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www.cps.ca/English/surveillance/impact/impact.htm#newsletter



Surveillance update

IMPACT continues to actively monitor paediatric hospitalizations for adverse events following immunization (AEFI) and for selected vaccine preventable diseases, including influenza-related hospital admissions.

IMPACT is planning to use a web-based format for the reporting of selected surveillance targets. Paediatric influenza-related hospital admissions and mortality is currently the only surveillance target for which this web-based method of “real-time” reporting is used. Influenza surveillance weekly reports contribute paediatric data from 12 centres to the national influenza surveillance system, FluWatch (www.phac-aspc.gc.ca/fluwatch)

IMPACT case examples

Adverse events following immunization surveillance

REMINDER: *Case examples of adverse events following immunization reflect temporal association (events are reported with certain timelines after an immunization, but could be purely coincidental). These events are **not** to be confused with causality (when an event is considered to be caused by the vaccine). The Advisory Committee on Causality Assessment (ACCA), a national expert panel, determines causality ratings. It is important to keep in mind that the benefits of protection offered by vaccines should always far exceed the small risk of an adverse event.*



Public Health
Agency of Canada

Agence de la santé
publique du Canada



Canadian
Paediatric
Society

Société
canadienne
de pédiatrie

*Working Group on Polio Eradication
 Bentsi-Enchill A.
 "Protocol for the investigation of acute flaccid paralysis and suspected paralytic poliomyelitis."
 Paediatrics & Child Health,
 1997 2(6):409-12.



Case example

This previously healthy infant had 2 previous doses of DTaP-IPV-PRPT vaccine. Fifteen days after vaccination with DPT and oral polio vaccine (in another country) the infant developed paralysis, consistent with vaccine-associated paralytic polio (VAPP). The cerebrospinal fluid (CSF) exam showed mild pleocytosis (12 WBC, increased protein). Stool cultures grew poliovirus type 3 (Sabin strain) on 2 occasions. A MRI scan showed anterior horn injury at 2 levels of the spinal cord. The child has been left with a paralyzed leg (hip flexors). Final diagnosis: imported case of probable VAPP.

Editorial note: Since this case originated in another country, it does not count against Canada's vaccine safety record. Moreover, the initial diagnosis abroad was GBS. The correct diagnosis, however was made in Canada based on the electromyography (EMG) finding of muscle denervation. An increased titer of antibody to type 3 poliovirus supported the diagnosis. Proof of VAPP would have required isolation of poliovirus from the CSF at presentation. The case has been reviewed by ACCA/PHAC. It reinforces the relevance of continuing to suspect paralytic polio as part of the differential diagnosis of acute flaccid paralysis (AFP) syndromes like GBS, while polio still exists and OPV continues to be used.

The information from this case also highlights the importance of thorough investigation of cases of AFP including obtaining stool cultures. A protocol for the investigation of AFP and suspected poliomyelitis (see publication*) emphasizes that the single most important laboratory investigation for the diagnosis of paralytic poliomyelitis is a stool specimen collected within two weeks of the onset of paralysis for isolation of wild or vaccine strain poliovirus. Whenever possible, polio-specific serological tests should be considered. A probable or confirmed diagnosis of paralytic poliomyelitis can be made with evidence of a fourfold or greater rise in poliovirus antibody titre in paired sera and/or the presence of poliovirus-specific IgM antibody.

Vaccine preventable disease surveillance

Case example # 1

A previously healthy toddler presented with bacteremia (*S. pneumoniae*). The child had no prior vaccination against this organism. The isolate was identified as serogroup 6 (potentially vaccine preventable). The child spent 3 days in the hospital and recovered.

Case example # 2

A school-age child, with a medical history of hydrocephalus and a ventriculo-peritoneal shunt in place, developed peritonitis, with a nontypable *Haemophilus influenzae* (HI) strain. The child was vaccinated with 4 previous doses of *Haemophilus influenzae* type b vaccine. The child spent 17 days in hospital and recovered.

Editorial note: IMPACT continues to conduct surveillance for the identification of all HI invasive strains (types a to f inclusive).

Case example #3

A young infant (born premature at 35 weeks gestation), with a medical history of congenital heart defect, spent 44 days in the hospital (including 26 days in the intensive care unit) with Respiratory Syncytial Virus and pertussis infections. The infant recovered.

Case example #4

A young infant developed chickenpox after household exposure to a child with chickenpox. The infant developed cardiomyopathy and tachycardia and was hospitalized for 12 days in the intensive care unit. The infant recovered but required ongoing medications.

***Haemophilus influenzae* type b (Hib) invasive infections:**

In 2008, IMPACT reported a total of 7 cases of Hib invasive infections. Four of these were unimmunized (3) or incompletely immunized for age (1). A similar problem was highlighted in a recent issue of *Morbidity and Mortality Weekly Report (MMWR)*, Centers for Disease Control and Prevention U.S. www.cdc.gov/mmwr/preview/mmwrhtml/mm5803a4.htm

IMPACT peer-reviewed publications and scientific abstract presentations

To date, IMPACT has an impressive 46 peer-reviewed publications and has made 80 scientific abstract presentations. The latest IMPACT publication (below) can be found in the January 2009 issue of *Paediatrics & Child Health*, 14(1):40-3, and will also appear in the Spring 2009 issue of *The Canadian Journal of Infectious Diseases & Medical Microbiology*.

Scheifele D. "IMPACT after 17 years: Lessons learned about successful networking." *Paediatric Infectious Disease Notes. Paediatrics & Child Health* 2009; 14(1):40-3

This article is an excellent review of how IMPACT was developed, its accomplishments and the factors contributing to its success. The following are highlights from the article:

- "It has been reassuring to document the rarity of harm from vaccinations."
- "Monitors provide vital assistance to the Vaccine Safety Division of the Public Health Agency of Canada in their reviews of serious adverse events following immunization to identify any causal association or new risks."
- "Disease surveillance is an essential activity to monitor the health of children. Surveillance data support the rationale for new vaccination programs and gauge their subsequent safety and effectiveness."
- "Canada was the right size for a cost efficient network needing only to span a dozen centres to capture over 90% of tertiary care paediatric beds, most with free-standing children's hospitals that are easily monitored."

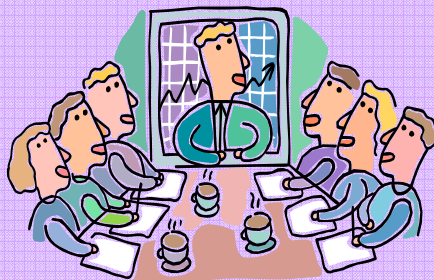


Highlights from the 8th Canadian Immunization Conference (CIC):

Toronto, Ontario, November 30-December 3, 2008 Conference highlights and stats

(Source: www.phac-aspc.gc.ca/cnic-ccni/2008/about-sujet-eng.php)

- Attendance: 1,130 participants
- There were:
 - 20 oral abstract presentations and 144 abstracts presented as scientific posters.
 - 39 booths from non-governmental, public, and private sector organizations displayed in the exhibit hall.
 - 4 bursaries awarded under the Vaccinology Student Research Program.
 - 14 bursaries awarded to recipients from across Canada under the Travel Bursary Program.
 - 5 industry-sponsored satellite symposia were included; these were offered by GlaxoSmithKline, Sanofi Pasteur, Merck Frosst and Wyeth and were accredited by the Canadian Paediatric Society.



- The winner of the Canadian Immunization Poster Contest was Ryan Magee of Monsignor J.S. Smith School in Calgary. Ryan Magee's poster was displayed in the exhibit hall, along with all provincial and territorial winning posters.
- The 9th CIC will be held in Quebec City from December 5 to 8, 2010.

IMPACT was well represented at the 8th CIC in Toronto

Oral presentations

- "Meningococcal Infections across Canada." (Dr. Julie Bettinger and Dr. Scott Halperin)
- "The Effect of Routine Vaccination on Invasive Pneumococcal Infection in Canadian Children: 2000-2007, a Report from the IMPACT Network." (Dr. Julie Bettinger)

Scientific posters

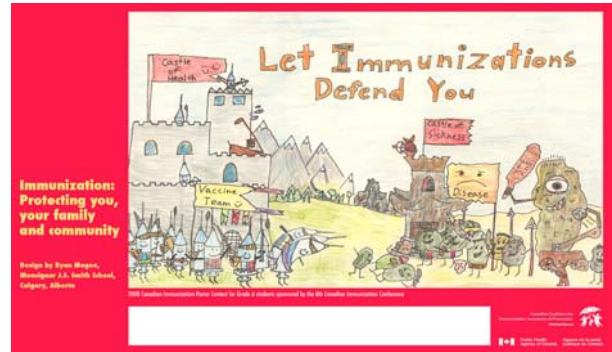
- *Vaccinated Children among Hospitalized Meningococcal Cases across Canada, IMPACT 2002-2006.* (Dr. Julie Bettinger) (P08)
- *Laboratory characterization of invasive Haemophilus influenzae isolates collected from IMPACT centres from January 2007 to January 2008.* (Lead: National Microbiology Laboratory on behalf of IMPACT) (P88)
- *Influenza Surveillance in Canada: 2007-2008 Season.* (Francesca Reyes, Lead: PHAC) Includes IMPACT data (P73)
- *Trivalent influenza vaccine effectiveness against infant/toddler hospitalization during three Canadian winters: A report from the Immunization Monitoring Program - Active (IMPACT).* (Lead: Dr. Gaston DeSerres) (P01)
- *Genetic analysis of invasive Neisseria meningitidis strains in Canada monitored by the IMPACT program from 2002-2006,* (Lead for IMPACT: Dr. Raymond Tsang) (P89)

Conference presentation highlights

(Source: INFO-Vaccine, Medical Education Network Canada for the 8th Canadian Immunization Conference)

The following are highlights from 2 excellent and memorable speeches:

- 1) **"Demystifying the Science of Immunization"**: Dr. Joe Schwarcz, Director, Office for Science and Society, McGill University
 - "To argue that vaccination doesn't work is absolute nonsense — evidence of its benefits is just overwhelming." Dr. Schwarcz cautioned that experts are not saying that there have never been any problems with vaccines since this cannot be said of any intervention.
 - "People today are not vaccinating their children and then saying 'Look, nothing happened to them,' This is because their children are protected against infectious diseases by herd immunity" Dr. Schwarcz explained, "But if that herd ceases to be inoculated, as is happening now in Scotland, you will begin to see epidemics of mumps and measles."
 - "Anti-vaccination activists also suggest that federal regulatory officials are somehow callous and uncaring by allowing vaccines to be approved for paediatric and adult use. But if a vaccine has been approved, it has not been approved haphazardly...If a vaccine is out there, it is because years and years of research have shown it to have an extremely beneficial benefit-to-risk profile."
 - "The anti-vaccination movement is anti-science; it caters to scientific illiteracy and it is potentially very dangerous. So our mandate is to demystify science for the public, to separate sense from nonsense, and hopefully keep people out of the clutches of charlatans."



- 2) **“Communicating Science to the Public”**: Dr. Paul Offit, Chief of Infectious Diseases and Director, Vaccine Education Center at The Children’s Hospital of Philadelphia, Pennsylvania. (Dr. Offit is an internationally known expert on infectious disease)
- “There are many factors that work against effective communication. Science, for one, is a process, not a set of hard facts. The “scientific method” approach to problem-solving that people used to learn about is rarely taught today. This means that many people do not understand the nature of science,” suggested Dr. Offit.
 - “Scientists are also generally reticent to stand up before the public to speak about their craft, thereby leaving the task up to others far less qualified to discuss scientific matters.”
 - “The media, especially television, also insist that every story has two sides, even if it is not the case, such as with the issue of vaccine safety. This issue should not be as controversial as it remains today. Anyone, therefore, who supports an alternative view, has access to the podium—credentials notwithstanding—making it very confusing for individuals to draw any type of conclusion.”
 - “It is also important to keep in mind that the Web search engines we are all familiar with, and have come to trust, frequently are host to unfiltered, unscreened and unedited information. But by having access to the Internet, people think they can become as expert as the real experts in the field, which is not true.”

[No evidence of a vaccine-autism link](#)

The U.S. Court of Federal Claims, Office of Special Masters concluded that there is no evidence of a vaccine-autism link. This is the result of an extensive deliberation by three Special Masters, judges responsible for claims filed in the National Vaccine Injury Compensation Program.

Key points:

- o The three Special Masters presiding over the three test cases came to the same conclusion independently. All three rulings were brought down on, and released on, the same day to further ensure independence.
- o All three Special Masters noted that the expert witnesses speaking against the theory that thimerosal/MMR cause autism were far more convincing than the expert witnesses speaking for the theory.
- o All noted that the weight of the scientific evidence was overwhelmingly against the theory that thimerosal/MMR cause autism.

George Hastings Jr., Special Master overseeing one of the three test cases stated:

“The expert witnesses presented by the respondent [i.e., Department of Health and Human Services] were far better qualified, far more experienced and far more persuasive than the petitioners’ experts concerning most of the key points. The numerous medical studies concerning these issues, performed by medical scientists worldwide, have come down strongly against the petitioners’ contentions. Considering all the evidence, I found that the petitioners have failed to demonstrate that thimerosal-containing vaccines can contribute to causing immune dysfunction, or that the MMR vaccine can contribute to causing either autism or gastrointestinal dysfunction.”

“Unfortunately, the Cedillos have been misled by physicians who are guilty, in my view, of gross medical misjudgment.”

This is the first of two decisions to be issued in what the U.S. Court of Federal Claims has dubbed the Omnibus Autism Proceeding. The second ruling will decide whether thimerosal-containing vaccines alone can cause autism. These judgments will decide more than 5,000 pending claims that autism is caused by vaccines.

To access the three rulings, go to: www.uscfc.uscourts.gov/node/5026

“This is a real victory for children and a great day for science,” said paediatrician Dr. Paul Offit, Chief of Infectious Diseases and the Director of the Vaccine Education Center at The Children’s Hospital of Philadelphia. “I hope that this decision will finally put parents’ fears to rest and that we can once again concentrate on protecting children from the resurgence of deadly vaccine-preventable diseases such as measles and whooping cough.”

Upcoming Events

National Immunization Awareness Week (NIAW) Theme: A Family Affair, (Canada)
April 25-May 2, 2009



Canadian Public Health Association Annual Conference (Winnipeg)
June 7-10, 2009



86th Annual Canadian Paediatric Society Conference (Ottawa)
June 23-27, 2009



IMPACT Investigator Meeting (Ottawa)
June 26, 2009



Resources * Indicates new to this section since the last newsletter issue

Web Sites:

Immunization Resources

Canadian

IMPACT
Public Health Agency of Canada
Canadian Paediatric Society
Canadian Coalition for Immunization Awareness and Promotion
The Canadian Foundation for Infectious Diseases
Canadian Public Health Association
Canadian Medical Association
Canadian Association for Immunization Research and Evaluation
The Vaccine and Infectious Disease Organization
Meningitis Research Foundation of Canada
Immunization Education Initiative
Canadian Health Services Research Foundation
Canadian Center for Vaccinology
*FluWatch
*FightFlu.ca
*ImmunizeBC
*Pandemic Influenza
*Canadian Institutes of Health Research
*Local public health offices (authorities) and Provincial and Territorial Ministries of Health:
publications-resources/links.aspx

International

Centers for Disease Control
Immunization Action Coalition
Institute for Vaccine Safety
Global Alliance for Vaccine and Immunization
WHO Global Advisory Committee on Vaccine Safety
World Health Organization
PneumoADIP
Medscape vaccine resource center
Needle Tips
*National Health Service UK
*Children's Hospital of Philadelphia Vaccine Education Center
*Parents of Kids with Infectious Diseases (PKID)
*Every Child by Two (ECBT)

www.cps.ca (click on "Surveillance")

www.phac-aspc.gc.ca

www.cps.ca

www.immunize.cpha.ca

www.researchid.com

www.cpha.ca

www.cma.ca

www.caire.ca

www.vido.org

www.meningitis.ca

www.immunizationeducation.ca

www.chsrf.ca

www.centerforvaccinology.dal.ca

www.phac-aspc.gc.ca/fluwatch

www.fightflu.ca

www.immunizebc.ca

www.pandemicinfluenza.gc.ca

www.cihr-irsc.gc.ca

www.immunize.cpha.ca/en/

www.cdc.gov/nip

www.immunize.org

www.vaccinesafety.edu

www.vaccinealliance.org

www.who.int/vaccine_safety/en/

www.who.int/immunization/en/index.html

www.preventpneumo.org

www.medscape.com/resource/vaccines

www.immunize.org/nt/

www.immunisation.nhs.uk

www.chop.edu

www.pkids.org

www.ecbt.org



Videos

• Immunize BC:

- A soccer Mom's Guide to Immunization
- New video for kids about HPV
- How Immunization Works

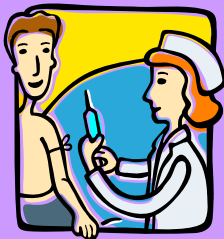
www.immunizebc.ca/ImmVacPrevDis/default.htm



• Center for Disease Control:

- *The ABCs of Childhood Vaccines*

www.cdc.gov/vaccines/vac-gen/ABCs/default.htm



***Book/Article/Letter reviews:**

Book:

Myers, Martin G, Pineda, Diego. *Do Vaccines Cause That? A Guide for Evaluating Vaccine Safety Concerns*, 2008. Immunization for Public Health.

This book is an attempt to translate the language of scientists into language accessible to today's parents.

(Canadian Public Health Association, CPHA Book of the Month, 2009)
www.dovaccinescausetthat.com

CPHA review: "A must-read book for parents, health professionals, journalists and educators concerned about the safety of vaccines. Get straight, science-based answers to this and other questions about the safety of vaccines. This guide will help you sort through all the misinformation that makes it hard to decide what's best for your child's health."

Some great quotes in this book:

"A lie can fly half way around the world before the truth gets its pants on." –Winston Churchill (page 111)

"A one in a million risk represents 30 seconds in a year, 1 inch in 16 miles and 1 drop in 16 gallons." (page 18)

Letter:

Gates, Bill. Bill & Melinda Gates Foundation. (1st) *2009 Annual Letter*
www.gatesfoundation.org/annual-letter/Pages/2009-bill-gates-annual-letter.aspx

This is Bill Gates 1st annual letter since he left Microsoft to work with his foundation full time. This annual letter provides an excellent review of his foundation's goals and the progress made to date. The letter addresses the status of childhood deaths in the world, particularly with respect to diarrheal diseases such as rotavirus, which is also one of the IMPACT surveillance activities.

Other

Immunization Competencies for Health Professionals

The competencies were prepared by the Professional Education Working Group (PEWG) of the Canadian Immunization Committee. These competencies include knowledge of the scientific basis of immunization, essential immunization practices, and contextual issues relevant to immunization. Each competency is supported by a learning domain and a number of guiding learning objectives. They provide a framework that stakeholders can use to tailor education programs to the needs of health professionals based on learners' level of experience, practice setting and degree of involvement with immunization.

Visit the web site at www.phac-aspc.gc.ca/im/ic-ci-eng.php for further information.

Immunization quizzes:

ImmunizeBC: www.phsa.ca/phsa/imquiz/quiz.html

American Academy of Pediatrics: www.cispimmunize.org (click on resources, then illnesses, then see right hand corner of the screen)

***Children's coloring books (in reference to diseases and immunization):**

www.immunize.cpha.ca/en/specific-groups/childactivities.aspx

www.ecbt.org/resources/coloringbook.cfm

***Immunization PowerPoint presentations**

Immunization Action Coalition (U.S.): www.immunize.org/resources/res_powerpoint.asp

IMPACT contacts

Center	Nurse Monitor	Investigator
IWK Health Centre Halifax	Andrea Hudgin andrea.hudgin@iwk.nshealth.ca Heather Samson heather.samson@iwk.nshealth.ca	Dr. Scott Halperin (Co-PI) scott.halperin@dal.ca
Centre Mère-Enfant de Québec Quebec City	Lynn Poirier lynn.poirier@chuq.qc.ca	Dr. Pierre Dery pierre.dery@ped.ulaval.ca
The Hospital for Sick Children Toronto	Suganya Lee suganya.lee@sickkids.ca Kim Simpson kim.simpson@sickkids.ca	Dr. Dat Tran dat.tran@sickkids.ca
Children's Hospital Winnipeg	Debbe Cote dcote@mich.ca Amy Yakimoski ayakimoski@mich.ca	Dr. Joanne Embree embree@ms.umanitoba.ca
BC Children's Hospital Vancouver	Karen Kroeker kkroeker@cw.bc.ca Maureen Mooney mmooney@cw.bc.ca	Dr. David Scheifele dscheifele@cw.bc.ca
Children's Hospital of Eastern Ontario, Ottawa	Christine Guindon cguindon@cheo.on.ca	Dr. Nicole Le Saux lesaux@cheo.on.ca
Alberta Children's Hospital Calgary	Shannon Pyra Shannon.pyra@albertahealthservices.ca Lindsay Thompson (LOA) lindsay.thompson@albertahealthservices.ca	Dr. Taj Jadavji taj.jadavi@albertahealthservices.ca
Montreal Children's Hospital Montreal	Lorraine Piche lorraine.piche@muhc.mcgill.ca Ann Kilcullen ann.kilcullen@muhc.mcgill.ca	Dr. Dorothy Moore dorothy.moore@muhc.mcgill.ca
Eastern Health Janeway St. John's	Cheryl Crummell cheryl.crummell@easternhealth.ca	Dr. Robert Morris robert.morris@easternhealth.ca
CHU-Sainte-Justine Montreal	Sophie Bouchard sophie.bouchard@recherche-ste-justine.qc.ca	Dr. Marc Lebel marc_lebel@ssss.gouv.qc.ca
Stollery Children's Hospital Edmonton	Ann Roth ann.roth@capitalhealth.ca	Dr. Wendy Vaudry (Co-PI) Wendy.vaudry@capitalhealth.ca
Royal University Hospital Saskatoon	Brenda Andreychuk b.andreychuk@usask.ca	Dr. Ben Tan ben.tan@usask.ca

Other contacts

Public Health Agency of Canada (PHAC)/Centre for Immunization and Respiratory Infectious Diseases (CIRID): Dr. Louise Pelletier (Interim Director) Dr. Barbara Law (Chief of Vaccine Safety)

Canadian Paediatric Society (CPS): Marie Adèle Davis (Executive Director); Melanie LaffinThibodeau (Senior Surveillance Coordinator); French translation, newsletter - Dominique Paré

IMPACT Data Center: Dr. David Scheifele (Director); Kim Marty (Data Manager); Dr. Julie Bettinger (Epidemiologist); Debbie Heayn (Data scrutineer)

The Canadian Center for Vaccinology (CCfV): Newsletter formatting - Natalie Giorgis; Heather Samson (IMPACT Nurse Liaison)

