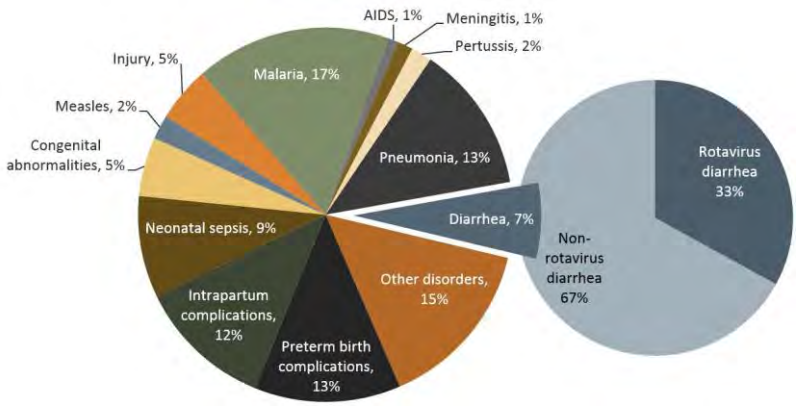
# Rotavirus disease and vaccines in Senegal

Diarrhea is a leading killer of children in Senegal, causing approximately seven 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, took the lives of more than 1,900 Senegalese children under five in 2008 (WHO's most recent estimate of rotavirus mortality).[2,3] It is estimated that one third of all under-five diarrheal disease hospitalizations in Senegal are caused by rotavirus.[3] Studies in Africa show that rotavirus vaccines are safe and effective against severe rotavirus disease and are cost-effective.[4-6]

In late 2014, Senegal will introduce rotavirus vaccines into its national immunization program with support from Gavi, the Vaccine Alliance. The burden of rotavirus disease in Senegalese children, coupled with the power of rotavirus vaccines to prevent childhood deaths and hospitalizations, underscores the potential for Senegal's introduction of rotavirus vaccines to save children's lives.

**Causes of death in Senegalese children <5 years, 2013[1,3]**




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

Globally, in 2008, rotavirus caused more than 450,000 deaths in children under five and was responsible for millions of hospitalizations and clinic visits.[2,3,7] Nearly a quarter of a million African children died from the dehydrating diarrhea caused by rotavirus infection in 2008, accounting for more than 50 percent of the global total of rotavirus deaths.[2,3] The vast majority of countries with the highest child death rates from rotavirus are in sub-Saharan Africa.[2,3]

### Senegal Facts

**Total population (2013)[8]:** 14,133,280

**Population children <5 (2012)[9]:** 2,313,500

**Total live births (2012)[9]:** 524,400

**Mortality rate children <5 (2013)[10]:** 55/1,000 live births

**Total number <5 deaths (2013)[1]:** 28,648

**Number of <5 deaths due to diarrhea (2013)[1]:** 1,866

**Number of <5 deaths due to diarrhea (2008)[11]:** 7,240

**Number of <5 deaths due to rotavirus (2008)[2]:** 1,951

## 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 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.[4,5]

In June 2009, based in part on results from clinical trials in Africa demonstrating that rotavirus vaccines significantly reduced rotavirus disease in high-mortality settings, the WHO Strategic Advisory Group of Experts recommended that rotavirus vaccines be included in all countries' national immunization programs.[12] As of October 15, 2014, more than 65 countries have introduced rotavirus vaccines in their national immunization programs, including more than 20 in Africa.[13] A majority of the introductions in Africa have been in Gavi-eligible countries, and five additional Gavi-eligible African countries other than Senegal have been approved for future rotavirus vaccine support.[14]

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.[15] Rotavirus vaccines may protect unvaccinated children and adults by reducing spread of rotavirus (an effect called herd immunity).[15]

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

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]

Since 2013, a group of Senegalese experts, including pediatricians, laboratory specialists, and the Ministry of Health, has been part of a pilot for the ProVac Initiative, an innovative approach to strengthening national vaccine decision-making capacity by empowering national teams to conduct their own cost-effectiveness analyses. PATH has provided technical guidance to several countries, including Senegal, using the ProVac methods and tools. According to a recent study using ProVac, a national rotavirus vaccination program in Senegal is projected to be highly cost-effective and to substantially reduce child illness and deaths due to rotavirus.[16] It is estimated that rotavirus vaccines could prevent 1.5 million cases of rotavirus and 6,500 rotavirus deaths in Senegal from 2014 to 2033. After the program is fully implemented, rotavirus vaccination could avert 42 percent of all rotavirus deaths in Senegal.[16]

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

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

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October 2014