IMPACT

Canadian Immunization Monitoring Program, ACTive

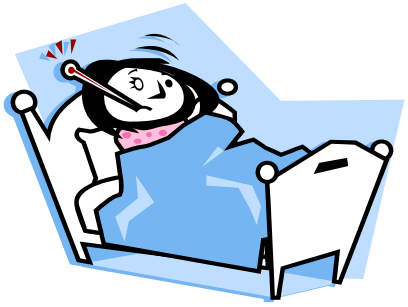
Programme canadien de surveillance active de l'immunisation

ISSUE #24 WINTER 2008

IN THIS ISSUE

Happy New Year from the IMPACT team!

This newsletter shares IMPACT surveillance activities (active vaccine safety and vaccine-preventable disease surveillance), as well as various immunization resources, with many health professionals across Canada who work to promote and improve the health of our communities. You can now and the general public subscribe to this newsletter at: www.cps.ca/English/surveillance/impact/impact.htm # newsletter or by sending an e-mail to heather.samson@iwk.nshealth.ca.



Surveillance update

Influenza infections

The IMPACT centers continue to conduct pediatric-based surveillance for admitted cases of influenza illness or related complications during the influenza season.

Surveillance has been informative in several ways:

a) Providing an early indication of the severity of circulating strains
b) Providing weekly lab confirmed influenza admissions by age group
c) Monitoring the influence of immunization programs on hospitalizations
d) Describing the burden of severe illness in children, adding to the rationale for immunizing those at greatest risk

The IMPACT network will be using electronic case reporting starting this season with reporting influenza cases. It will serve as a pilot for future IMPACT e-case reporting of other surveillance targets.

Public Health Agency of Canada / Agence de santé publique du Canada

Canadian Paediatric Society / Société canadienne de pédiatrie

IMPACT would like to send a sincere thank-you to Dr. David Scheifele for his many years of leadership as Co-Principle Investigator of IMPACT. He will remain as an IMPACT investigator at the Vancouver IMPACT center and Director of the data center.

IMPACT welcomes Dr. Wendy Vaudry to the Co-Principal Investigator role. Wendy is the Edmonton center IMPACT Investigator. We look forward to working with her in this new role.

Haemophilus influenzae invasive infections

A previous newsletter (Issue 22) highlighted the addition of *Haemophilus influenzae* invasive infections, all types, to IMPACT surveillance. The following IMPACT publication discusses the importance of this additional surveillance. A case example is included in this newsletter.

McConnell A, Tan B, Scheifele D. Halperin S, Vaudry W, Law B, Embree J of the Canadian Immunization Monitoring Program Active (IMPACT). Invasive Infections Caused by *Haemophilus influenzae* Serotypes in Twelve Canadian IMPACT Centers, 1196-2001. *The Pediatric Infectious Disease Journal*; 26 (11): 1025-31

Rotavirus infections

IMPACT has also added surveillance for pediatric-based cases (all ages) of admissions due to rotavirus illness. Cases are being reported retrospectively for the 2005 and 2006 years as well as prospectively in 2007 at all 12 IMPACT centers. A few case examples included in this newsletter illustrate the burden of rotavirus disease in older children, not just the very young.

IMPACT also conducted an emergency department “snapshot” pilot study at 5 of the 12 IMPACT centers in the late winter of 2007 looking at the burden of rotavirus illness in children under 3 years of age presenting with gastroenteritis illness.

Meningococcal Invasive Infections

IMPACT continues to report cases of *Neisseria meningitides* (pediatric and adult). The surveillance has been extended until December 31, 2009 to include two additional calendar years. Sanofi pasteur provides the funding for this surveillance. A case example demonstrating the virulent nature and burden of this disease is included in this newsletter.

Case Examples

The case examples reported by the IMPACT surveillance team reflect temporal associations only (meaning events are reported within standardized timelines, but could be purely coincidental) and are not to be confused with causality, (the event being caused by the vaccine). It is important to keep in mind that the benefits of protection offered by vaccines always far exceed the small risk of a true reaction.

Adverse Events Following Immunization:

Neurological Illness

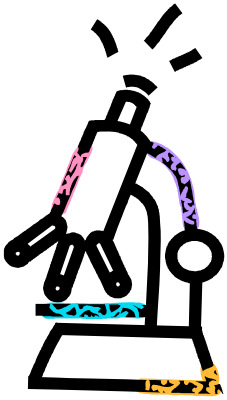
A 4-year old child developed acute disseminated encephalomyelitis (ADEM) six days after pneumococcal and meningococcal conjugate vaccinations. The child presented with fever, persistent headache and abdominal pain. A CT scan was normal, however an MRI revealed ADEM brain stem changes. The cerebrospinal fluid (CSF) contained mildly increased white blood cells, mostly lymphocytes. Viral cultures of the airway and CSF were negative. The child spent six days in hospital and improved. The cause of the illness was uncertain. The child had a normal central nervous system exam three weeks later.

Seizures

A 1-year-old with no past history had febrile seizures 28 days after varicella vaccination. The child also presented with pharyngitis, diarrhea and developed a rash two days after

admission. EEG and CSF examinations were normal. A brain MRI revealed mild diffuse ventricular enlargement of communicating hydrocephalus. IgM antibody was present for HHV6, indicating a likely diagnosis of roseola. The child spent 11 days in hospital. Follow-up 10 days later showed a return to normal health.

A 2-month-old had several seizure-like episodes starting five hours after routine vaccinations. Episodes lasted only 5 to 10 seconds. The child was found to have urinary infection with group B streptococci and recovered over six days in hospital. An EEG was normal.



Vaccine-preventable (or future-preventable) disease surveillance:

Haemophilus influenza invasive infections

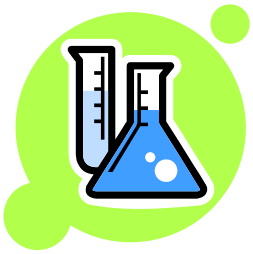
An infant with a medical history of cardiac malformations and gastroesophageal reflux, developed bacteremia with type a strain and died five days later.

A previously healthy infant presented with meningitis and seizures. The blood and CSF grew type a strain. The infant spent 21 days in hospital and survived.

Varicella admission

A 4-year-old with a medical history of asthma was on oral prednisone for a week prior to the onset of chickenpox. The child was admitted with pneumonia and spent five days in the hospital for treatment. The child had not received the varicella vaccine.

Rotavirus admission



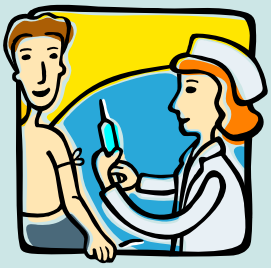
The following two cases illustrate that significant morbidity also occurs with older children with rotavirus infection:

A 9-year-old with a medical history of Crohn's disease and avascular necrosis of the femoral head developed rotavirus infection. The child was admitted with a seven-day history of diarrhea and remained in hospital for 23 days. The child survived.

A previously healthy 6-year-old developed diarrhea and vomiting with dehydration & severe abdominal pain. The child required intravenous hydration for three days and spent five days in the hospital. A stool sample was positive for rotavirus.

Meningococcal invasive infections

A previously healthy adult (in 30's) presented with meningitis, arthritis and necrosis of skin on all extremities caused by *Neisseria meningitidis* C strain. The adult spent 46 days in hospital and survived. No tissue loss was experienced, however scarring of the extremities was present as well as persistent renal dysfunction and 3rd nerve palsy. No prior meningococcal vaccinations had been received.



Commonly asked questions and answers (Source: Canadian Immunization Guide (CIG) Seventh Edition-2006 Public Health Agency of Canada

Q: Do premature infants need to be immunized on a different schedule?
A: No. Premature infants respond adequately to vaccines used in infancy. They are not as significantly increased risk of adverse events. They are to be immunized on schedule according to the child's chronological age. (Table 6, page 75, CIG: http://www.phac-aspc.gc.ca//publicat/cig-gci/p02-02-eng.php). EXCEPTION NOTE: An exception to this is with the use of Hepatitis B vaccine for low birth weight babies (Page 113 CIG: http://www.phac-aspc.gc.ca//publicat/cig-gci/p03-05-eng.php).

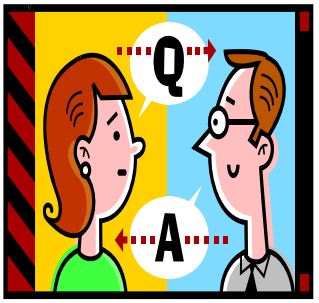
Q: Are neurological disorders contraindications to immunization?
A: No. There is no evidence of increased risk of any adverse event following immunization. In fact such persons may be at increased risks for complications from vaccine-preventable diseases such as influenza and should be immunized appropriately. EXCEPTION NOTE: There is a precaution for repeat doses of any vaccine that was temporally associated with an episode of Guillain-Barré syndrome (onset within 8 weeks after immunization) (Page 76 CIG).

Q: Are there risks to household contacts who are pregnant or immunosuppressed from vaccinees living in their household?
A: There are no risks from any vaccine marketed in Canada to household contacts of vaccinees. Imunization of household contacts of immunosuppressed patients and neonates provides important protection against transmission of disease in the household. Vaccination opportunities in such persons should not be missed. (Page 77, CIG)

Q: Should children who are not yet exposed to egg protein avoid any recommended vaccine?
A: There is no reason to avoid any recommended vaccine. It is unlikely that such children would have an allergy severe enough to cause them to react to the minute quantity of egg protein contained in some vaccines. (Page 77, CIG)

Trivia (Answers on the last page)

What type of vaccine am I?



a) I contain whole living bacteria or virus.
I am not recommended for pregnant women and people with immunodeficiencies.
I replicate within the recipient resulting in longer lasting and broader immunity.

b) I contain purified products that usually come from the bacteria or virus that causes the natural infection or I might also be synthesized in the laboratory.
I usually require multiple doses and/or the presence of an adjuvant.

c) I contain killed bacteria or virus.
I usually need to be given in multiple doses over time.

True or False?

1) Healthy women who will be pregnant during the influenza season should be vaccinated during any trimester of pregnancy.

2) It is recommended that hospitalized premature infants have continuous cardiac and respiratory monitoring for 48 hours after their first immunization.

3) Tetanus is a soil organism. It will never be eliminated.

4) *Haemophilus influenzae* type b, *Streptococcus pneumoniae, Neissaeria meningitides* organisms can survive in the nose and throat and will likely never be eliminated.

Immunization Resources

Canadian

IMPACT	www.cps.ca/English/surveillance/impact.htm
Public Health Agency of Canada	www.phac-aspc.gc.ca
Canadian Paediatric Society	www.cps.ca
Canadian Coalition for Immunization Awareness and Promotion	www.immunize.cpha.ca
The Canadian Foundation for Infection Diseases	www.researchid.com
Canadian Public Health Association	www.cpha.ca
Canadian Medical Association	www.cma.ca
Canadian Association for Immunization Research and Evaluation	www.caire.ca
The Vaccine and Infectious Disease Organization	www.vido.org
Meningitis Research Foundation of Canada	www.meningitis.ca
Immunization Education Initiative	www.immunizationeducation.ca
*Canadian Health Services Research Foundation	www.chsrf.ca

International

Centers for Disease Control	www.cdc.gov/nip
Immunization Action Coalition	www.immunize.org
Institute for Vaccine Safety	www.vaccinesafety.edu
Global Alliance for Vaccine and Immunization	www.vaccinealliance.org
WHO Global Advisory Committee on Vaccine Safety—webpage	www.who.int/vaccine_safety/en/
World Health Organization	www.who.int/immunization/en/index.html
PneumoADIP	www.preventpneumo.org
Medscape vaccine resource center	www.medscape.com/resource/vaccines

Visit the *Mother of All Immunization Trackers* web site. Sign up to keep track of your child's immunization status at: www.canadaimmunization.com

Provincial and Territorial Immunization programs (updated September 25, 2007)

www.phac-aspc.gc.ca/im/ptimprog-progimpt/index.html

Mythbuster: Risk and benefits of vaccines: www.chsrf.ca/mythbusters/pdf/myth24_e.pdf

*The **Canadian Family Physician*** journal, December 2007 issue, contains two interesting articles: www.cpf.ca/current.dtl

Preserving relationships with antivaccine parents
Five suggestions from social psychology
By: Jennifer Fortune MA Kumanan Wilson MD MSc FRCPC

Emerging Vaccines
Evidence and considerations for practice integration
By: Steven M. Moss MD FRCPC FAAP

Human Papillomavirus (HPV)

There is a large amount of information in the media on HPV and the HPV vaccine. As health professionals we need to communicate current knowledge to patients and clients. Two statements can be found on the internet:

1. The National Immunization Advisory Committee (NACI) has published the statement *Statement on Human Papillomavirus*, 15 February 2007, Volume 33, ACS-2A PDF version of the statement can be found at: www.phac-aspc.gc.ca/public cat/ ccdr-rmtc/07pdf/acs33-02.pdf

2. The Canadian Paediatric Society (CPS) has pub lished the statement *HPV vaccine for children and adolescents* in the September 2007 issue of *Paediatrics & Child Health.* The statement is avail able online at www.cps.ca/english/statements/ID/ ID07-01.htm and a PDF is available online at www.cps.ca/english/statements/ID/ID07-01.pdf.

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Canadian Paediatric Society (CPS) - Marie Adèle Davis (Executive Director)
Newsletter French translation - Dominique Paré

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

(Answers to Trivia): Found on the Canadian Immunization Guide (CIG) Seventh Edition, Public Health Agency of Canada

Who Am I? (Source: CIG, page 4 & Table on page 7-15)
a) Live attenuated vaccines
b) Subunit vaccines
c) Inactivated vaccines

True of False: (Source: CIG)
1. True, page 216
2. True, page 113
3. True, page 31
4. True, page 31