Rotavirus disease

Rotavirus is the leading cause of death due to diarrhoea in children under five, taking the lives of more than 450,000 each year. Diarrhoea accounts for 12% of under-five child deaths in GAVI-eligible countries, making it one of the leading causes of death among young children. While every child is at risk of rotavirus infection, nearly 95% of rotavirus-related deaths occur in developing countries where access to treatment is limited or unavailable.

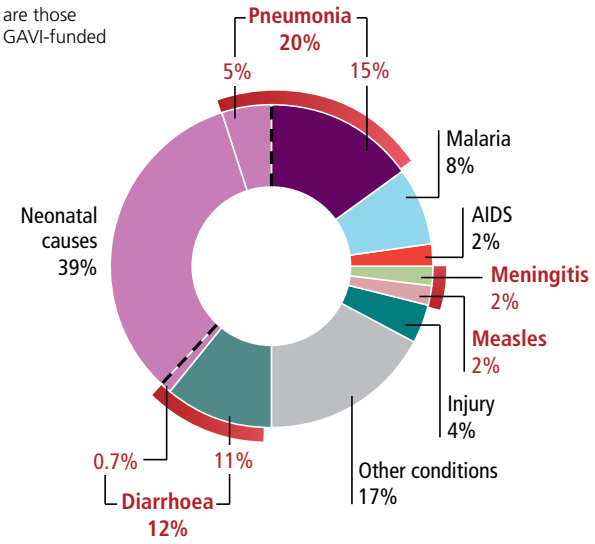
Quick facts

Rotavirus is a very common and highly contagious virus that causes gastroenteritis (inflammation of the stomach and intestines), dehydration and potentially death.

- Children aged six months to two years of age are most vulnerable to infection.
- One of every 260 children born each year die of rotavirus before their fifth birthday. That's more than 1,200 children each day.
- The vast majority (95%) of these deaths occur in developing countries.
- Vaccination offers the best hope for preventing severe rotavirus disease and the deadly dehydrating diarrhoea that it causes.
- Vaccines against rotavirus are saving lives today in countries where children have access to them.

Causes of under-five child deaths in GAVI-eligible countries

Diseases in red are those preventable by GAVI-funded vaccines



Source: CHERG 2010, WHO and UNICEF 2012

Prevention strategies

Worldwide, rotavirus accounts for 37% of all diarrhoea deaths in children under five. Neither antibiotics nor other drugs can cure rotavirus.

In most cases, the dehydration caused by severe rotavirus-related diarrhoea can be treated effectively by providing fluids and salts until the disease runs its course. In the most serious cases, children who cannot keep down fluids urgently need intravenous fluids, or they risk dying from dehydration. However, developing countries may lack hospital and laboratory facilities to meet this need. Where such care is unavailable, death rates are highest.

Preventing serious rotavirus disease in the first place is the best way to protect children. The most effective way to do so is to ensure that all children, wherever they are born, have access to safe, effective, and affordable vaccines. This was recognised in the 2009 World Health Organization (WHO) recommendation that rotavirus vaccines be introduced into all national immunisation programmes, particularly in countries with high child mortality from diarrhoeal disease.

Rotavirus vaccines play an essential and life-saving role in comprehensive diarrhoea control strategies. A coordinated approach that combines rotavirus vaccines with other prevention and treatment methods, including oral rehydration therapy, zinc, breastfeeding, improvements in water, sanitation, and hygiene as well as proper nutrition, will achieve the greatest impact on diarrhoeal disease mortality and morbidity (deaths and hospitalisations).

Making rotavirus vaccines available

In developing countries, where the toll of rotavirus is devastating, GAVI's support for the affordable and financially sustainable introduction of rotavirus vaccines in national immunisation programmes is making a significant impact on global efforts to achieve Millennium Development Goal 4. Two orally-administered rotavirus vaccines are available today. Both vaccines have been shown to be safe and effective in clinical trials in Africa, Asia, Europe, Latin America and the United States.

Saving lives and costs

Immunisation is one of the most cost-effective investments to decrease poverty and prevent longer-term economic and social costs.

More than 2.4 million child deaths can be prevented by 2030 by accelerating access to lifesaving rotavirus vaccines in GAVI-eligible countries. Each year, if used in all GAVI-eligible countries, rotavirus vaccines could prevent an estimated 180,000 deaths and avert 6 million clinic and hospital visits, thereby saving US$ 68 million annually in treatment costs.*

Countries that have introduced rotavirus vaccines have seen an improvement in child health. Recent studies show the swift and significant impact of rotavirus vaccines following introduction in national immunisation programmes. In Mexico, diarrhoeal deaths in children five years of age and younger plummeted by 46% during 2007-2009. In Australia, Belgium, El Salvador and the US, hospitalisations and clinic visits for rotavirus-related diarrhoea in children under five years of age have declined by a striking 60-94%, between 2007 and 2010.

This dramatic reduction of severe and fatal diarrhoea following the introduction of rotavirus vaccines underscores the incredible potential for rotavirus vaccines to save children's lives.

Roll-out in developing countries

Recognising the enormous potential impact of rotavirus vaccines to reduce deaths in infants and young children, GAVI added rotavirus vaccines to its portfolio of financial support for new vaccine introduction for the poorest countries. In 2006, Nicaragua was the first GAVI-eligible country to introduce rotavirus vaccines, the same year it became available in the US. By December 2012, more than ten other GAVI-eligible countries had also introduced rotavirus vaccines. For the latest information on country introductions, visit www.gavialliance.org

By 2015, GAVI and its partners plan to support the introduction of this life-saving vaccine in at least 40 of the world's poorest countries, immunising more than 50 million children.

Working together

GAVI collaborates with strategic partners to educate health and immunisation officials, policymakers, and donors about the serious burden of rotavirus disease and the substantial impact of rotavirus vaccines, so they are equipped to make well informed, evidence-based decisions. GAVI's partners include WHO, UNICEF, PATH, US Centers for Disease Control and Prevention, and IVAC at Johns Hopkins Bloomberg School of Public Health, among others.

Resources

- **WHO**
  www.who.int/nuvi/rotavirus/resources/en/index.html

* Atherly DE, Lewis KDC, Tate J, Parashar UD, Rheingans, RD. Projected health and economic impact of rotavirus vaccination in GAVI-eligible countries: 2011-2030. Vaccine. 2012;30(Suppl 1):A7–A14.

Bolivia's successful rotavirus vaccine initiative

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In 2008, Bolivia became one of the first GAVI-eligible countries to introduce rotavirus vaccines. Prior to vaccine introduction, rotavirus was a major cause of illness and death among Bolivia's under five population. From 2006 to 2008, the disease accounted for almost half of all hospitalisations for diarrhoea. With GAVI support, immunisation against rotavirus is today offered free of charge at government health centres across Bolivia. An evaluation conducted from March 2010 through June 2011 at six pædiatric hospitals across Bolivia showed that rotavirus vaccine was 70%-76% effective in preventing severe rotavirus disease caused by a range of rotavirus strains in Bolivian children. With a successful track record of introducing immunisation programmes, Bolivia was well-placed to take a lead in deploying rotavirus vaccines. Bolivia's strong immunisation platform has already enabled the country to eradicate polio and substantially reduce cases of diphtheria, pertussis, neonatal tetanus and yellow fever. Success in these campaigns has also boosted public confidence in health services and the power of immunisation.

- **PATH**
  http://sites.path.org/rotavirusvaccine/
- **CDC**
  www.cdc.gov/rotavirus/index.html
- **GAVI Aliiance**
  www.gavialliance.org/support/nvs/rotavirus/

Information current as of February 2013

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