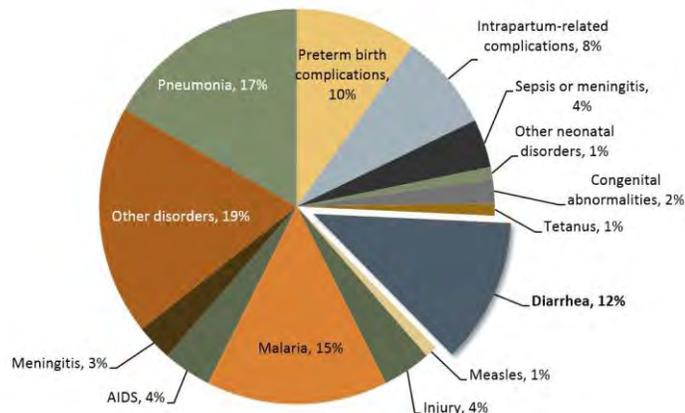


## Rotavirus disease and vaccines in Africa

### ROTAVIRUS IS THE LEADING CAUSE OF SEVERE DIARRHEA IN AFRICAN CHILDREN <5 YEARS OLD

Diarrhea is a leading killer of children across Africa, causing approximately 12 percent of deaths in children under five years of age in the World Health Organization's African Region (WHO AFR).<sup>1</sup> Rotavirus, the most common cause of severe diarrhea in young children worldwide, causes more than 450,000 deaths each year in children under five and is responsible for millions of hospitalizations and clinic visits.<sup>2-4</sup> The vast majority of countries with the highest childhood death rates from rotavirus (i.e., greater than 300 rotavirus deaths per 100,000) are in sub-Saharan Africa.<sup>2,4</sup>

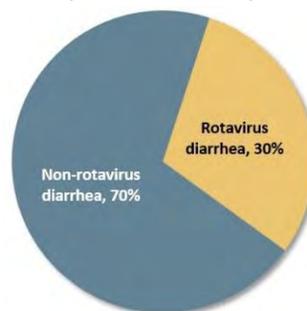
### Causes of death in African children <5 (WHO AFR, 2010)<sup>1</sup>



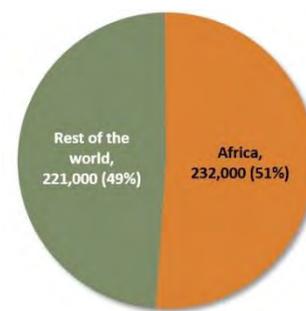
In Africa, rotavirus takes the lives of 232,000 African children under five each year, accounting for more than 50 percent of the global total of rotavirus deaths.<sup>2</sup> It is estimated that approximately 34 percent of African children hospitalized with acute diarrheal illness are infected with rotavirus.<sup>5</sup> Studies in Africa show that rotavirus vaccines are safe and effective against severe rotavirus disease and are a cost-effective intervention.<sup>6-11</sup>

The high burden of rotavirus disease in African children, coupled with the power of rotavirus vaccines to prevent childhood deaths and hospitalizations, underscores the incredible potential for the introduction of rotavirus vaccines in African countries to save children's lives.

### Diarrhea hospitalizations in Africa children <5 (WHO AFR, 2014)<sup>5</sup>



### Global deaths from rotavirus in children <5 (2008)<sup>2</sup>



### ROTAVIRUS TREATMENT AND PREVENTION STRATEGIES

Rotavirus is highly contagious and spreads easily from person to person through contaminated hands and objects. It cannot be treated with antibiotics or other drugs. Mild rotavirus infections can be treated effectively in the same manner as other forms of diarrhea by providing fluids and salts (oral rehydration therapy). However, children with severe rotavirus diarrhea can become dehydrated and often need intravenous fluids or they risk dying. In developing countries, this type of urgent health care is often inaccessible or unavailable, making rotavirus prevention through vaccination critical to saving children's lives.

Vaccination is the best way to prevent severe rotavirus disease and the deadly, dehydrating diarrhea that it can cause. Improvements in water quality, hygiene, and sanitation stop bacteria and parasites that cause other forms of diarrhea but do not adequately prevent the spread of rotavirus. Lifesaving rotavirus vaccines should be introduced as part of a comprehensive approach to control diarrheal disease, along with other interventions including oral rehydration therapy, exclusive breastfeeding, zinc treatment, and improvements in water and sanitation.<sup>12</sup>

### TWO SAFE AND EFFECTIVE ROTAVIRUS VACCINES ARE SAVING LIVES IN AFRICA TODAY

There are two orally administered rotavirus vaccines available on the global market today: Rotarix<sup>®</sup>, manufactured by GlaxoSmithKline, and RotaTeq<sup>®</sup>, manufactured by Merck & Co. Inc. Both vaccines are prequalified by WHO and have been shown to be safe and effective in large-scale clinical trials in Africa, Asia, Europe, Latin America, and the US. Clinical trials in Africa

(Ghana, Kenya, Malawi, Mali, and South Africa) found that rotavirus vaccines reduced severe rotavirus disease by more than 60 percent during the first year of life, when children are at the greatest risk for severe rotavirus diarrhea.<sup>6,7</sup>

In June 2009, based in large part on the clinical trials in Africa that demonstrated vaccine efficacy in impoverished, high-mortality settings, WHO recommended that rotavirus vaccines be included in all countries' national immunization programs.<sup>12</sup>

Rotavirus vaccines are saving lives and improving health in countries where children have access to them. Swift and significant declines in hospitalization and deaths due to rotavirus and all-cause diarrhea have been observed in many of the countries that have introduced rotavirus vaccines into their national immunization programs.<sup>13</sup> South Africa, the first African country to introduce rotavirus vaccines into its national immunization program in 2009, experienced dramatic decreases of 54 to 69 percent in rotavirus hospitalizations in both rural and urban settings in the two years following vaccine introduction.<sup>9</sup>

#### THE ROLLOUT OF ROTAVIRUS VACCINES ACROSS AFRICA

Sudan was the first African country to introduce rotavirus vaccines with funding from Gavi, the Vaccine Alliance, in July 2011—just two years after WHO recommended all countries introduce the vaccine into their national immunization programs. As of August 15, 2014, more than 65 countries have introduced rotavirus vaccines in their national immunization programs, including more than 20 in Africa.<sup>14</sup>

#### ROTAVIRUS VACCINES ARE COST-EFFECTIVE AND A WISE INVESTMENT

Rotavirus vaccines have been shown to be a lifesaving and cost-effective public health intervention in Africa and other high-mortality regions. In Ethiopia, where rotavirus vaccines were introduced in 2013, the introduction of rotavirus vaccines is estimated to save 3,700 lives and US\$800,000 in household expenditures annually.<sup>10</sup> In Ghana, where rotavirus vaccines were introduced in 2012, rotavirus vaccines are predicted to save 1,554 lives and 53 percent of rotavirus treatment costs.<sup>11</sup> If used in all Gavi-eligible countries, rotavirus vaccines could prevent an estimated 180,000 deaths and avert 6 million clinic and

hospital visits each year, thereby saving US\$68 million annually in treatment costs.<sup>8</sup>

Accelerating access to rotavirus vaccines will not only save the lives of African children but also lessen the tremendous economic and health burden of rotavirus disease, thereby contributing to poverty reduction and economic growth. Gavi and its partners plan to support the introduction of lifesaving rotavirus vaccines in more than 30 of the world's poorest countries by 2015.

For more information on rotavirus disease and vaccines please visit <http://rotavirus.org>.

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PATH is an international organization that drives transformative innovation to save lives and improve health, especially among women and children. We accelerate innovation across five platforms—vaccines, drugs, diagnostics, devices, and system and service innovations—that harness our entrepreneurial insight, scientific and public health expertise, and passion for health equity. By mobilizing partners around the world, we take innovation to scale, working alongside countries primarily in Africa and Asia to tackle their greatest health needs. Together, we deliver measurable results that disrupt the cycle of poor health.

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