

# What are the new active vaccine recommendations in the *Canadian Immunization Guide*?

Warshawsky B<sup>1</sup> and Gemmill I<sup>2</sup>  
on behalf of the National Advisory Committee on Immunization (NACI)\*

<sup>1</sup> NACI Chair, London, Ontario

<sup>2</sup> NACI Vice-Chair, Kingston, Ontario

\* Correspondence to: [althea.house@phac-aspc.gc.ca](mailto:althea.house@phac-aspc.gc.ca)

## Introduction

The scientific advisory body on immunization for the Public Health Agency of Canada is the National Advisory Committee on Immunization (NACI), which develops recommendations for the use of vaccines for Canadians (1). These recommendations and other immunization information are published in the *Canadian Immunization Guide* (the *Guide*).

Since the first edition in 1979, the *Guide* has been a trusted, reader-friendly summary of information that has been used by health care providers to give advice and vaccinations to their patients, and by policy-makers for the delivery of vaccination programs. The document consists of five parts, covering key immunization information, vaccine safety, special populations, active vaccines, and passive immunization agents. Since the 2006 edition, the *Guide* has undergone extensive revisions and is now published online in an electronic format (2). The objective of this article is to provide some highlights of updates made to Part 4 on Active Vaccines up to February 28, 2014.

## Approach

In revising the Active Vaccine chapters of the *Guide*, NACI reviewed literature regarding new products, changes in indication, evolving science and practices, as well as national and international recommendations released since 2006. In addition NACI consulted external expertise as necessary.

## Summary of updates and additions to Part 4 (Active Vaccines)

Several new vaccines have been produced since 2006, including vaccines against herpes zoster, human papillomavirus, and rotavirus. Additionally, indications and recommendations have been revised for other vaccines.

**Table 1** provides an overview of key changes and additions up to February 28, 2014. As with any therapy, it is most prudent to check the most recent prescribing information prior to use.

**Table 1: Highlights of key changes to active vaccine recommendations in the Canadian Immunization Guide**

Active vaccine	New NACI recommendation
BCG	Revised recommendation regarding when a TB skin test should be given before administering BCG vaccine to children < 6 months of age
<b><i>Haemophilus influenzae</i> type b</b>	<p>One dose is recommended regardless of past immunization for those 5 years of age or older with the following high-risk conditions:</p> <ul style="list-style-type: none"> <li>• Anatomic or functional asplenia (including sickle cell disease)</li> <li>• Cochlear implants</li> <li>• Congenital (primary) immunodeficiency</li> <li>• HIV</li> <li>• Malignant hematologic disorders</li> <li>• Transplant candidates/recipients (see <i>Guide</i> for details – three doses recommended post-hematopoietic stem cell transplant)</li> </ul>
<b>Hepatitis A</b>	Vaccination recommended for family and close contacts of children adopted from hepatitis A endemic countries.
<b>Hepatitis B</b>	<p>Higher doses recommended for the following:</p> <ul style="list-style-type: none"> <li>• Chronic renal failure or dialysis</li> <li>• Congenital immunodeficiency</li> <li>• Hematopoietic stem cell transplant (HSCT)</li> <li>• Solid organ transplant</li> <li>• HIV infection</li> <li>• Non-responder with advanced liver disease</li> <li>• Schedules provided for DTaP-HB-IPV-Hib (INFANRIX hexa)</li> </ul>
<b>Herpes zoster</b>	<p>New chapter: Live attenuated vaccine was authorized for the prevention of shingles, August 2008.</p> <ul style="list-style-type: none"> <li>• Recommended for individuals 60 years of age and older, and can be considered for those 50 to 59 years of age.</li> <li>• As it is a live vaccine, it is contraindicated in people with immunocompromising conditions and people taking immunocompromising drugs, with some exceptions as outlined in the <i>Guide</i>.</li> <li>• Expert opinion recommends waiting at least one year from a previous episode of shingles before receiving the herpes zoster vaccine.</li> <li>• Re-occurrence of herpes zoster ophthalmicus after vaccination (in persons with previous herpes zoster ophthalmicus) has been reported in several cases world-wide. The <i>Guide</i> contains management and patient counseling advice.</li> <li>• In contrast to previous recommendations, the herpes zoster vaccine and pneumococcal vaccines can be co-administered.</li> </ul>
<b>Human papillomavirus</b>	<p>New chapter: Since 2006, two human papillomavirus (HPV) vaccines have been authorized for use that protect against four (HPV-4) and two (HPV-2) types of HPV.</p> <ul style="list-style-type: none"> <li>• <u>Women</u>: HPV-4 or HPV-2 is recommended for 9–26-year-olds; consider in those 27 years and older with ongoing risk of exposure.</li> <li>• <u>Men</u>: HPV-4 is recommended for 9–26-year-olds; consider in 27 years and older with ongoing risk; strongly consider for men who have sex with men regardless of age.</li> </ul>

Active vaccine	New NACI recommendation
Influenza	<ul style="list-style-type: none"> <li>• Egg allergy is not a contraindication.</li> <li>• <u>Children</u>: 0.5 mL dose is recommended for children when the intramuscular products are used; live attenuated intranasal vaccine is preferentially recommended for some age groups; see <i>Guide</i> for details.</li> </ul> <p>For up-to-date information on influenza immunization, please review the most recent version of the annual influenza statement.</p>
Measles mumps rubella	<ul style="list-style-type: none"> <li>• Chapters clarify who is considered immune, including health care workers, military personnel, students in post-secondary educational settings, and travellers.</li> <li>• Health care workers and military personnel require two doses of measles and mumps vaccine, regardless of year of birth, to be considered immune.</li> </ul>
Meningococcal	<ul style="list-style-type: none"> <li>• If vaccinated as infants with meningococcal C vaccine, another dose is recommended in the second year of life (12–23 months).</li> <li>• The use of quadrivalent conjugate meningococcal vaccines is reviewed.</li> </ul> <p><b>High risk due to medical conditions</b></p> <ul style="list-style-type: none"> <li>• Expanded to include terminal complement inhibitor eculizumab (Soliris™).</li> <li>• Others include functional or anatomic asplenia, including that associated with sickle cell disease; congenital properdin, factor D, or primary antibody deficiencies; consider in HIV, especially if congenitally acquired.</li> <li>• For high-risk children &lt; 2 years of age, Men-C-ACYW-135-CRM (Menveo) is the recommended product. For those 2 years and older, any quadrivalent conjugate meningococcal vaccine can be used. Number of doses depends on age. For those 12 months and over, two doses given 8 weeks apart is now recommended.</li> </ul> <p><b>High risk due to exposures</b></p> <ul style="list-style-type: none"> <li>• Travellers; laboratory workers with potential routine exposure to meningococci; military personnel during recruit training and during certain deployments.</li> <li>• For 2 years of age and over, one dose of any quadrivalent conjugate meningococcal vaccine.</li> <li>• For children &lt; 2 years of age, Men-C-ACYW-135-CRM (Menveo) is the recommended product; two or more doses recommended depending on age.</li> </ul> <p><b>Boosters</b></p> <p>If at ongoing high risk because of medical condition or exposure, a booster is recommended:</p> <ul style="list-style-type: none"> <li>• Every 3–5 years, if &lt; 7 years old at last vaccination</li> <li>• Every 5 years, if 7 years or over at last vaccination</li> </ul> <p>Recommendations are provided for post-exposure revaccination of those previously vaccinated.</p>

Active vaccine	New NACI recommendation
<b>Pertussis</b>	<p><b>Preschool booster at 4–6 years of age</b></p> <ul style="list-style-type: none"> <li>• Either DTaP-IPV or Tdap-IPV can be used.</li> </ul> <p><b>Adult dose</b></p> <ul style="list-style-type: none"> <li>• One dose of pertussis-containing vaccine (Tdap) if not previously vaccinated in adulthood.</li> <li>• Tdap can be given after previous Td without delay.</li> </ul> <p><b>Pregnancy</b></p> <ul style="list-style-type: none"> <li>• One dose of Tdap can be offered to pregnant women (26 weeks' gestation or over) who have not previously been vaccinated against pertussis in adulthood.</li> <li>• In special circumstances, e.g. regional outbreaks, Tdap may be offered to pregnant women (26 weeks' gestation or over) irrespective of previous immunization.</li> </ul>
<b>Pneumococcal</b>	<p>Chapter includes updated vaccination schedules and recommendations for the use of Pneu-C-13 (Pneumovax<sup>®</sup>13).</p> <p>Pneu-C-13 is recommended for the following:</p> <ul style="list-style-type: none"> <li>• Children &lt; 59 months of age who have never received conjugate pneumococcal vaccine</li> <li>• High-risk children &lt; 18 years of age who have never received Pneu-C-13</li> <li>• Adults with immunocompromising conditions</li> </ul> <p>Number of doses is dependent on age; those 2 years and over receive only one dose, except for those who are post-HSCT, for whom a three-dose schedule is recommended. Polysaccharide vaccine is also recommended for high-risk children 2 years of age and over after receipt of PCV 13.</p> <p>Definitions of high-risk and immunocompromising conditions are provided in the <i>Guide</i>. Catch-up schedules for those &lt; 59 months of age who have received another conjugate pneumococcal vaccine, but not Pnevax 13, are provided in the <i>Guide</i>.</p>
<b>Poliomyelitis</b>	<ul style="list-style-type: none"> <li>• Adults should be vaccinated if not previously vaccinated.</li> <li>• Priority for people at risk, such as travellers possibly exposed to someone excreting polio virus; others should be vaccinated when they need a primary tetanus series or tetanus booster.</li> </ul>
<b>Rabies</b>	<ul style="list-style-type: none"> <li>• A four-dose schedule (instead of five) is recommended for post-exposure management for those who are not immunocompromised and not taking anti-malarial prophylaxis. Give on day 0 (first dose), 3, 7, and 14.</li> <li>• If immunocompromised or taking anti-malarial prophylaxis, give five doses on day 0 (first dose), 3, 7, 14, and 28.</li> <li>• Post-exposure management based on risk assessment. Factors to consider provided in the <i>Guide</i>.</li> </ul>

Active vaccine	New NACI recommendation
<b>Rotavirus</b>	<p>New chapter: Since mid-2006, two live, oral rotavirus vaccines have been authorized for use; one requires three doses and the other requires two doses.</p> <ul style="list-style-type: none"> <li>For both products, the first dose should be given before 14 weeks and 6 days of age and the last dose before 8 months of age.</li> <li>Intussusception is recognized as a rare adverse event following rotavirus vaccination.</li> </ul>
<b>Travel vaccines</b>	<p><b>Japanese encephalitis vaccine</b></p> <ul style="list-style-type: none"> <li>New inactivated vaccine (Ixiaro) for 18 years and over.</li> </ul> <p><b>Yellow fever</b></p> <ul style="list-style-type: none"> <li>Classification of countries into risk levels.</li> <li>Probable transmission during breastfeeding reported.</li> </ul> <p><b>Tick-borne encephalitis</b></p> <ul style="list-style-type: none"> <li>New chapter has been added to the <i>Guide</i>.</li> </ul>
<b>Varicella</b>	<ul style="list-style-type: none"> <li>Two doses recommended for susceptible individuals of all ages.</li> <li>Use of MMRV vaccine outlined in the chapter.</li> <li>Chapter outlines who is considered immune. Adults 50 years of age and older can be considered immune unless known to be susceptible on the basis of previous laboratory testing; health care providers and those born in or after 2004 require a health care provider diagnosis of chickenpox, two documented doses of varicella vaccine or laboratory-confirmed disease, or immunity (this is currently under review by NACI).</li> <li>Minimum intervals between varicella-containing vaccines identified.</li> </ul>

## Conclusion

The *Canadian Immunization Guide* is a trusted and reliable resource for immunizers in Canada. Part 4 of the *Guide* on active vaccines has been updated to incorporate new science and practices and reflects recent recommendations by NACI. NACI and the Public Health Agency of Canada are committed to providing this information in an easily accessible, reader-friendly format through timely and ongoing updates of the on-line version.

## References

- (1) National Advisory Committee on Immunization. 2014; <http://www.phac-aspc.gc.ca/naci-ccni>
- (2) National Advisory Committee on Immunization. Part 4: Active vaccines. In: *Canadian Immunization Guide*. 2014; <http://www.phac-aspc.gc.ca/publicat/cig-gci/>

## Acknowledgements

The authors would like to thank the extremely dedicated members of NACI who devoted considerable time and effort to revising the *Guide* as well as the excellent Public Health Agency of Canada staff who have supported the revision process.

## Conflict of Interest

No conflicts of interest to declare.