

Will you recommend the flu shot for infants and children?

Elizabeth Shaw, MD, CCFP, FCFP Ian Wilson, MD, FRCP

You are taking a shift at your local emergency room. The paramedics call to say that they are bringing in a 6-year-old child who required intubation for respiratory distress. A few minutes later the paramedics roll through the door with a child who is obviously in shock.

Despite attempts at resuscitation, the child dies. A history taken from the grieving parents reveals that the child has had a cough, coryza, fever, and malaise for 7 days, which was diagnosed as a viral illness. The postmortem shows that the child had influenza B but also invasive group A streptococcal pneumonia. The parents ask whether their child would still be alive if the child had received a flu shot. How would you respond?

The great tragedy of course is that this is not a scenario created to make a point. This child died. Although we seem to be aware of the need to vaccinate our vulnerable adults and elderly people, we have not paid attention to our youngest—and equally vulnerable—patients. Currently, immunization is the most effective way to reduce the spread of influenza; and yet studies have shown that only 20% to 40% of eligible adults and children receive the vaccine each year, as compared with 70% of long-term care patients.¹

Effects on children

Perhaps we are less aware of the effects of this disease in the pediatric population. Children younger than 15 years old accounted for 45.6% of laboratory-confirmed cases of influenza last season.¹ According to the Immunization Monitoring Program ACTive Network, which comprises 12 children's centres across the country, 60% of influenza-related hospitalizations involved children younger than 2 years.¹ Complications in this age group included pneumonia, croup, bronchiolitis, and sepsis. Cases of influenza-associated acute encephalopathy among

children have also been reported in the United States and Japan.² Prospective studies estimate the mean annual hospitalization rate between 2000 and 2004 to be about 90 per 100 000, in children aged 6 to 23 months, which is comparable to hospitalization rates in adults older than 65.¹ Seventy per cent of these children had no known risk factors. Fortunately, the death rate among children is lower than among adults. This year, however, two pediatric deaths have been reported so far in Canada, and there were seven the year before—for a disease that can be prevented.¹

This year, the National Advisory Committee on Immunization and the Canadian Paediatric Society are recommending that healthy children aged 6 to 23 months be identified as priority targets for influenza vaccination, due to their high risk of developing complications.³ In addition, household contacts of children between birth and 23 months (including pregnant women who will give birth during influenza season) should be targeted for immunization. Although there is no effective vaccine available for children younger than 6 months, these little ones are at similar risk of complications. As in previous years, children with chronic diseases (cardiopulmonary disease, diabetes mellitus, malignancy, and immunosuppression) and children receiving long-term therapy with acetylsalicylic acid should also receive the vaccine.

Benefits outweigh drawbacks of vaccination

Currently, the inactivated split vaccine is available for children. Children should be vaccinated annually in the fall (October or November). The recommended dose is two intramuscular injections given 4 weeks apart to previously unvaccinated children younger than 9 years. The second injection is unnecessary for children who received at least one dose the previous season. Each injection should be 0.25 mL

for children 6 to 35 months and 0.5 mL for children older than 36 months. Annual vaccination is required to deal with a phenomenon known as antigenic drift. The virus changes from year to year, and vaccination with one strain will not confer immunity to a different strain. Each year, the antigenic characteristics of the existing and emerging strains are the basis for the current year's vaccine.

The vaccine is safe and well tolerated with an efficacy rate of 64% to 69% against culture-positive influenza infection in this age group.¹ Protective immunity is generally achieved within 2 weeks of vaccination. Although we need more research to determine the effect of vaccination on rates of complications and hospitalization, children have substantial morbidity that might be prevented (as has been shown among those older than 65).¹ The only absolute contraindications to the vaccine are an anaphylactic reaction to the vaccine itself or an immunoglobulin E-mediated allergy to egg protein.

Approximately 7% of children have some redness and soreness at the injection site, and about 12% develop a fever. Allergic responses are rare and likely related to minute quantities of egg protein in the vaccine. Several influenza vaccines available in Canada also contain minute quantities of thimerosal. Although no link has been substantiated between this compound and autism spectrum disorders in large retrospective cohort studies, vaccine manufacturers are currently moving toward production of a thimerosal-free alternative. The data supporting an association between influenza vaccine and Guillain-Barré syndrome is also extremely weak, although influenza infection itself might be associated with this syndrome. The only other complication associated with influenza vaccination is oculorespiratory syndrome, which is defined as conjunctival injection, cough, wheezing, sore throat, and difficulty swallowing or breathing within 24 hours of receiving the vaccine. This syndrome has declined in incidence since 2001, and most cases are mild or moderate.

The evidence strongly supports routine vaccination of healthy children between 6 and 23 months. The Canadian Paediatric Society and the National Advisory Committee on Immunization now recommend that

all healthy children and adolescents be encouraged to receive yearly influenza vaccinations.³

What can family physicians do?

The advice of a family physician is an important influence on whether patients accept immunization for themselves or their children. We can provide accurate information in our waiting rooms and in person, dispel myths, assist with community initiatives to promote immunization, and use computer-generated reminders to target both young and old patients in our practice. Two good websites for parents are the Canadian Paediatric Society statement for parents on influenza vaccine (www.caringforkids.cps.ca/immunization/influenza.htm) and the information of the Canadian Coalition for Immunization Awareness and Promotion (<http://www.influenza.cpha.ca>).

Remember also that immunization of health care workers has been shown to reduce serologic evidence of influenza, illness, and mortality. Be a role model—immunize yourself and encourage your staff to be immunized!



Dr Shaw is a family physician and an Associate Professor of Family Medicine at McMaster University in Hamilton, Ont. **Dr Wilson** is a pediatrician in Kitchener, Ont, and is an Assistant Clinical Professor of Pediatrics at McMaster University. **Drs Shaw and Wilson** are coauthors of the Joint Action Committee on Child and Adolescent Health.

Correspondence to: Dr Elizabeth Shaw, McMaster University, Department of Family Medicine, 1200 Main St W, Health Sciences Centre, Room 2V5, L8N 3Z4; telephone (905) 521-2100, extension 76203; fax (905) 528-5337; e-mail shawea@mcmaster.ca

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