

Waging war against rotavirus at home and abroad

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Rotavirus is the most common cause of severe diarrhea in infants and young children worldwide. Recent studies have provided strong evidence that rotavirus vaccines are safe and efficacious in both the developed and the developing world.¹⁻³ Although Canada has shown leadership in making this life-saving vaccine available to the poorest countries, it could do much more to help children both at home and abroad.

The gastroenteritis caused by rotavirus infection often results in severe dehydration requiring admission to hospital and, if not adequately treated, can result in electrolyte disturbances, shock and death. The mortality burden (more than 450 000 deaths per year³) is squarely focused on the developing world. Rotavirus is extremely contagious, which likely explains why increased hygiene alone has not reduced infections globally. Infants are disproportionately affected because of waning maternal antibodies and immature immune systems, but infections in infancy tend to confer lifelong immunity to future severe infections.

A rhesus rotavirus reassortant vaccine developed in the mid-1990s, although clinically effective, was removed from the market because of an increased risk for intussusception.⁴ Fortunately, two newer vaccines are available — RotaTeq (Merck) and Rotarix (GlaxoSmithKline) — that have shown safety and efficacy in reducing the incidence of severe diarrhea, decreasing hospital admissions for rotavirus in industrialized countries and deaths in developing countries.^{1,2}

In contrast to universal coverage in the United States, the vaccine is publicly covered in Canada by four provinces — British Columbia, Ontario, Quebec and Prince Edward Island — and only privately available in the rest.⁵ Both the Canadian Paediatric Society and the National Advisory Committee on Immunization have called for it to be added to the routine infant vaccine schedule across the country. For Canada, this would result in bulk-buying discounts from suppliers, equity of access and broader herd protection, a phenomenon observed in the US.⁶

Rotavirus vaccine so unequivocally reduces morbidity and mortality in a cost-effective manner that the World Health Organization (WHO) has called for global adoption of the rotavirus vaccine. The Global Alliance for Vaccines and Immunisation (GAVI) has been at the forefront of supporting the rollout of the rotavirus vaccination campaign for the world's poorest countries. Canada is a strong supporter, having met all its funding goals for GAVI to date. However, continued support for GAVI will be especially important as the vaccine is introduced across Africa over the next five years.

Although vaccination in many developing countries will largely depend on GAVI, thousands of children will continue to die in countries that do not qualify for GAVI funding to support purchase of vaccines. Specifically, countries with emerging economies such as India, China, Pakistan and Bangladesh do

not have universal rotavirus vaccination programs, despite ample research indicating efficacy and cost-effectiveness, as shown in a recent study in India.⁷ The opportunity to start such a program is particularly salient for India, where Bharat Biotech currently has an indigenously developed rotavirus vaccine in phase III trials and soon plans to manufacture it for export.⁸

Canada should encourage and support developing nations to heed the WHO's call for global rotavirus vaccination. Yet it is hard for us to advocate credibly to others for what we are failing to adopt ourselves. Canada has shown leadership on global health and vaccination efforts worldwide, as evidenced at the G8 summit in 2010 when we dedicated increased funding for GAVI. But to be true role models, our provincial and federal policy-makers must ensure that all Canadian infants are offered vaccination against rotavirus. Simultaneously, Canada should ensure the ongoing sustainability of GAVI by guaranteeing our funding despite current economic conditions and by encouraging other developed countries to do the same.

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