

Adult pneumococcal immunization

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Only 16.7% of Canadian adults (18 to 64 years of age) with chronic medical conditions are immunized against *Streptococcus pneumoniae*.¹ The National Advisory Committee on Immunization has recently updated its guidelines about adults who qualify for immunization.

The burden of disease in Canada from pneumococcal disease is increasing dramatically. Approximately 1500 Canadian adults die each year from the infection.¹ Typically, the disease presents as pneumonia, advancing to sepsis as the main cause of death.

Approach

There are 2 types of pneumococcal vaccines for adults in Canada—conjugate and polysaccharide. The conjugate vaccines—the 13-valent pneumococcal conjugate vaccine (Pneu-C-13) and the 10-valent adsorbed pneumococcal conjugate vaccine with nontypeable *Haemophilus influenzae* protein D, diphtheria, or tetanus toxoid—are delivered intramuscularly. The 23-valent pneumococcal polysaccharide vaccine (Pneu-P-23) is delivered intramuscularly or subcutaneously. Polysaccharide vaccines stimulate shorter-lasting immunoglobulin M antibodies and do not stimulate immunologic memory. Conjugate vaccines stimulate long-term immunity (immunoglobulin G antibodies).² Efficacy for these vaccines has been demonstrated in large randomized controlled trials.³

Healthy adults. All healthy adults older than 65 years of age should receive 1 dose of Pneu-P-23 unless there are contraindications. Immunocompetent adults in long-term care facilities, those with a history of alcoholism, smokers, illicit drug users, and those who are homeless should also receive Pneu-P-23.⁴


High-risk adults. Patients at the highest risk (those with immunosuppression or who have chronic diseases) should receive the conjugate vaccine, followed by the polysaccharide vaccine 8 weeks later. High-risk patients include those with either congenital or acquired immunosuppression (eg, through organ transplantation, HIV infection, chemotherapy or radiation treatment, or immunosuppressant medications [eg, high-dose steroids, antirejection drugs, biologic medications]). Relevant chronic diseases include hyposplenism or asplenia, chronic renal disease or dialysis treatment, and

neurologic disorders such as chronic cerebrospinal fluid leak or conditions that impair oral secretion clearance.⁵

Of note, a diagnosis of asthma, regardless of hospitalization, has recently been included as a high-risk factor. Individuals who required medical attention for asthma in the past 12 months should be vaccinated using the pneumococcal vaccine (conjugate or polysaccharide) and schedule recommended for their age group. Children and adolescents younger than 18 years of age should receive both Pneu-C-13 and Pneu-P-23. For adults, only Pneu-P-23 is generally recommended. No re-immunization is recommended.⁵

Contraindications and coadministration with other vaccines. Pneumococcal vaccines are contraindicated in patients with a history of anaphylaxis after vaccination, those with allergy to components of the vaccine (eg, diphtheria carrier protein, Pneu-C-13, latex), or those who are diphtheria or tetanus toxoid carriers. Vaccines can be given during a minor illness, regardless of fever, but should be avoided in severe illness. A Pneu-C-13 dose should be administered at least 1 year after any previous dose of Pneu-P-23. A Pneu-P-23 dose can be given 8 weeks after Pneu-C-13. Both vaccines can be coadministered with the varicella-zoster and influenza vaccines.⁶

Conclusion

Increasing the rate of pneumococcal vaccination will help decrease the burden of disease in both healthy and immunocompromised patients. 

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Competing interests

Dr Brown is a board member of Immunize Canada and a speaker for Merck and Pfizer.

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References

1. Environics Research Group. *Canadian Adult National Immunization Coverage (Adult NICS) survey—2006*. Ottawa, ON: Public Health Agency of Canada; 2006.
2. Public Health Agency of Canada [website]. *Canadian immunization guide. Preparations authorized for use in Canada*. Ottawa, ON: Public Health Agency of Canada; 2014. Available from: www.phac-aspc.gc.ca/publicat/cig-gci/p04-pneu-eng.php#approve. Accessed 2014 Apr 26.
3. Grabenstein JD, Manoff SB. Pneumococcal polysaccharide 23-valent vaccine: long-term persistence of circulating antibody and immunogenicity and safety after revaccination in adults. *Vaccine* 2012;30(30):4435-44. Epub 2012 Apr 26.
4. Public Health Agency of Canada [website]. *Canadian immunization guide. Recommendations for use*. Ottawa, ON: Public Health Agency of Canada; 2014. Available from: www.phac-aspc.gc.ca/publicat/cig-gci/p04-pneu-eng.php#ru. Accessed 2014 Apr 26.
5. Public Health Agency of Canada [website]. *Canadian immunization guide. Vaccine administration*. Ottawa, ON: Public Health Agency of Canada; 2014. Available from: www.phac-aspc.gc.ca/publicat/cig-gci/p04-pneu-eng.php#admin. Accessed 2014 Apr 26.
6. Public Health Agency of Canada [website]. *Canadian immunization guide. Contraindications and precautions*. Ottawa, ON: Public Health Agency of Canada; 2014. Available from: www.phac-aspc.gc.ca/publicat/cig-gci/p04-pneu-eng.php#contt. Accessed 2014 Apr 26.

This article has been peer reviewed.
Can Fam Physician 2015;61:763