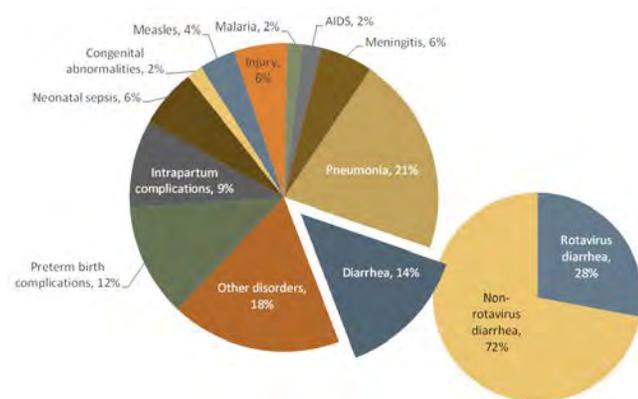


## Rotavirus disease and vaccines in Ethiopia

Diarrhea is a leading killer of children in Ethiopia, causing approximately 14 percent of deaths in children less than five years of age.<sup>1</sup> Rotavirus, the most common cause of severe and fatal diarrhea in young children worldwide, takes the lives of more than 28,000 Ethiopian children under five each year.<sup>2,3</sup> Ethiopia is one of five countries with the greatest rotavirus burden worldwide and accounts for six percent of all rotavirus deaths globally.<sup>2,3</sup> It is estimated that 28 percent of all under-five diarrheal disease hospitalizations in Ethiopia are caused by rotavirus.<sup>2,4</sup> Studies in Africa show that the rotavirus vaccines are safe and effective against severe rotavirus disease and are cost-effective.<sup>5-7</sup>

On November 7, 2013, Ethiopia will become the 17<sup>th</sup> GAVI-eligible country to introduce rotavirus vaccines in its national immunization program. The burden of rotavirus disease in Ethiopian children, coupled with the power of rotavirus vaccines to prevent childhood deaths and hospitalizations, underscores the potential for Ethiopia's introduction of rotavirus vaccines to save children's lives.

### Causes of death in Ethiopian children <5 years, 2010<sup>1,4</sup>



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

Globally, rotavirus causes more than 450,000 deaths each year in children under five and is responsible for millions of hospitalizations and clinic visits.<sup>2,3,8</sup> Nearly a quarter of a million African children die from the dehydrating diarrhea caused by rotavirus infection every year, accounting for more than 50 percent of the global total of rotavirus deaths.<sup>2,3</sup> The vast majority of countries with the highest child death rates from rotavirus are in Sub-Saharan Africa.<sup>2,3</sup>

### Ethiopia Facts

<b>Total population (2012)<sup>9</sup>:</b>	91,728,849
<b>Population children &lt;5 (2012)<sup>10</sup>:</b>	14,094,549
<b>Total live births (2012)<sup>10</sup>:</b>	3,084,242
<b>Mortality rate children &lt;5 (2012)<sup>10</sup>:</b>	68/1,000 live births
<b>Total number &lt;5 deaths (2010)<sup>1</sup>:</b>	277,186
<b>Number of &lt;5 deaths due to diarrhea (2010)<sup>1</sup>:</b>	38,535
<b>Number of &lt;5 deaths due to rotavirus (2008)<sup>2</sup>:</b>	28,218

### ROTAVIRUS TREATMENT AND PREVENTION STRATEGIES

Rotavirus is highly contagious and spreads from person-to-person through contaminated hands and objects. It cannot be treated with antibiotics or other drugs. Mild rotavirus infections can be treated in the same manner as other forms of diarrhea, by providing fluids and salts (oral rehydration therapy). However, children with severe rotavirus diarrhea 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 lives.

Vaccination is the best way to prevent severe rotavirus disease and the deadly, dehydrating diarrhea that it causes. 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. Lifesaving rotavirus vaccines should be introduced as part of a comprehensive approach to control diarrhea, along with other interventions including oral rehydration therapy, breastfeeding, zinc treatment, and improvements in water and sanitation.

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

There are currently two orally administered rotavirus vaccines available: Rotarix<sup>®</sup>, manufactured by GlaxoSmithKline, and RotaTeq<sup>®</sup>, manufactured by Merck & Co., Inc. Both vaccines 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 (South Africa, Ghana, Kenya, Malawi, and Mali) found that rotavirus vaccines reduced severe rotavirus disease by more than 60 percent during the first year of life, when children are at greatest risk of severe rotavirus disease.<sup>5,6</sup>

In June 2009, based in part on results from clinical trials in Africa demonstrating that rotavirus vaccines significantly

reduced rotavirus disease in impoverished, high-mortality settings, the WHO Strategic Advisory Group of Experts recommended that rotavirus vaccines be included in all countries' national immunization programs.<sup>11</sup> As of November 7, 2013, 49 countries have introduced rotavirus vaccines in their national immunization programs, including eleven in Africa: Botswana, Burkina Faso, Ethiopia, The Gambia, Ghana, Malawi, Morocco, Rwanda, South Africa, Sudan, and Tanzania. Sixteen additional countries in Africa have been approved by GAVI for rotavirus vaccine support: Angola, Burundi, Cameroon, Central Africa Republic, Republic of the Congo, Djibouti, Eritrea, Guinea-Bissau, Kenya, Madagascar, Mali, Niger, Sierra Leone, Togo, Zambia, and Zimbabwe.<sup>12</sup>

Rotavirus vaccines are saving lives and improving health in countries where children have access to them. 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.<sup>13</sup> Rotavirus vaccines may protect unvaccinated children and adults by reducing spread of rotavirus (an effect called herd immunity).<sup>14</sup>

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

Rotavirus vaccines are cost-effective, and in GAVI-eligible countries, where 95 percent of deaths due to rotavirus occur, more than 2.4 million child deaths can be prevented by 2030 by accelerating access to lifesaving rotavirus vaccines.<sup>6</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>7</sup>

A recent study evaluated the potential impact of a publicly funded national rotavirus vaccination program in Ethiopia on reducing deaths and household costs due to rotavirus disease.<sup>15</sup> The authors predicted that, in Ethiopia, a rotavirus vaccination program would prevent a minimum of 26 percent of all rotavirus deaths in Ethiopia, mostly among the poorer populations, and would reduce household costs across all income groups. When herd immunity and GAVI-subsidized prices are taken into account, lives saved and costs averted are predicted to be even greater.<sup>15</sup>

Rotavirus vaccines are an essential, lifesaving intervention in comprehensive diarrhea control. Accelerating access to rotavirus vaccines will not only save the lives of Ethiopian children but also lessen the heavy economic and health burden of rotavirus disease, 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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