

What are the new high risk eligibility criteria for the meningococcal conjugate ACYW-135 vaccine?

In addition to the current high risk criteria, the Men-C-ACYW vaccine is now publicly funded for persons with primary antibody deficiency, as recommended by NACI.¹⁵

Meningococcal conjugate C vaccine (Menjugate®)

What are the eligibility criteria for meningococcal conjugate C vaccine (Men-C-C)?

We need to ensure that children have the opportunity to be vaccinated with Men-C-C vaccine. If children miss their dose of Men-C-C vaccine at one year of age and if they were born in September 2003 or later, they remain eligible until they receive a dose (eligibility in perpetuity).

Why is a dose of Men-C-C recommended for unimmunized high-risk children two to 10 years of age who are eligible to receive the Men-C-ACYW vaccine?

NACI recommends that unimmunized children two to 10 years of age who meet the eligibility criteria for Men-C-ACYW should also receive a dose of Men-C-C vaccine because the immune response to Menactra® is lower in this age group than at older ages.¹⁶ If the child has already received a dose of Men-C-C vaccine at one year of age, Men-C-ACYW will boost their immune response for serogroup C, and another dose of Men-C-C is not required.

Hepatitis B vaccine (Recombivax® and Engerix®)

Why has the schedule changed for the hepatitis B (HB) school program?

There are now two products available for the hepatitis B school immunization program, Engerix® (produced by GSK) and Recombivax® (produced by Merck Frosst). Depending on the product, the second dose is given at four months after the first dose (Recombivax®) or six months after the first dose (Engerix®).

Human Papillomavirus vaccine (Gardasil®)

What is the schedule for the Human Papilloma Virus (HPV-4) vaccine, Gardasil® when it is given in school-based clinics?

The schedule of Gardasil® allows for administration of a complete vaccination series within the time constraints of a school year and is given at zero, at least two months after the first dose and, for the third dose, six months after the first dose.¹⁷

What is the dosing schedule for HPV-4 (Gardasil®) if it is not given in school?

The dosing schedule for HPV-4 vaccine is the same as the school based HPV program at zero, two months after the first dose, and six months after the first dose.

What about Grade 8 females who are not attending school or who missed the school HPV-4 vaccine clinic?

Grade 8 females who missed the school HPV-4 vaccination clinics should contact their local public health unit for information on how to obtain the vaccine.

What if a Grade 8 female started her HPV-4 vaccine series late in the Grade 8 school year and was unable to finish the HPV vaccine series in the school clinics provided?

The eligibility timelines for the HPV-4 vaccine have been extended for the 2010–2011 HPV-4 school based immunization program. Thus, a grade 8 female student who initiated her HPV-4 vaccination series between September 1, 2010 and September 1, 2011, may complete any outstanding HPV-4 vaccine doses during her Grade 9 year as part of the publicly funded program. Grade 8 females who wish to receive the HPV-4 vaccine should contact their local public health unit for more information.

Polio vaccine (IPV)

Who should get a polio vaccination? When should they get it?

Polio vaccine is **not** routinely recommended for adolescents and adults who have completed the primary series of polio vaccine in childhood.

Polio (IPV) vaccine can be given to persons who are at high risk of exposure to polio virus (e.g., workers in refugee camps, travelers going to destinations where polio is endemic or where there are outbreaks occurring; or where there are documented outbreaks of vaccine associated paralytic polio (VAPP)), if their last dose of polio vaccine was received 10 or more years ago.^{18,19}

Seasonal influenza vaccine

What are the recommendations for children receiving influenza vaccine?

Previously unvaccinated children six months to nine years of age require two doses of influenza vaccine given four weeks apart. Eligible children under nine years of age who have received one or more doses of influenza vaccine in the past are recommended to receive one dose per season thereafter.²⁰

¹⁵ National Advisory Committee on Immunization. Update on the invasive meningococcal disease and meningococcal vaccine conjugate recommendations. Canada Communicable Disease Report. Volume 36 April 2009.

¹⁶ National Advisory Committee on Immunization . Statement on conjugate meningococcal vaccine for serogroups A, C, Y and W135. CCDR Vol 33; 2007.

¹⁷ Merck Frosst. Gardasil® product monograph, January 22, 2008.

¹⁸ Committee to Advise on Tropical Medicine and Travel (CATMAT) Statement. Statement on Pediatric Travellers 2010. Available at: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/10vol36/acs-3/june-juin-2010-eng.php>.

¹⁹ Health Agency of Canada. Polio: Global Update. Travel Health Notice. Available at: <http://www.phac-aspc.gc.ca/tmp-pmw/thn-csv/polio-eng.php>.

²⁰ National Advisory Committee on Immunization .Statement on SeasonalTrivalent Inactivated Influenza Vaccine (TIV) for 2010-2011, CCDR, Volume 36, ACS-6; August 2010.

Note: for more detailed information, please consult the *Canadian Immunization Guide, 2006, 7th edition (or as current)*, Public Health Agency of Canada, and the manufacturer's product monograph.

Publicly Funded Immunization Schedules for Ontario – August 2011

Questions and Answers for Health Care Providers

Information regarding the revised *Publicly Funded Immunization Schedules for Ontario*

The Public Health Division, of the Ministry of Health and Long-Term Care, has revised the *Publicly Funded Immunization Schedules for Ontario (Schedules)* to accommodate the following:

1. A new pneumococcal conjugate vaccine (Pnevnar® 13) as well as changes to the high risk schedules and further clarification of eligibility.
2. A new oral rotavirus vaccine (Rotarix™).
3. A new combined measles, mumps, rubella and varicella (MMRV) vaccine (Priorix-Tetra™).
4. A two-dose varicella program.
5. Tetanus, diphtheria and pertussis (Tdap) vaccine for adults.

The following explains the key changes that have been incorporated in the *Schedules*.

Why are three vaccines recommended for 12 months of age?

With the addition of Pneu-C-13 to **Schedule 1**, for the child's best protection, three vaccines are recommended at 12 months of age, Men-C-C, MMR and Pneu-C-13. Studies have shown that giving multiple injections at one visit helps ensure that children are up to date for their age and immunizations.¹ There are resources available to assist you with multiple injections.^{2,3,4}

I am concerned about giving more than two vaccines at one visit. Is there another schedule I can use?

It is important that children receive childhood vaccines when they are due and are at highest risk for the disease and its complications.

In a Quebec study, it was shown that giving multiple injections (four) at one visit actually increased vaccine uptake. There are techniques for minimizing the injection pain.⁵

Why does needle length matter?

Studies have shown that a longer needle length for intramuscular (IM) injections can reduce reactogenicity without affecting immunogenicity.⁶ In fact, infants who were vaccinated with the longer needle had lower rates of any local reaction than infants vaccinated with a shorter needle.

Furthermore, there is evidence to suggest that longer needles cause less pain and fewer adverse effects. For larger infants or if using skin-bunching techniques, a shorter needle would probably be inadequate to reach the muscle and might result in increased local reactivity and likely pain and tenderness.⁷ Finally, inadequate muscle penetration is responsible for lower immune response.

¹ National Advisory Committee on Immunization. Canadian Immunization Guide. Seventh ed. 2006. Public Health Agency of Canada.

² Centers for Disease Control and Prevention. Epidemiology and prevention of vaccine preventable diseases. Atkinson W, Wolfe S, Hamborsky J, McIntyre L, eds. 11th ed. Washington DC: Public Health Foundation, 2009. Available at: http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/D/vacc_admin.pdf

³ Epidemiology Services, BC Centre for Disease Control. Immunization Manual. Available at: <http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm>

⁴ Offit PA et al. Addressing parent's concerns: do multiple vaccines overwhelm or weaken the infant's immune system? Pediatrics 2002;109:124-129.

⁵ Taddio A, Appleton M, Bortolussi R, Chambers C, Dubey V, Halperin S, et al. Reducing the pain of childhood vaccination: an evidence-based clinical practice guideline (summary). CMAJ • December 14, 2010; 182 (18).

⁶ Diggle L, Deeks JJ, Pollard AJ. Effect of needle size on immunogenicity and reactogenicity of vaccines in infants: randomised controlled trial. BMJ doi:10.1136/bmj.38906.70549.7C; August 2006.

⁷ Schechter, N.L., Zempsky, W.T., Cohen, L.L., McGrach, P.J., McMurtry, C.M. & Bright, N.S. (2007). Pain reduction during pediatric immunizations: Evidence-based review and recommendations.

Note: for more detailed information, please consult the *Canadian Immunization Guide, 2006, 7th edition (or as current)*, Public Health Agency of Canada, and the manufacturer's product monograph.

Pneumococcal conjugate vaccine (Prevnar® 13)

Why is Ontario changing pneumococcal conjugate (Pneu-C-13) vaccine from a four-dose schedule to a three-dose schedule for low risk children?

There is evidence to support using a three-dose schedule for healthy children, and the product monograph for Prevnar 13® provides a three-dose schedule.^{8,9} Several other provinces, including Quebec, New Brunswick and British Columbia, have introduced a three-dose schedule.

A child receiving a pneumococcal conjugate vaccine.

Are children less than five years of age who attend group child care centres and/or are of Aboriginal origin considered to be at high risk for pneumococcal disease?

No, it is recommended that these children receive the three-dose schedule unless they have medical conditions that put them at high risk. However, Ontario recommends an extra dose of Pneu-C-13 for those who have completed a primary series of Pneu-C-10 and/or Pneu-C-7 who attend child care centres or are Aboriginal.

A child receiving a pneumococcal conjugate vaccine.

What are the changes to the high risk eligibility criteria for Pneu-C-13 vaccine?

The high risk eligibility criteria for Pneu-C-13 have been updated to include medical conditions that are consistent with the most recent NACI statement.¹⁰ Daycare attendees and Aboriginal children who do not have a high risk medical condition have been removed from the high risk criteria, as all children less than five years have an opportunity for receiving a “catch-up” dose. See **Schedule 2** of the *Publicly Funded Immunization Schedules for Ontario - August 2011*.

A child receiving a pneumococcal conjugate vaccine.

Rotavirus vaccine (Rotarix™)

What are the recommended schedule and eligibility criteria for Rotarix™ vaccine?

Rotarix™ vaccine by GlaxoSmithKline (GSK) will provide protection against rotavirus infection. According to the product monograph, the two-dose Rotarix™ vaccine should be administered orally at two and four months of age. Although the vaccine manufacturer has indicated that the first dose may be administered as early as 6 weeks and as late as 20 weeks of age, NACI recommends that the first

dose be administered between 6 weeks and before 15 weeks of age as the safety of providing the first dose of rotavirus vaccine in older infants is not known. There should be a minimum interval of four weeks between doses. The two-dose schedule of Rotarix™ must be completed by 24 weeks of age.

A child receiving a pneumococcal conjugate vaccine.

What is the route of administration for Rotarix™?

This is a live vaccine for **ORAL USE** only. Instructions for the oral administration were sent in a previous package. Please refer to *Rotarix™ (Rotavirus) Oral Administration* (Attachment K in the package) or the product monograph for detailed instruction regarding oral administration.

Measles, mumps, rubella and varicella vaccine (Priorix-Tetra™)

Why is the ministry providing a dose of measles, mumps, rubella and varicella (MMRV) free of charge for children four to 11 years of age?

Starting August 2011, the second dose of varicella and MMR vaccines will be offered as the combined MMRV at four to six years of age. This means that children will get one less injection. Several other provinces, including Quebec, New Brunswick, Newfoundland, Prince Edward Island, Saskatchewan and Alberta have introduced the MMRV into their routine childhood immunization programs.

The ministry is continuing to recommend the first dose of the MMR vaccine at 12 months of age and the first dose of the varicella vaccine at 15 months of age, as separate injections.

MMRV is not recommended for children less then four years of age due to the increased risk of febrile seizures in a similar MMRV vaccine, ProQuad™ by Merck Frosst. The post-market information of the MMRV vaccine, Priorix-Tetra™, is not yet available. Based on the available evidence from the ProQuad™ studies and in consideration of expert opinion, the ministry has chosen to offer the MMRV vaccine as a second dose to children who are at least four years of age.

It is highly recommended that children receive the full immunization series for measles, mumps, rubella and varicella prior to school entry.

For children who are now 18 months old and due for their second dose of MMR vaccine and second dose of varicella vaccine, should we delay the second dose of MMR and tell parents that they will be eligible for MMRV at four years of age?

Yes, however, if a child is traveling outside Ontario or has medical conditions that warrant receiving the vaccines earlier or separately, he/she should receive two doses each of varicella and MMR vaccines. The minimum interval between two univalent varicella vaccines or the varicella vaccine and MMRV vaccine is **three months**. If the MMR and varicella vaccines are not given during the same clinic visit at different anatomical sites, then a minimum interval of **28 days** must be observed between doses.

A child receiving a pneumococcal conjugate vaccine.

Can my child receive a second dose of varicella and a second dose of MMR as separate vaccines?

Yes. Parents, in consultation with their health care provider, may have their children immunized with MMR and varicella as separate vaccines if there are existing medical reasons or if the child will be traveling outside Canada prior to his/her fourth birthday when he/she becomes eligible for the MMRV vaccine.

A child receiving a pneumococcal conjugate vaccine.

Measles, mumps and rubella vaccine (M-M-R® II and Priorix®)

What are the expanded criteria for receiving a second dose of measles, mumps and rubella (MMR) vaccine?

A second dose of MMR is also recommended for young adults (18-25 years), post secondary students, persons who received killed measles vaccine (1967-1970), health care workers or those who plan to travel internationally.

A child receiving a pneumococcal conjugate vaccine.

Can the MMR and the varicella vaccines be administered at the same clinic visit?

Yes. The MMR and varicella vaccines are both live vaccines. These two vaccines may be administered at the same time, at separate injection sites and in separate syringes. However, if the varicella vaccine and the MMR vaccine cannot be administered at the same visit, they must be administered at least **28 days** apart.

A child receiving a pneumococcal conjugate vaccine.

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Note: for more detailed information, please consult the *Canadian Immunization Guide, 2006, 7th edition (or as current), Public Health Agency of Canada, and the manufacturer's product monograph.*

Two-dose varicella vaccine series (Varilrix® and Varivax® III)

A child receiving a pneumococcal conjugate vaccine.

Why is the first dose of varicella vaccine scheduled to be given at 15 months of age?

In Ontario, children between 12 and 15 months of age are eligible to receive the first dose of the varicella vaccine. In the *Schedules*, varicella vaccine administration is recommended at 15 months of age. A U.S. study found varicella vaccine effectiveness was greater when given at 15 months of age or older.¹¹

A child receiving a pneumococcal conjugate vaccine.

Why is the ministry recommending two doses of varicella vaccine?

Two doses of the varicella vaccine are now recommended as part of the childhood schedule where, previously, only one dose was recommended.

Recent studies have demonstrated that a two-dose regimen is more effective than the one-dose regimen in controlling disease, especially breakthrough disease. Two doses of varicella vaccine will provide better protection against chickenpox infection and its potential complications.¹²

A child receiving a pneumococcal conjugate vaccine.

When should the second dose of varicella vaccine be given?

A second dose of the varicella vaccine will be routinely offered to children born on or after January 1, 2000 and who are at least four years of age in the form of the MMRV vaccine. For children who have already received two doses of the MMR vaccine and one dose of the varicella vaccine, they can receive a second dose of the univalent varicella vaccine.

Please note the minimum interval between two univalent varicella vaccines and between the varicella vaccine and MMRV vaccine is **three months**. However, the minimum interval between MMR and varicella vaccines is still no less than **28 days**.

A child receiving a pneumococcal conjugate vaccine.

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Are children considered immune to chickenpox if they had chickenpox infection in infancy (<12 months if age)?

Children, who are infected with chickenpox before one year of age, may not develop long term immunity and should be immunized with two doses of varicella-containing vaccine according to the *Schedules*.¹³

A child receiving a pneumococcal conjugate vaccine.

Should you give the second varicella vaccine if the child has already had chickenpox?

Persons are generally considered to be immune if they have any of the following:

- documentation of two age-appropriate doses of varicella vaccine;
- laboratory confirmation of immunity or infection; or
- diagnosis or verification of a history of varicella disease by a health care provider.

Individuals do not need the varicella vaccine if they meet any of the above criteria.

The varicella vaccine can be safely given according to the *Schedules* (2 doses), if it is unknown or uncertain whether the child has had chickenpox at the time of the vaccination visit.

A child receiving a pneumococcal conjugate vaccine.

Why have the high risk criteria for varicella vaccine changed?

Additional criteria were added to be consistent with the *Canadian Immunization Guide* (CIG) 2006, 7th edition. However, due to the complexity of the recommendations, please consult the current CIG and Guide errata and clarifications, March 2008 and any newer updates for details.¹⁴

A child receiving a pneumococcal conjugate vaccine.

Tetanus, diphtheria and acellular pertussis vaccine (Adacel® and Boostrix®)

A child receiving a pneumococcal conjugate vaccine.

What is the recommended tetanus, diphtheria, acellular pertussis (Tdap) schedule for unimmunized children/adolescents?

Unimmunized children/adolescents beginning their primary series between seven and 17 years of age should receive three doses of Tdap plus IPV (separate needle, separate syringe, and separate injection site).

A child receiving a pneumococcal conjugate vaccine.

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Note: for more detailed information, please consult the *Canadian Immunization Guide, 2006, 7th edition (or as current), Public Health Agency of Canada, and the manufacturer's product monograph.*

When should adolescents receive Tdap vaccine?

Under the publicly funded immunization program, it is recommended that adolescents aged 14 to 16 years of age (with eligibility until 18 years of age) receive Tdap vaccine ten years after their four to six year old booster of DTaP-IPV.

A child receiving a pneumococcal conjugate vaccine.

When should adults receive a dose of Tdap (Adacel® or Boostrix®) vaccine?

All adults between 19 and 64 years of age are eligible to receive one lifetime dose of Tdap to replace a dose of Td given every 10 years if they have not received a booster dose at 14 to 16 years of age.

Once an adult has received a dose of Tdap, he or she should continue to get a Td booster every 10 years throughout life.

A child receiving a pneumococcal conjugate vaccine.

Why is a lifetime dose of Tdap recommended for all adults who have not received an adolescent booster dose at 14 to 16 years of age?

Pertussis is often unrecognized in adults who can be a source of pertussis infection for infants not fully vaccinated against pertussis. Infants are at increased risk of complications such as pneumonia.

Vaccine uptake is low (about 62% in 2008-09 for adolescents). Adults who did not receive a dose of Tdap vaccine between 14 and 16 years of age or who received the previous whole cell pertussis vaccine remain the most common source of infection for infants.

A child receiving a pneumococcal conjugate vaccine.

Meningococcal conjugate ACYW-135 vaccine (Menactra®)

A child receiving a pneumococcal conjugate vaccine.

If a student missed a school clinic for Meningococcal conjugate-ACYW-135 (Men-C-ACYW) vaccine, can they still get a dose?

Since September 2009, all Grade 7 students are eligible to receive a dose of Men-C-ACYW vaccine. If those who are eligible did not receive a dose when in Grade 7, they remain eligible to receive the vaccine even if they are now in higher grades. Call your local public health unit to request the vaccine.

^[1] Prevnar®13 product monograph, Wyeth Canada, December 21, 2009 http://www.wyeth.ca/en/products/

^[2] Patrick DM, McIntyre C, Naus M, Dhaliwal J, McIvor M, Skowronski D, Kendall P. Why BC is moving from four to three doses of conjugate pneumococcal vaccine for infant immunization. BC Medical Journal 2006; 48:498-499.

^[3] National Advisory Committee on Immunization. Update on the use of conjugate pneumococcal vaccines in childhood. Canada Communicable Disease Report Volume 36, November 2010. Available at: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/10vol36/acs-12/index-eng.php

^[4] Note: for more detailed information, please consult the Canadian Immunization Guide, 2006, 7th edition (or as current), Public Health Agency of Canada, and the manufacturer's product monograph.

^[5] Note: for more detailed information, please consult the Canadian Immunization Guide, 2006, 7th edition (or as current), Public Health Agency of Canada, and the manufacturer's product monograph.

^[6] Note: for more detailed information, please consult the Canadian Immunization Guide, 2006, 7th edition (or as current), Public Health Agency of Canada, and the manufacturer's product monograph.