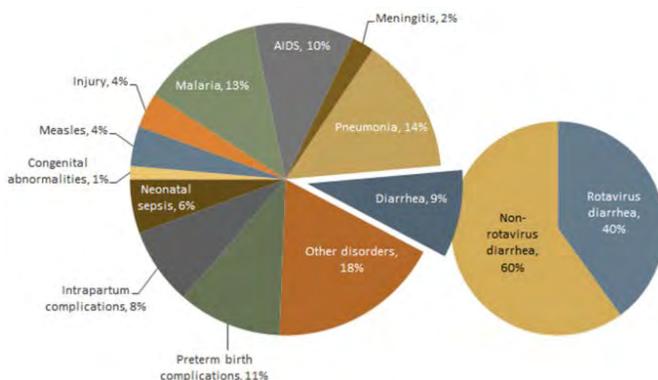


Rotavirus disease and vaccines in Zambia

Diarrhea is a leading killer of children in Zambia, causing approximately nine percent of deaths in children under five years of age.¹ Rotavirus, the most common cause of severe and fatal diarrhea in young children worldwide, takes the lives of over 3,600 Zambian children under five each year and accounts for approximately 40 percent of all under five diarrheal deaths and hospitalizations in Zambia.^{2,3} Studies in Africa show that rotavirus vaccines are safe and effective against severe rotavirus disease and are cost-effective.⁴⁻⁶

On November 27, 2013, Zambia will become the 18th GAVI-eligible country to introduce rotavirus vaccines in its national immunization program following a successful pilot introduction in Lusaka province in 2012. The burden of rotavirus disease in Zambian children, coupled with the power of rotavirus vaccines to prevent childhood deaths and hospitalizations, underscores the potential for Zambia's introduction of rotavirus vaccines to save children's lives.

Causes of death in Zambian children <5 years, 2010^{1,3}



ROTA VIRUS 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.^{7,8} 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.^{2,7} The vast majority of countries with the highest child death rates from rotavirus are in sub-Saharan Africa.^{2,7}

ROTA VIRUS 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.

Zambia Facts

Total population (2012)⁹:	14,075,099
Population children <5 (2012)¹⁰:	2,565,539
Total live births (2012)¹⁰:	608,048
Mortality rate children <5 (2012)¹⁰:	89/1,000 live births
Total number <5 deaths (2010)¹:	62,819
Number of <5 deaths due to diarrhea (2010)¹:	5,721
Number of <5 deaths due to rotavirus (2008)²:	3,617

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 ROTA VIRUS VACCINES ARE SAVING LIVES TODAY

There are currently two orally administered rotavirus vaccines available: Rotarix[®], manufactured by GlaxoSmithKline, and RotaTeq[®], 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.^{4,5}

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.¹¹ As of November 27, 2013, 50 countries have introduced rotavirus

vaccines in their national immunization programs, including twelve in Africa: Botswana, Burkina Faso, Ethiopia, The Gambia, Ghana, Malawi, Morocco, Rwanda, South Africa, Sudan, Tanzania, and Zambia. Fifteen additional countries in Africa have been approved by GAVI for rotavirus vaccine support including: Angola, Burundi, Cameroon, Central Africa Republic, Republic of the Congo, Djibouti, Eritrea, Guinea-Bissau, Kenya, Madagascar, Mali, Niger, Sierra Leone, Togo, and Zimbabwe.¹²

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 that have included rotavirus vaccines in their national immunization programs.¹³ Researchers have also found that rotavirus vaccines may protect unvaccinated children and adults by reducing spread of rotavirus (an effect called herd immunity).¹⁴

ZAMBIA'S COMPREHENSIVE DIARRHEAL DISEASE CONTROL STRATEGY

In January 2012, Zambia launched the Programme for Awareness and Elimination of Diarrhea (PAED) in the capital city, Lusaka, to strengthen its capacity to introduce rotavirus vaccines as part of an integrated diarrheal disease prevention and treatment strategy.¹⁵ PAED, an innovative partnership between the Zambian Ministry of Health; the Ministry of Community Development, Mother and Child Health; the Centre for Infectious Disease Research in Zambia; Absolute Return for Kids; and Comic Relief, addresses the devastating burden of diarrhea in a comprehensive approach including vaccinating children against rotavirus; training health workers to administer oral rehydration therapy and zinc to children with diarrhea and dehydration; and providing community education on diarrhea treatment, vaccination, and prevention.¹⁵ PAED's work with the Government provided the foundation for nationwide expansion of rotavirus vaccination throughout Zambia starting in November 2013.

ROTAVIRUS VACCINES ARE COST-EFFECTIVE AND A WISE INVESTMENT

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.⁶ 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.⁶

Rotavirus vaccines are an essential, lifesaving intervention in comprehensive diarrhea control. Accelerating access to rotavirus vaccines will not only save the lives of Zambian 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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MAILING ADDRESS
PO Box 900922
Seattle, WA 98109 USA

info@path.org
www.path.org

STREET ADDRESS
2201 Westlake Avenue
Suite 200
Seattle, WA 98121 USA