



Pneumococcal vaccine: overcoming barriers to use

Pneumococcal infections, i.e., infections caused by *Streptococcus pneumoniae*, are prevalent and serious, accounting for about 80 000 cases of pneumonia, 4000 cases of bacteremia and 500 cases of meningitis in Canada each year.¹ The risk of invasive pneumococcal disease increases with age, especially after age 65, and is higher in people with chronic diseases. The overall rate of death is 18%.² Increasing antimicrobial resistance of *S. pneumoniae* across Canada adds urgency to the situation and speaks to the importance of prevention.

Pneumococcal vaccine is safe, efficacious and cost-effective. It has been commercially available since 1983, and all provinces provide it free for at least some high-risk groups. Nevertheless, pneumococcal vaccine is sadly underused in Canada.

Vaccination is recommended for the following groups.

- People aged 65 years and older.
- People aged 2–64 years with certain chronic disease, i.e., chronic cardiovascular or pulmonary disease, cirrhosis, alcoholism, diabetes mellitus, chronic renal disease, nephrotic syndrome, chronic cerebrospinal fluid leak, HIV infection or other condition associated with immunosuppression.
- People aged 2–64 years with asplenia, splenic dysfunction or sickle-cell disease.^{1,3,4}

In surveillance studies 81% of cases and 94% of deaths due to invasive *S. pneumoniae* infection were found to occur in these high-risk groups.²

For most people a single dose of pneumococcal vaccine provides long-lasting protection. However, booster doses are recommended for those at highest risk of fatal infection. Older children or adults who have asplenia, nephrotic syndrome or renal failure or who are transplant recipients should be revaccinated after 6 years. Children with sickle-cell anemia, asplenia or nephrotic syndrome who are 10 years old or younger should be revaccinated after 3 to 5 years.³

Studies of pneumococcal vaccination have shown that it is 56% to 84% effective in preventing invasive pneumococcal disease.⁴ The response is less satisfactory in patients who have renal failure, sickle-cell disease or an impaired immune system. Even though vaccine efficacy is not ideal, the population impact of vaccination programs is considerable.⁵

Common side effects of pneumococcal vaccination are minor pain, redness or swelling at the injection site. More severe reactions are rare even after revaccination. It is safe

to vaccinate patients who are unsure whether they have been vaccinated before.

Patients are more likely to accept vaccination when it is specifically recommended by their physician. Coverage rates also increase when vaccination is offered routinely and when results are tracked. Vaccinating elderly and high-risk patients in hospital, preferably using standing orders or medical directives, is an excellent way to reach those most likely to benefit. Medical clinics can also target those at high risk. Physicians' offices can flag charts or generate computer lists to improve vaccination rates. Long-term care facilities should screen all patients on admission and vaccinate those without a record of a previous dose.

The indications for pneumococcal and influenza vaccination are similar. Annual influenza vaccination provides an excellent opportunity to identify people who need pneumococcal vaccine, although the latter vaccine is usually given only once. Pneumococcal vaccine should be given in the opposite deltoid muscle from that used for influenza vaccine.

Recent experience in Ontario has shown rapid adoption of pneumococcal vaccination by health care providers when a publicly funded program for high-risk groups, promoted by the province and local public health departments, is introduced. Other provinces should follow this lead.

Conjugate pneumococcal vaccine for use in infants and young children is being evaluated in clinical trials. These vaccines contain at least 7 serotypes and are expected to give protection against otitis media, meningitis and other invasive pneumococcal disease. Preliminary data suggest that they may reduce nasopharyngeal carriage of the vaccine serotypes and thus may lower rates of disease transmission.⁴

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References

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