

# ROTAVIRUS VACCINES AND DIARRHEAL DISEASE

PATH developed these messages for use by anyone interested in communicating the impact of diarrhea on the health and development of children and families around the world. This is also a guide to communicating the value of rotavirus vaccines within a coordinated approach to diarrheal disease control and other proven, cost-effective solutions available today to save lives. These messages are comprehensive and not intended to be used all at once, but rather provide options for communicating to a variety of audiences and about a variety of related topics.

Rotavirus is a contagious virus that can cause diarrheal disease. Rotavirus infection may be particularly severe in infants and young children. It is often accompanied by vomiting and fever, and if left untreated, it can lead to severe dehydration and death. While not the only cause of diarrhea, rotavirus is the leading cause of severe diarrhea in young children worldwide. Unlike the bacteria and parasites that cause other forms of diarrhea, rotavirus cannot be prevented by improvements in water quality, hygiene, and sanitation. Because of this, vaccination is the best way to protect children from rotavirus and the deadly dehydrating diarrhea that it can cause.

## THE BURDEN

Rotavirus is the most common cause of severe diarrhea in children under five years of age. In 2013, rotavirus took the lives of 215,000 children worldwide and hospitalized millions more.

- 1 Rotavirus deaths account for approximately 37 percent of childhood diarrheal deaths and 3.4 percent of all deaths in children under five.
- 2 Nearly every child is at risk of infection, regardless of location, hygiene practices, or access to safe drinking water or sanitation. Children six months to two years of age are most vulnerable to infection, along with premature infants, the elderly, and those with weakened immune systems.
- 3 While rotavirus affects children in high- and low-income countries alike, more than 90 percent of rotavirus deaths in young children occur in low-income, Gavi-eligible countries where access to treatment for severe rotavirus-related diarrhea may be limited or unavailable.

## THE CONSEQUENCES

Rotavirus is highly contagious and, unlike the bacteria and parasites that cause other forms of diarrhea, cannot be treated with antibiotics or other drugs or prevented through improvements in water quality, hygiene, and sanitation.

- While mild rotavirus infections can be treated effectively in the same manner as other forms of diarrhea, by providing oral rehydration therapy, children with severe rotavirus diarrhea can become dangerously dehydrated and often need intravenous fluids or they risk dying. Where this type of urgent care is inaccessible or unavailable, rotavirus prevention through vaccination is critical to saving children's lives.
- Improvements in water quality, hygiene, and sanitation stop bacteria and parasites that cause other forms of diarrhea but do not prevent the spread of rotavirus. Vaccination is the best way to protect children from rotavirus and the deadly dehydrating diarrhea that it can cause.

Like all diarrheal diseases, rotavirus infections not only impact the child, but can also push families and communities into poverty and keep them there.

- The financial toll of rotavirus hospitalizations, including treatment costs and lost wages, creates a burden on all families, but particularly for those already living in low-resource or impoverished settings.
- Diarrheal infections can also contribute to long-term health consequences such as environmental enteropathy, stunting, and chronic disease, further perpetuating the cycle of poverty.

## THE SOLUTIONS

The World Health Organization (WHO) recommends that all countries introduce rotavirus vaccines into their national immunization programs.

- Swift and significant declines in hospitalizations and deaths due to rotavirus and all-cause diarrhea have been observed in many countries with rotavirus vaccines in their national immunization programs, underscoring the incredible potential for rotavirus vaccines to improve child health and save lives in countries where children have access to them.
- Rotavirus vaccines play an essential and lifesaving role in comprehensive diarrhea control strategies. A coordinated approach that combines rotavirus vaccines with other prevention and treatment methods, including oral rehydration therapy, exclusive breastfeeding, zinc treatment, improvements in water, sanitation, and hygiene, as well as breastfeeding and proper nutrition, will achieve the greatest impact on diarrheal disease illness and death.
- Rotavirus vaccines are cost-effective and a wise investment. A 2012 study estimated that, if used in all countries eligible for support from Gavi, the Vaccine Alliance, rotavirus vaccines could prevent 180,000 deaths and avert 6 million clinic and hospital visits each year, saving US \$68 million annually in treatment costs.

### \*PRIMARY RESOURCES:

WHO. Rotavirus vaccines: WHO Position Paper – January 2013. *Weekly Epidemiological Record*. 2013;88(5):49–64.

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Patel MM, Parashar US, eds. Real World Impact of Rotavirus Vaccination. *Journal of Infectious Diseases*. 2011;30(1).

Anderson E, Shippee D, Weinrobe M, et al. Indirect Protection of Adults From Rotavirus by Pediatric Rotavirus Vaccination. *Clinical Infectious Diseases*. 2013:[e-pub]