

# Protecting young children from diarrheal disease

## PATH deploys a multifaceted approach to prevent suffering

Since the 1970s, millions of children's lives have been saved through improved prevention and treatment of diarrheal disease. Yet more than 5,000 young children still die daily from severe diarrhea.<sup>1</sup> Even more may suffer long-term effects such as stunted growth and reduced intellectual development.<sup>2</sup> Those at highest risk live in developing countries in areas without adequate sanitation systems, safe drinking water, and sufficient access to basic health services.

PATH is successfully deploying a variety of cost-effective solutions to prevent and treat severe diarrhea. By advancing technologies that protect against disease, strengthening health systems, and promoting healthy behaviors, we are reducing the gap between rich and poor nations in health among children less than five years old.

PATH partners with communities, governments, private firms, and nongovernmental organizations (NGOs) to reduce the toll of diarrheal disease. We inform strategic planning; design innovative, market-driven approaches; catalyze investment; increase access to new technologies and interventions; and promote use of proven prevention and treatment options. We also work collaboratively to develop needed technology and improve health-related behaviors.

## Health technologies for prevention, diagnosis, and treatment

PATH's efforts to use technology range from developing vaccines to ensuring safe water to inventing low-cost diagnostic tests. For example, we are:

- Accelerating the availability of current rotavirus vaccines and supporting clinical trials to evaluate their performance in Africa and Asia. Globally, more than 500,000 children die each year from dehydration due to rotavirus infection.<sup>3</sup>
- Working with manufacturers in China, India, and other emerging countries to develop new rotavirus vaccines that are safe, effective, and affordable.
- Teaming with private- and public-sector partners on vaccines against the main bacterial causes of diarrhea, *Shigella* and enterotoxigenic *Escherichia coli*.
- Collaborating with commercial partners in Cambodia, India, Kenya, Vietnam, and other countries to test distribution and sales and improve at-home water treatment and storage products for low-income households.
- Assisting in the commercialization of an inexpensive handheld device for quick and easy testing of water quality.
- Developing water-treatment technology for use by micro-entrepreneurs to improve access to safe water, especially among the poorest of the poor.
- Working with partners to develop a disposable "lab-on-a-card" as a rapid, easy-to-use, and low-cost tool for detecting diarrhea-causing pathogens.
- Increasing understanding of and access to zinc treatment for diarrhea and improved oral rehydration solution.

## Success stories

### Accelerating access to rotavirus vaccines

A partnership with the World Health Organization and the US Centers for Disease Control and Prevention, PATH's Rotavirus Vaccine Program was established in 2003 with funding from the GAVI Alliance. This partnership's achievements include expanding worldwide surveillance networks for rotavirus disease and supporting clinical trials, in collaboration with vaccine manufacturers, to evaluate vaccine safety and efficacy in Africa and Asia.



PATH/Mike Wang

### Multiple interventions in Nicaragua

In Nicaragua, PATH joined with many groups—including the Ministry of Health; NicaSalud, a coalition of local NGOs; and the United Nations Children's Fund—to train health workers to provide zinc treatment and low-osmolarity oral rehydration solution for controlling diarrhea. A parallel project by Merck & Co. and the Ministry of Health led to introduction and widespread use of rotavirus vaccine, which reached nearly 80 percent of eligible children in the first year.

## Partnerships to improve health systems and behaviors

PATH also contributes to important multilateral efforts, and we provide direct technical assistance to countries. For example, we are:

- Participating in the World Health Organization's Household Water Treatment and Safe Storage Network, a collaboration between government, private firms, NGOs, and academic institutions to improve health for families without reliable access to safe drinking water.
- Advising the Global Public-Private Partnership for Handwashing with Soap on improvements to technologies that support lasting behavior change.
- Serving as an active member of the US Coalition for Child Survival, which strengthens commitments to improve children's health worldwide.

Because inappropriate feeding practices contribute to deaths from diarrheal disease, PATH is working in many countries to change behaviors related to nutrition. For example, we are providing technical assistance to a World Bank-funded study in Malawi to evaluate and improve feeding practices for infants and young children, including those with diarrhea. Study results will be used to design future nutrition programs.

## Building capacity to prevent and manage disease

PATH's Enhanced Diarrheal Disease Control Initiative provides resources to help countries increase uptake of effective interventions. For this initiative, PATH developed an online library that features information and guidelines, in multiple languages, on interventions such as improved oral rehydration solution, zinc treatment, exclusive breastfeeding, handwashing practices, and vaccination. The initiative is addressing policy, clinical, and community barriers to diarrheal disease control, increasing the knowledge base on diarrheal disease, coordinating with the public and private sectors, and establishing linkages among development partners. The approach is being successfully implemented in Africa, Asia, Eastern Europe, and Latin America.

In Kenya, for example, PATH is working with the Ministry of Health to develop a national diarrheal disease control strategy and train health workers. In Vietnam, we are helping to strengthen national policies and update clinical guidelines to inform a pilot project in Binh Dinh province aimed at scaling up use of zinc treatment and low-osmolarity oral rehydration solution. This project will influence national planning and serve as an example to other countries.

## Looking ahead

Recent decades have shown that diarrheal disease control works. We are now challenged to expand use of effective interventions to spare millions more children from severe diarrhea. By working collaboratively to develop and implement new technologies, improve health systems and behaviors, and build capacity, PATH will help to energize and strengthen the global response to a persistent and deadly health threat affecting the most vulnerable among us.

## References

1. Boschi-Pinto C, Velebit L, Shibuya K. Estimating child mortality due to diarrhoea in developing countries. *Bulletin of the World Health Organization*. 2008;86(9):710-717.
2. Berkman DS, Lescano AG, Gilman RH, Lopez SL, Black MM. Effects of stunting, diarrhoeal disease, and parasitic infection during infancy on cognition in late childhood: a follow-up study. *The Lancet*. 2002;359:564-571.
3. World Health Organization. Rotavirus vaccines: WHO position paper. *Weekly Epidemiological Record*. 2007;82:285-295.

## Using a community-based approach in Kenya

In Kenya, PATH has piloted a community-based approach to diarrheal disease that includes holding workshops on practical methods to increase rates of breastfeeding, use of oral rehydration solution, zinc treatment, and proper hygiene. Lessons from this project are being integrated into Kenya's National Diarrheal Disease Control Framework.



Wendy Stone

## For more information

Enhanced Diarrheal Disease Control Resource Center: [www.eddcontrol.org](http://www.eddcontrol.org)

Rotavirus Vaccine Program: [www.rotavirusvaccine.org](http://www.rotavirusvaccine.org)

Controlling diarrheal disease: [www.path.org/diarrheal-disease.php](http://www.path.org/diarrheal-disease.php)

Infant and Young Child Nutrition Project: [www.iycn.org](http://www.iycn.org)

PATH is an international nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think and act. PATH's work improves global health and well-being.



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