

Dispelling myths held by parents about the influenza vaccine



Canadian
Paediatric
Society

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1. *The influenza vaccine will give me the flu.*

- The virus in the Canadian vaccine is killed and cannot cause influenza.
- The killed vaccine is in pieces and cannot recombine into a live virus.
- The antigens (mainly hemagglutinin and neuraminidase) present in the vaccine induce immunity.
- Other viruses that are circulating at the same time as the vaccine is given can cause colds and diarrhea (eg, rhinovirus, adenovirus and metapneumovirus), and these symptoms may be wrongly attributed to the vaccine.

2. *The influenza vaccine does not work.*

- The vaccine does work. In healthy children and adults, 70% to 90% efficacy (protection) is achieved when there is a good match to the seasonal strain (1).
- Immunization of health care workers decreases upper respiratory tract infections, physician visits and work absenteeism by 25% to 44% during seasonal influenza.

3. *I don't need to be immunized – I'm healthy!*

- Healthy adults accounted for most of the deaths in previous pandemics and represent a significant portion of deaths from pandemic H1N1.
- Otherwise healthy children younger than five years of age (notably those younger than two years of age) and adults older than 65 years of age are at significantly increased risk of hospitalization and complications from seasonal influenza.
- Prevention of influenza will reduce risk of bacterial pneumonia.
 - 29% of 77 pandemic H1N1 deaths in the United States had bacterial coinfections (mainly pneumococcus, *Staphylococcus aureus* and group A streptococcus).
- Health care workers can transmit viruses to susceptible patients and their own families.
 - Studies have documented decreased transmission and decreased risk of death due to influenza in long-term care facilities where staff have been immunized against influenza (2).

4. *Healthy children don't need to be immunized – they're healthy!*

- Healthy children are the epicentre of every yearly influenza epidemic.

- Data show that school immunization programs prevent adult deaths.
- 15% to 42% of healthy preschool and school-age children are infected annually with influenza (see provincial ages of hospitalization graphs).
- Healthy children younger than five years of age are hospitalized as often as patients 50 to 64 years of age.
- Infants younger than six months of age have the highest hospitalization rates.
- Canadian paediatric surveillance indicated that of childhood admissions to hospital for seasonal influenza, more than one-half were younger than two years of age.
- Most children and youth admitted to hospital for influenza are healthy, but the risk of hospitalization and severe disease is increased in children with (3-9):
 - neurodevelopmental delay or neurological disease,
 - cardiac or pulmonary disease,
 - cystic fibrosis,
 - diabetes and obesity, or
 - defects of the immune system.

The risk of hospitalization and severe disease is also increased in pregnant women.

5. *I might get those awful neurological side effects.*

- The influenza infection itself can cause many neurological effects including encephalitis, meningitis, acute disseminated encephalomyelitis, Reye's syndrome, rhabdomyolysis, transverse myelitis, movement disorders, Guillain-Barré syndrome (GBS) and postinfectious movement disorders.
- GBS is rare and occurs a few days or weeks after a person has a respiratory or gastrointestinal infection, including influenza. A variety of infectious agents, including *Campylobacter jejuni*, cytomegalovirus, Epstein-Barr virus and *Mycoplasma pneumoniae*, have been associated with GBS.
- When the swine influenza vaccine was administered in 1976, there was an increase of one extra case of GBS per 100,000 people vaccinated. When this increase was recognized, the 1976 vaccine was withdrawn and has never been used again. While some scientists believe the GBS was caused by the vaccine antigen, others believe *Campylobacter* or another infection might have caused the increase. Because *Campylobacter* was not

known to be a cause of GBS in 1976, patients were not tested. It is now known to be a common cause of GBS.

- The 2009 H1N1 vaccine is very different from the 1976 swine influenza vaccine.
- A retrospective review of the 1992 to 1993 and 1993 to 1994 United States influenza vaccine campaigns found an adjusted RR of 1.7 (95% CI 1.0 to 2.8; P=0.04) for GBS associated with influenza vaccination (10). This is similar to a Canadian study involving a self-matched case series from Ontario for the years 1992 to 2004. This study found the estimated RR for GBS in the period two to seven weeks after influenza vaccination, compared with the period 20 to 43 weeks after influenza vaccination, to be 1.45 (95% CI 1.05 to 1.99; P=0.02) (11). These studies suggest that the absolute risk of GBS in the period following vaccination is approximately one extra case per million vaccines above background. The potential benefits of influenza vaccine must be weighed against this very low risk. It is not known whether other influenza virus vaccines are associated with GBS.
- The number of GBS cases will be monitored closely over the next year. Canada has an excellent adverse events surveillance program for children, and a similar surveillance program for adults has been developed. If there is any increase in GBS following H1N1 vaccination, we should be able to detect it quickly and respond accordingly.

6. Thimerosal is bad and the mercury compound may cause autism.

- Thimerosal in vaccines is a preservative and is metabolized to ethyl mercury, not methyl mercury (methyl is the very toxic form of mercury). Thimerosal is regarded as safe.
- Thimerosal is present in trace amounts in the multidose vials of the vaccine. No thimerosal is present in single-dose flu vaccine preparations; however, single-dose vials may not be available in all jurisdictions.
- It is used to prevent bacterial contamination of vaccines.
- No evidence was found in numerous epidemiological studies that the trace amount of thimerosal in the vaccine is associated with autism or immune deficiency (12).
- A report by the Institute of Medicine in 2004 rejected any causal association between the measles, mumps and rubella vaccine or thimerosal, and autism.

7. No one with egg 'allergy' should receive the influenza vaccine.

- The virus is grown in eggs and the vaccine may contain minute amounts of egg protein (13). Children who can tolerate a small amount of cooked egg or eggs in baked goods can safely receive the vaccine in the physician's office.
- The risk of a serious reaction to the vaccine is considered extremely low compared with the risk of infection with

either pandemic H1N1 or seasonal influenza in other years.

- The Canadian Society of Allergy and Clinical Immunology has subdivided the patients with egg allergy into low-risk (mild gastrointestinal or mild local skin reaction, tolerating the ingestion of small amounts of egg, or positive skin/specific immunoglobulin E test to egg without knowingly exposed to egg) and high-risk (previous respiratory or cardiovascular reaction, generalized hives or those with poorly controlled asthma) categories (14).
- Persons in the low-risk category should be vaccinated, but the patient should be observed for 60 min after vaccine administration.
- Persons in the high-risk category should have special precautions taken as recommended by the Canadian Society of Allergy and Clinical Immunology if the vaccine is administered.

8. I can't be immunized because I'm pregnant (or breastfeeding).

- The Canadian Paediatric Society, the Society of Obstetricians and Gynecologists of Canada and other bodies recommend that pregnant women should be immunized.
- The virus in the vaccine is dead, split and in pieces so it cannot infect the woman or the fetus and is safe.
- Antibodies from the mother are passed transplacentally to the fetus and provide some protection to infants younger than six months of age – those who are at greatest risk of very serious illness with influenza.
- Pregnancy increases the risk of hospitalization, severe disease and death from influenza (15,16).

For the latest information on the Canadian response to H1N1, please visit www.FightFlu.ca.

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COMMENTAIRE SUR LES MALADIES INFECTIEUSES EN PÉDIATRIE

Dissiper les mythes entretenus par les parents au sujet du vaccin contre l'influenza



Société
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1. Le vaccin contre l'influenza va me donner la grippe.

- Le virus contenu dans le vaccin canadien est un virus tué qui ne peut pas causer la grippe.
- Le vaccin à virus tué est fragmenté et ne peut pas se recombinaison en un virus vivant.
- Les antigènes (surtout l'hémagglutinine et la neuraminidase) contenus dans le vaccin induisent l'immunité.
- D'autres virus qui circulent en même temps que le vaccin est administré peuvent provoquer des rhumes et de la diarrhée (p. ex., le rhinovirus, l'adénovirus et le métapneumovirus), et ces symptômes peuvent être attribués à tort au vaccin.

2. Le vaccin contre l'influenza ne fonctionne pas.

- Le vaccin fonctionne. Chez les enfants et les adultes en santé, on obtient une efficacité (une protection) de 70 % à 90 % lorsque le vaccin concorde bien avec la souche saisonnière (1).
- La vaccination des travailleurs de la santé réduit de 25 % à 44 % les infections de voies respiratoires supérieures, les consultations chez le médecin et l'absentéisme au travail pendant la période de la grippe saisonnière.

3. Je n'ai pas besoin d'être vacciné – je suis en bonne santé!

- Ce sont des adultes en santé qui ont constitué la plupart des décès lors des pandémies précédentes, et ils

représentent une proportion importante des décès attribuables à la pandémie de grippe H1N1.

- Les enfants autrement en santé de moins de cinq ans (notamment ceux de moins de deux ans) et les adultes de plus de 65 ans risquent beaucoup plus d'être hospitalisés et de souffrir de complications de la grippe saisonnière.
- La prévention de la grippe réduit le risque de pneumonie bactérienne.
 - Aux États-Unis, 29 % des 77 personnes décédées à cause de la pandémie de grippe H1N1 présentaient une co-infection bactérienne (surtout le pneumocoque, le staphylocoque doré et le streptocoque de groupe A).
- Les travailleurs de la santé peuvent transmettre des virus aux patients susceptibles et à leur propre famille.
 - Les études ont démontré une diminution de la transmission et du risque de décès attribuables à la grippe dans les établissements de soins de longue durée où le personnel s'était fait vacciner contre l'influenza (2).

4. Les enfants en santé n'ont pas besoin d'être vaccinés – ils sont en bonne santé!

- Les enfants en bonne santé constituent l'épicentre de chaque épidémie annuelle de grippe.
- Les données révèlent que les programmes de vaccination scolaire préviennent des décès chez les adultes.

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