

Chickenpox vaccination, not chickenpox, should be routine for Canadian children

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Familiarity breeds contempt. This old adage aptly describes popular opinion about chickenpox, the first manifestation of infection by varicella zoster virus. The familiarity derives from the high incidence and visibility of the disease: 95% of people experience this disseminated, itchy vesiculopustular eruption at some time in their lives. The origin of the contempt is more complex. Chickenpox is a childhood disease that in at least 90% of cases occurs before the age of 15. Most recover unscathed, and the suffering attached to the normal course of the illness is readily forgotten. Fewer than 1% of children with chickenpox require hospital admission, and chickenpox-related deaths are rare. Most people have not seen the potentially serious complications — such as brain damage due to encephalitis, loss of limbs due to necrotizing fasciitis and life-threatening bleeding disorders — that can and do arise among otherwise healthy children.¹ In contrast, most adults with chickenpox seek medical care, and many are admitted to hospital. These cases, noteworthy for their rarity and severity, are the basis for most published literature on the course of chickenpox in adults, and the fear of serious infection in adulthood has fuelled the common practice of deliberately exposing children to the disease at “chickenpox parties” to “get it over with” early in life. Thus chickenpox has become a childhood rite of passage.

Now that a safe and effective chickenpox vaccine is available in Canada (it was licensed in this country in December 1998), it is time to dispel such notions.² It is time for our provincial and territorial governments to act on the consensus reached in May 1999 that chickenpox vaccination should be made an integral part of publicly funded immunization programs.³ To date only Prince Edward Island has done so; Alberta is planning to start a program this year.

What are the facts about chickenpox? Each year in Canada there are about 350 000 cases, costing an estimated total of \$122 million.⁴ Typically, a child with chickenpox develops several hundred lesions and is sick enough to require home care for about 4 days.⁵ This need for home care accounts for 81% of the total annual cost of chickenpox; outpatient medical care accounts for an additional 9%.⁴ Although the risk of hospital admission is low for the individual child, children account for over 90% of the annual 1500 to 2000 Canadian hospital admissions for chickenpox and related complications.² About 40% of admissions are for intravenous antibiotic therapy for secondary bacterial infections, usually involving one or more of the chickenpox blis-

ters.¹ Of greater concern are the 20% or so with complications affecting the brain and the 8% with life-threatening infections such as necrotizing fasciitis or septicemia.¹ The impact of these complications is highlighted by the fact that hospital care accounts for 10% of the total annual cost of chickenpox even though the odds of being admitted range from 1 in 200 to 1 in 400 cases.⁴ Further, most such children have no identifiable condition that puts them at known risk for severe disease. Among otherwise healthy children the risk of severe infection with group A β -hemolytic streptococcus, including necrotizing fasciitis, is extremely low: about 2 cases per 100 000 children per year. However, that risk is increased 45- to 60-fold during the 2 weeks after the onset of chickenpox.⁶ Routine vaccination against chickenpox could prevent up to 15% of such infections in children. Most of the 100 or so deaths caused by chickenpox every year in the United States are now considered preventable, since 90% involve previously healthy people, 45% to 50% of cases occur in children, and unvaccinated children are the usual source of infection for most adults.⁷

Recovery from chickenpox is not the end of the misery caused by varicella zoster infection. The virus is reactivated in 15% to 20% of infected people, usually after the 5th decade of life, causing shingles, a very painful localized rash that can lead to postherpetic neuralgia, a recurrent and excruciating pain syndrome.

What are the facts about the vaccine?² Data gathered during 15 years of prelicensure trials and 6 years of post-marketing surveillance in the US have consistently shown nearly 100% protection against moderate to severe chickenpox and 85% protection against any chickenpox infection.^{8,9} Among vaccinees who develop chickenpox, the disease is significantly milder than that seen in unvaccinated children with respect to rash, fever and duration of illness.¹⁰ Vaccine safety was proven in prelicensure studies¹¹ and has been confirmed by both active¹² and passive¹³ post-marketing surveillance. The most frequently observed side effects are injection-site or generalized varicella-like rashes; rashes of either type occur in 3% to 5% of vaccinees and are characteristically mild, involving an average of 3 to 11 spots.¹¹ Five to 20 years of follow-up in the US¹⁴ and Japan¹⁵ respectively suggest that the immune response to varicella vaccine is long lasting. It is possible that continued exposures to natural chickenpox may account for the persistence of immunity among vaccinees. However, a similarly

durable response was found among children in an extended care setting where there were no known exposures to natural chickenpox over a 5-year period.¹⁶ The observed incidence of shingles following vaccine is 4- to 10-fold less than after natural disease.¹⁷

Without question vaccine-induced protection is preferable to natural disease. It has been argued that because the societal costs of chickenpox are primarily related to providing home care for children who cannot attend school or day care, vaccine purchase should be left up to individuals rather than paid for out of public funds. In a society where everyone has an equal opportunity to purchase vaccine this may be an acceptable strategy, but such is not the case in Canada today. Moreover, unless 70% or more of susceptible people are vaccinated there will be little decrease in the net burden of illness.¹⁸ Routine childhood immunization has been heralded as one of the most effective medical interventions of the 20th century. We now have an opportunity to add chickenpox and, potentially, shingles to the list of infectious diseases made obsolete if not eliminated by routine immunization. We cannot afford to treat this disease with contempt any longer.

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[A clinical update on the varicella vaccine appears on page 1485.]



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