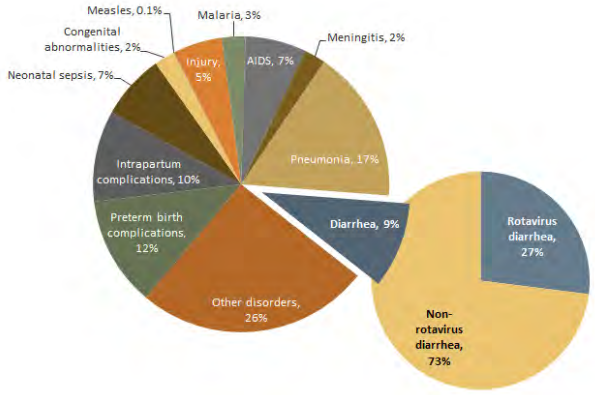
Rotavirus disease and vaccines in Kenya

Diarrhea is a leading killer of children in Kenya, causing approximately 9 percent of deaths in children less than five years of age.[1] Rotavirus, the most common cause of severe and fatal diarrhea in young children worldwide, takes the lives of more than 8,000 Kenyan children under five each year.[2,3] It is estimated that 27 percent of all under-five diarrheal disease hospitalizations in Kenya are caused by rotavirus.[4] Studies in Kenya and in other African countries show that rotavirus vaccines are safe and effective against severe rotavirus disease and are cost-effective.[5-7]

In mid-2014, Kenya will introduce rotavirus vaccines into its national immunization program with GAVI support. The burden of rotavirus disease in Kenyan children coupled with the power of rotavirus vaccines to prevent childhood deaths and hospitalizations underscores the potential for Kenya's introduction of rotavirus vaccines to save children's lives.

Causes of death in Kenyan children <5 years, 2010[1,4]



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.[2,3,8] Nearly a quarter of a million African children die from the dehydrating diarrhea caused by rotavirus every year, accounting for more than 50 percent of the global total of rotavirus deaths.[2,3]

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.

Kenya Facts

Total population (2012)[9]: 43,178,141

Population children <5 (2012)[10]: 6,955,716

Total live births (2012)[10]: 1,534,929

Mortality rate children <5 (2012)[10]: 73/1,000 live births

Total number <5 deaths (2010)[1]: 122,130

Number of <5 deaths due to diarrhea (2010)[1]: 11,461

Number of <5 deaths due to rotavirus (2008)[2]: 8,005

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, exclusive 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®, 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.[5,6]

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 May 15, 2014, more than 55 countries have introduced rotavirus vaccines in their national immunization programs, including more than 15 in Africa.[12] A majority of the introductions in Africa have been in GAVI-eligible countries, and ten additional GAVI-eligible African countries have been approved for future rotavirus vaccine support.[13]

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.[14]

COMPREHENSIVE DIARRHEA CONTROL IN KENYA

The integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhea (GAPPD) is a plan to combat diarrhea and pneumonia together through protection, prevention, and treatment strategies.[15] In 2010, the Kenyan Ministry of Public Health and Sanitation launched a new policy for the prevention and treatment of diarrheal disease that integrated government and community level approaches.[16] One successful policy innovation was the establishment of "Oral Rehydration Treatment (ORT) corners" in clinics, which provides mothers with ORT for children suffering from dehydrating diarrhea as well as education on diarrhea prevention.[16] In 2011, Kenya introduced pneumococcal vaccines with GAVI support. With the addition of rotavirus vaccines, Kenya is taking another step toward operationalizing the GAPPD approach.

ROTAVIRUS VACCINES ARE COST-EFFECTIVE AND A WISE INVESTMENT FOR KENYA

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.[7] 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.[7]

A 2009 study in Kenya found that rotavirus disease costs the Kenyan health care system US$10.8 million annually, mostly due to clinic visits for rotavirus diarrhea.[17] The researchers estimate that rotavirus vaccination would avert 55 percent of deaths and 65 percent of hospitalizations due to rotavirus and would be cost-effective for Kenya.[17]

Rotavirus vaccines are an essential, lifesaving intervention in comprehensive diarrhea control. Accelerating access to rotavirus vaccines will not only save the lives of Kenyan 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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