

Protecting young children from diarrheal disease

A multifaceted approach to reducing death and disability

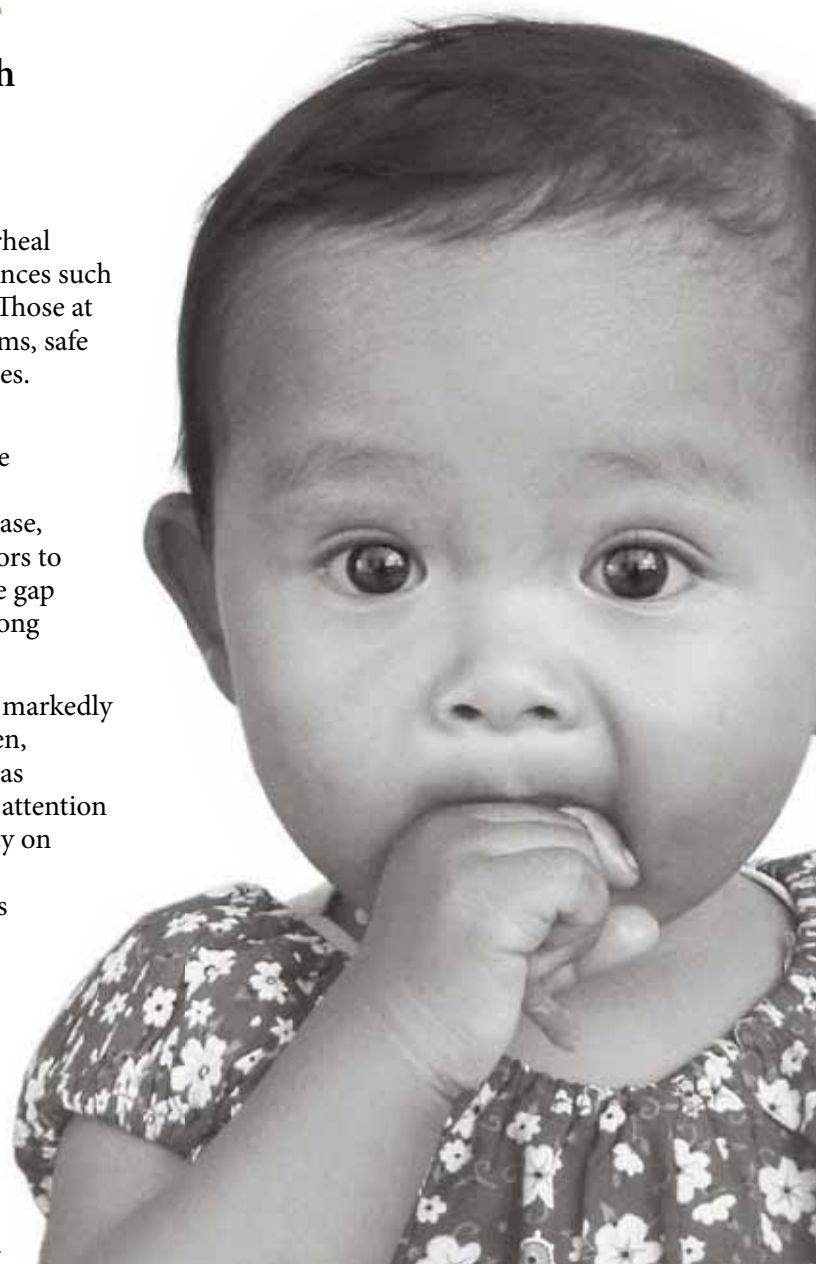
Every day, more than 5,000 young children die from diarrheal disease worldwide.¹ Even more suffer long-term consequences such as stunted growth and reduced intellectual development. Those at highest risk live in areas lacking adequate sanitation systems, safe drinking water, and sufficient access to basic health services.

PATH has successfully deployed a unique, multipronged approach to reduce the toll of severe diarrhea, which is the second leading cause of death among young children. By advancing technologies that protect against diarrheal disease, strengthening health care systems, and promoting behaviors to improve nutrition and hygiene, we are helping to close the gap between rich and poor nations in death and disability among children younger than five years.

Although international campaigns in the 1980s and 1990s markedly reduced mortality from diarrheal disease in young children, momentum has slowed.² High-profile health threats such as HIV/AIDS and tuberculosis have recently garnered more attention than the fight against diarrheal disease. The lack of priority on the global health agenda and the corresponding lack of resources have prevented children in developing countries from receiving simple and effective interventions. These interventions include oral rehydration solution, zinc treatment, handwashing, access to clean water, improved nutrition and breastfeeding, and vaccines against rotavirus—the leading cause of severe diarrhea.

Continued on page 10

Dr. Ahmet Afsar



HIV prevention

Scouting for solutions to HIV

Promoting healthy behaviors among youth in Kenya and Uganda

Project name

Scouting for Solutions

Locations

Kenya, Uganda

Methods

Advocacy, behavior change communication, behavior formation interventions, experiential learning, Little Magnet Theater, skill- and capacity-building

Partners

Government ministries, Instituto Promundo, Kenya Scouts Association, Straight Talk Foundation, Uganda Scout Association

Funder

US President's Emergency Plan for AIDS Relief (through the US Agency for International Development)

For more information

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PATH has trained scout leaders to use participatory, "learning by doing" methods to integrate HIV prevention information and skills into scouting activities.



PATH/Alex Kamweru

PATH is working with scout associations in Kenya and Uganda to provide young scouts with life skills to prevent the spread of HIV.

AROUND THE WORLD, THE HIV AND AIDS pandemic is taking a severe toll on youth. One-third of all people currently infected with HIV are 15 to 24 years old; half of all new infections occur in this age group as well. Adolescents must make crucial decisions about their sexual experiences and behaviors amid the growing risk of HIV and other sexually transmitted infections.

PATH is reaching young people before they become sexually active to ensure that they are prepared to make safe decisions about engaging in sexual activity. Through a partnership with national scouting programs in Kenya and Uganda, PATH provides young scouts with decision-making, communication, negotiation, and other life skills to prevent the spread of HIV.

Reaching adolescents with information and skills

Scouting is the largest educational youth movement in the world, and nearly 500,000 young people—boys and girls—participate in scouting in Kenya and Uganda. In both countries, HIV infection rates are high among youth, and women are four times more likely to be infected with HIV than men.^{1,2}

PATH is working in partnership with the Kenya Scouts Association and the Uganda Scout Association to reach an estimated 325,000 girls and boys ages 12 to 15 years through HIV education for scouts, their families, and their communities. The project uses the scouts associations' existing structures and programs to prevent HIV by encouraging abstinence, being faithful, and delaying sexual

debut. Information about condoms is provided to young people 14 years and older.

PATH has trained scout leaders to use participatory, “learning by doing” methods to integrate HIV prevention information and skills into scouting activities, including:

- **Scouts Voice newsletter.** Produced by scouts and distributed to their peers, the newsletter covers topics such as HIV and AIDS, abstinence, gender, sexual abuse, and values. The newsletter’s approach has already been replicated in Tanzania.
- **Activity packs.** Scouts, scout leaders, and parents help to create activities that explore young people’s knowledge of and attitudes toward sexuality issues and parents’ attitudes toward protecting their children. Activities also focus on building scouts’ confidence, self-esteem, and creativity for healthy decision-making.
- **New badge.** The team developed a new Red Ribbon Badge that is tied to completion of the activity packs. The progressive badge has four stages, which are indicated by additional stars. The highest awardees receive a badge with three stars after completing the eight activity packs.
- **Little Magnet Theater.** In a popular community theater activity, groups of scouts develop half-complete stories focusing on HIV prevention, gender relations, stereotypes, and inequities in their communities. The scouts act out the dramas in front of classmates, out-of-school youth, teachers, parents, and community members and engage audience members in a discussion of how the characters could solve their dilemma.

These activities engage scouts’ families and communities to promote dialogue between youth and adults about adopting HIV-prevention behaviors.

Promoting gender equity and education in schools

In Kenya and Uganda, gender norms and gender inequality contribute to the challenges girls face in controlling their reproductive health and protecting themselves from HIV and pregnancy. Research indicates that young people, especially girls, often internalize negative values that hamper their aspirations, leading to poor performance in school, high drop-out rates due to teenage pregnancy, and early exposure to HIV. Girls’ vulnerability to sexual coercion and violence puts them at an increased risk of contracting HIV, as reproductive choices are not always in their control. Recognizing that education can have a significant impact on HIV prevention, PATH is working with scouts, scout leaders, parents, and teachers to explore and rethink gender norms, roles, and expectations. We are also working with partners to develop localized scales for gender empowerment of girls and gender-equitable attitudes among men.

PATH trains scout leaders about gender awareness and helps scouts and their leaders understand the effects of gender-based societal expectations on boys and girls. The project integrates gender-related activities and approaches into all aspects of scouting, even using a new merit badge in Kenya that is based on skill-building and dialogue-driven activities to create a supportive environment for gender equity.

In schools, the project works with teachers to discuss sexuality and HIV prevention issues with students. The Kenya Scouts Association and the Uganda Scout Association have trained teachers on gender sensitivity to ensure that girls and boys are given equal opportunities in education. Because of the training, some schools are reversing the policy of expelling girls who become pregnant; girls who drop out to have babies are now allowed to return to school.

In addition to promoting gender equality for girls in the present, the project also has a significant long-term impact on girls’ reproductive health. By helping girls to stay in school longer, the project enables them to access more education overall, better guard themselves from gender violence and sexual exploitation, and protect themselves and their children from HIV infection.

From scouting to safe behaviors

PATH, the Kenya Scouts Association, and the Uganda Scout Association are reaching thousands of young people with HIV prevention messages and helping them build the confidence and self-esteem needed to sustain healthy behaviors. The community-driven approach will reach an estimated 1.6 million family members by the end of the project in 2010.

Recognized for its success in all international scout forums as well as this year’s centenary celebration of scouts held in Chelmsford, England, the project is looking ahead to its next phase. If the project is extended in the next phase of the President’s Emergency Plan for AIDS Relief, PATH and the scouts associations will follow their target population into secondary schools to reinforce messages of abstinence, faithfulness, and safer sex. The project will also expand to work with young people in high-risk situations, including out-of-school youth and those living in urban centers, border towns, and fishing communities. PATH plans to package materials and lessons learned from the project to aid other countries in implementing similar efforts to prevent the spread of HIV among young people. ■

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Malaria

Malaria control in Zambia

Scaling up interventions to reduce disease burden

Project name

Malaria Control and Evaluation Partnership in Africa (MACEPA)

Location

Zambia

Methods

Technical assistance, monitoring and evaluation, advocacy

Partners

Bill & Melinda Gates Foundation; Global Fund to Fight AIDS, Tuberculosis and Malaria; Government of Zambia; US President's Malaria Initiative; Roll Back Malaria Partnership Secretariat; United Nations Children's Fund; US Agency for International Development; World Bank; World Health Organization; Zambia Ministry of Health's National Malaria Control Programme; Zambia Roll Back Malaria Partnership

Funder

Bill & Melinda Gates Foundation

For more information

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Visit www.path.org/macepa to learn more.

ZAMBIA IS A LEADER IN THE FIGHT TO control malaria. Since 2006, the country has cut malaria parasite prevalence in children by more than half, dramatically increased the number of people protected by insecticide-treated bednets (ITNs) and indoor residual spraying (IRS), and improved access to medicines used to prevent and treat the disease. The Malaria Control and Evaluation Partnership in Africa (MACEPA), a program at PATH, collaborated closely with the Government of Zambia and the Zambia Roll Back Malaria Partnership to help the country achieve these successes.

Recent survey results demonstrate the profound impact Zambia's efforts are having on the health and well-being of the country's people. As rates of malaria-related anemia and mortality decrease, especially among young children, Zambia is looking ahead to expansion of its current efforts, and other countries are adopting similar models to improve malaria control.

Effective national scale-up

Zambia has come to be seen as a regional and global example for effective scale-up of national malaria control programming. The country's 2006–2011 National Malaria Strategic Plan outlined a series of ambitious targets, with the goal of a 75 percent reduction in malaria incidence by 2011.

Zambia's focus is on distributing ITNs, particularly to pregnant women and young children; strengthening IRS programs; increasing availability of drugs for

prevention and treatment; expanding prompt and effective case management; and improving access to diagnostics training and technologies. Before 2005, Zambia had never distributed more than 14,000 nets in one year. Since the establishment of a new approach in 2006, more than 4.5 million ITNs have been delivered to households in Zambia's most rural provinces.

Improved coordination and decentralization

Zambia worked with global and local partners, including MACEPA, to develop a model based on rapid, aggressive scale-up of core interventions. The strategy is based on commitment among all partners to a coordinated approach (the "three ones"): a national, consensus-based plan; a single coordination mechanism for implementation; and a monitoring and evaluation system that ensures accurate results and accountability.

The result is better use of resources, effective communication and advocacy, and a strong consensus- and evidence-based planning process. This approach has supported a number of important developments, including the decentralization of bednet distribution, which proved key to expansion.

Demonstrating impact through appropriate monitoring

In 2006, Zambia conducted a nationwide malaria indicator survey (MIS)—the country's first nationally representative household survey

assessing coverage of key malaria interventions and malaria-related burden among children younger than five years.¹ The survey established a benchmark against which to measure progress toward target coverage rates and reduced disease burden.

The survey results showed that 50 percent of households in Zambia owned some kind of bednet—but much work remained, particularly in increasing the distribution of insecticide-treated bednets and improving their use among children younger than five years and pregnant women. Subsequent national action plans sought to provide a package of interventions to reduce the burden of malaria during pregnancy, to improve access to a highly effective malaria drug, and to roll out home management of malaria.

In 2008, a second MIS² demonstrated significant progress:

- Malaria parasite prevalence rates among children younger than five years dropped by 54 percent in only two years.
- Cases of moderate to severe anemia, a common consequence of malaria, decreased by 69 percent in the same group.
- Sixty-six percent of the population nationwide is now protected by an ITN or IRS, compared with a coverage rate of 43 percent in 2006.
- Between 2006 and 2008, ITN use rose by 69 percent among children younger than five years and by 76 percent among pregnant women.
- Sixty percent of pregnant women received at least one dose of preventive medicine, a 12 percent increase since 2006.

Additional evidence of the effectiveness of Zambia's new malaria control strategy came from the country's Demographic and Health Surveys (see pg. 6), which showed a 29 percent decrease in

mortality among children younger than five years between 2002 and 2007.^{3,4} Zambia's new strategy contributed significantly to saving nearly 75,000 lives in five years.

A way forward for others

Zambia's survey results are an important milestone for all malaria control stakeholders: proof of the effectiveness of rapid scale-up and a demonstration that ambitious intervention targets are achievable.

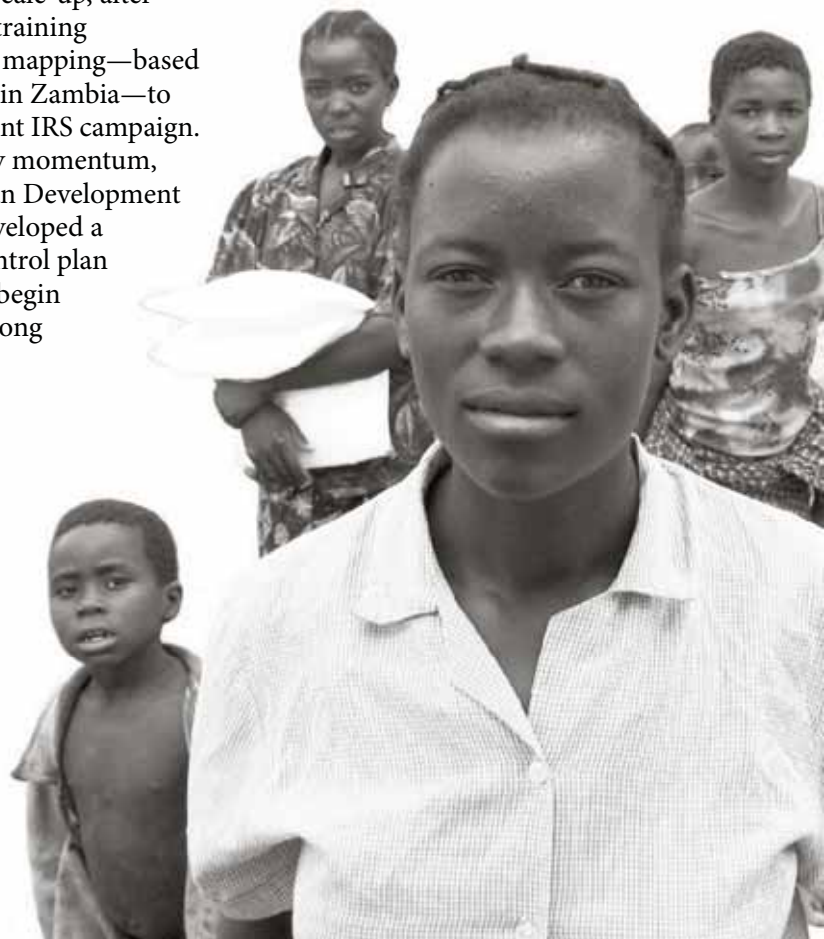
Other African countries are following Zambia's example. Ethiopia conducted its first MIS in 2007 and is now revising its national malaria control plan based on the survey results. In the past two years, the country has distributed more than 20 million ITNs, and 68 percent of households are now covered by an ITN or IRS. The Ethiopian Ministry of Health is now working to improve the quality and accessibility of health care and malaria treatment services in hard-to-reach areas.

Tanzania has also started the work necessary to begin scale-up, after completing its first training workshop in digital mapping—based on techniques used in Zambia—to facilitate a subsequent IRS campaign. Building on country momentum, the Southern African Development Community has developed a regional malaria control plan and is preparing to begin implementation among member countries.

To bring these and other countries together, the MACEPA Learning Community (see back cover) provides a forum for building on experiences, receiving technical support, and putting the newest technologies into use. These efforts support replication of the Zambia model and are helping to expand effective strategies and interventions. ■

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Data collection and analysis

Project name
MEASURE DHS

Location
Global

Methods
Household surveys, indicator surveys, service provision assessments, qualitative research

Phase 3 partners
Macro International Inc.; Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs; CAMRIS International; Futures Institute; Blue Raster, LLC

Primary funder
US Agency for International Development

For more information

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Visit the project website at www.measuredhs.com.

Data for decisions

Collecting and analyzing health data in the developing world

GIVEN THE NUMBER AND VARIETY OF public health projects implemented globally, determining which programs are successful—and which are worth replicating—is challenging for governments and implementing organizations alike. For more than 20 years, the Demographic and Health Surveys (DHS) program, now known as MEASURE DHS, has been helping developing countries collect, analyze, and disseminate data. PATH has been a member of the MEASURE DHS team since 2003. MEASURE DHS is helping policymakers, program managers, and researchers understand more about the health status of various populations, determine which health interventions work best, and identify emerging issues that warrant attention.

Multiple study methods

The MEASURE DHS team works with in-country staff—usually from ministries of health or national statistical centers—to conduct multiple types of studies:

- **Periodic household surveys.** Conducted in 80 countries, these surveys yield critical information on overall health and nutrition in regions and countries. The surveys collect information on topics such as women's fertility and use of family planning, maternal and child mortality, access to maternal health services, children's health status, use of infant breastfeeding, and domestic violence. The surveys allow disaggregation of indicators by characteristics such as age, education level, and location.

- **Indicator surveys.** Conducted in African and Asian countries, indicator surveys help quantify the true magnitude of AIDS and malaria. They also shed light on communities' understanding of relevant issues—for example, whether individuals know how HIV is transmitted, understand how to protect themselves, recognize the benefits of sleeping under insecticide-treated bednets, or regularly sleep under bednets. Data on these and similar issues influence the design of public health interventions aimed at controlling HIV and malaria.
- **Service-provision assessment (SPA) surveys.** SPA surveys collect data from health facilities to help decision-makers prioritize investments and improve service access and quality. SPA surveys take into account staffing levels, training, available services, the condition of facilities and supplies, and client satisfaction. The Kenyan government used SPA survey results to help create its national health-sector strategic plan for 2005 to 2010.
- **Qualitative research.** Qualitative research methods provide context and interpretation for these survey data. For example, interviews with individuals or groups can illuminate the reasons behind a decrease in use of contraception.

PATH's role

PATH provides three full-time staff members and expertise for the MEASURE DHS team on a range of research and health topics.



Making information available

Once analyzed, Demographic and Health Survey (DHS) data are disseminated to in-country users such as national policymakers, health planners, and nongovernmental agencies. For example, a DHS comparative report, *Postpartum Care: Levels and Determinants in Developing Countries*, co-authored by PATH and Macro International staff, was delivered to a large network of countries and agencies and is helping highlight the need to increase use of this lifesaving intervention.

Data are also available through online tools such as the STATcompiler (www.statcompiler.com) and the HIV/AIDS database (www.measuredhs.com/hivdata). Using these tools, internet users can obtain data on multiple health indicators and build tables for specific countries, showing trends over time or comparisons with other countries.

With other online tools such as STATmapper and the HIVmapper (<http://statmapper.mapsherpa.com>, www.hivmapper.com), users can view maps of health

and HIV/AIDS indicators in contrasting colors across regions and countries. They can also link HIV-related data to the worldwide HIV Spatial Data Repository (www.hivspatialdata.net).

For example, our staff conducted one of the first malaria surveys in DHS, and we continue to lead the ongoing application of the SPA surveys. We also contribute to the dissemination of important information on youth, such as their knowledge of HIV and use of relevant services such as family planning. To support nutrition programs, we are working to ensure high-quality reporting of indicators such as malnutrition, anemia, and breastfeeding. We are also collaborating with the World Health Organization to produce a new publication with indicators on the introduction of solid foods (complementary feeding) in children.

PATH also offers particular expertise in biomarker research. For example, we train in-country personnel in the collection of blood samples in the field and the conduct of HIV tests in the lab, ensuring that these tests are performed under rigorous quality-control procedures. We also research new and field-resilient technologies (e.g., malaria or tetanus rapid tests) to conduct

tests that complement questionnaire surveys. With accurate biomarker data, programs can identify populations that are at risk of vitamin A deficiency or anemia and design health interventions to correct the deficiencies. When linked to demographic data, biomarker data can also deepen our understanding of the underlying health context.

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A cornerstone of MEASURE

MEASURE DHS is one of four components of the Monitoring and Evaluation to Assess and Use Results (MEASURE) project, an effort begun in 1997 and funded by the US Agency for International Development's Bureau for Global Health. The third five-year phase of the MEASURE

program, which began in the fall of 2008, supports eight program elements: HIV/AIDS, tuberculosis, malaria, avian influenza, other public health threats, maternal and child health, family planning and reproductive health, and water supply and sanitation.

Together, the four MEASURE partner projects—MEASURE DHS, MEASURE Evaluation, MEASURE US Census Bureau–SCILS, and MEASURE CDC/DRH—provide a full range of services. The programs promote demand for high-quality data; provide technical assistance, training, systems development, data collection, data analysis, and capacity-building services; and disseminate information for decision-making. These efforts are providing and promoting the use of accurate and timely information on population, health, and nutrition in developing countries—and ultimately supporting decisions that will achieve the greatest impact on these global health issues. ■

Cervical cancer

Preparing to introduce HPV vaccines

Formative research informs country strategies

Project name

HPV Vaccines: Evidence for Impact

Locations

India, Peru (featured), Uganda, and Vietnam

Methods

Formative research, including focus group discussions and in-depth interviews; literature, data, and policy reviews; field observations; and participatory exercises

Partners in Peru


Peruvian Ministry of Health, Instituto de Investigación Nutricional, the Multisectoral Coalition: Peru Against Cancer

Funder

Bill & Melinda Gates Foundation

For more information

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 Visit www.path.org/projects/cervical_cancer_vaccine.php to learn more.

Cervical cancer is the leading cause of cancer-related mortality among women in Peru.

HEALTH SYSTEMS AND COMMUNITIES must plan carefully when adopting new health technologies or interventions. This is particularly true for new vaccines that prevent infection with human papillomavirus (HPV), the primary cause of cervical cancer, because HPV vaccines are administered to a preadolescent population not usually reached by traditional immunization programs.

As governments consider when and how to introduce HPV vaccines, they face important questions about the programmatic and financial implications of vaccine introduction and use. PATH is working with ministries of health (MOHs) and other partners on HPV vaccine demonstration projects in four countries: India, Peru, Uganda, and Vietnam. These projects will generate data to help policymakers and planners make informed decisions about vaccine introduction. Formative research to better understand target audiences and health systems is a crucial step in this process.

A spotlight on Peru

Cervical cancer is one of the most common causes of death among women in Latin America and the Caribbean.¹ In Peru, it is the leading cause of cancer-related mortality among women. Each year, more than 5,000 new cases are diagnosed in the country, and more than 2,500 women die of the disease.² This significant disease burden was one of the factors that led PATH to select Peru as one of the demonstration project countries.

In late 2006 and early 2007, PATH and our partners conducted research in four regions of Peru on health-system capacity and policies that could affect HPV vaccine introduction. The team also explored beliefs, values, attitudes, knowledge, and behaviors related to HPV, cervical cancer, and vaccination. Researchers used multiple data-collection techniques, including focus group discussions, in-depth interviews, literature reviews, and field observations. These efforts elicited input from diverse participant groups, including girls and their families, health workers, local influential individuals, and national leaders.

Key findings

The formative research findings in Peru demonstrated that many individuals are interested in and supportive of HPV vaccination and other interventions that combat cervical cancer. Once participants were given basic information about the HPV vaccine, for example, they generally felt positively about it—as long as they understood that the vaccine is not experimental and that side effects would be fully explained before administration. The findings also revealed that certain questions and obstacles must be resolved for vaccine introduction to progress smoothly.

The project team used these results to shape strategies now being implemented through the Peru demonstration project. Highlights include:

- **Vaccine delivery.** Based on participants' clear preferences, the demonstration project is

dispatching health workers to vaccinate girls at school, targeting those in grade 5 and aged 9 years and older. The MOH and PATH are also working to strengthen coordination between health centers and schools; ensure systematic and early communication among MOH divisions and between national and regional authorities; monitor the vaccine cold chain; and actively address potential problems, such as storage and transportation. The team has developed standardized vaccination protocols to ensure respectful treatment of girls, safe disposal of medical waste, and prompt reporting of rare side effects.

- **Communications.** The team is collaborating with the Peruvian government to share information on the burden of cervical cancer in Peru, the role of HPV in causing cervical cancer, and the importance of protecting girls with HPV vaccines before they become sexually active. The team is also working to build positive perceptions of vaccination and address local concerns—for example, by emphasizing the proven safety and effectiveness of HPV vaccines. Participatory communication and mass media approaches will be essential to reaching girls and parents.
- **Advocacy.** The project team is also working with the MOH immunization unit and advisory committees to sustain momentum and catalyze leadership that supports improved cervical cancer prevention. Research results indicate that evidence on the burden and seriousness of cervical cancer in Peru and alignment with Peru's overall health priorities should resonate with national and regional policymakers. The team also plans to stimulate political will for reaching young adolescents with additional, beneficial health interventions.

Translating strategy into action

The demonstration project began vaccinations in Peru on May 9, 2008, with Hernán Garrido-Lecca, Peru's Minister of Health, signaling support from the highest levels of Peru's public health system. As of this writing, girls enrolled in the demonstration project have received the first two doses of the three-dose vaccine. Emerging data suggest reasonably high levels of vaccine coverage and acceptance.

The findings from all four countries in which PATH is piloting vaccine introduction—expected in 2010—should help provide an evidence base for governments considering when and how to incorporate HPV vaccination into a comprehensive cervical cancer prevention program. When combined with prevention strategies that include cervical cancer screening and precancer treatment, evidence-based HPV vaccination programs could reduce rates of

cervical cancer deaths in the developing world to the low levels already observed in most industrialized countries.^{3,4} ■

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PATH



More than 2,500 women in Peru die from cervical cancer each year. PATH's demonstration project is vaccinating girls against human papillomavirus, the primary cause of the disease, throughout Peru as well as in India, Uganda, and Vietnam.

Protecting young children from diarrheal disease, *from page 1*

Developing and implementing complementary interventions

PATH has worked fervently to refocus global attention on diarrheal disease. Through our Enhanced Diarrheal Disease Control Initiative, we have partnered with communities, governments, and nongovernmental organizations (NGOs) in hard-hit countries to inform strategic planning, increase access to new technologies and interventions, and promote use of proven prevention and treatment options. Spanning from technologies to behavior-based interventions, our work has featured collaboration with a range of public- and private-sector partners.

Health technologies

PATH's effort to use technology to reduce the impact of diarrheal disease ranges from developing vaccines to ensuring safe water supplies to inventing low-cost diagnostic tests. For example, we are:

- Accelerating the availability of current rotavirus vaccines in developing countries and conducting clinical trials to evaluate their performance in Africa and Asia (see sidebar).
- Working with manufacturers in China, India, and other emerging countries to develop new rotavirus vaccines that are safe, effective, and affordable.
- Collaborating with private- and public-sector partners to develop vaccines against the leading bacterial causes of diarrhea, *Shigella* and enterotoxigenic *Escherichia coli*.
- Teaming with commercial partners in Cambodia, India, Vietnam, and other countries to disseminate and improve at-home water treatment and safe storage products for low-income households.

- Assisting in the commercialization of an inexpensive handheld device for quick and easy testing of water quality.
- Working with partners to develop a disposable diagnostic card, or "lab-on-a-card," as a rapid, easy-to-use, and low-cost tool for detecting diarrhea-causing pathogens.

Health systems and behaviors

PATH also provides direct technical assistance to countries to curb diarrheal disease, and we contribute to important multilateral efforts. For example, we are:

- Helping countries increase use of improved oral rehydration solution and zinc treatment.
- Participating in the World Health Organization's Household Water Treatment and Safe Storage

Network, a collaboration between government, private companies, 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 US and global commitment to improve children's health in developing countries.

Because inappropriate infant and young child feeding practices contribute to mortality from diarrheal disease, PATH is working in many countries to change behaviors related

Accelerating access to rotavirus vaccines

Globally, more than 500,000 children die each year from dehydration due to rotavirus infection, and 2 million more are hospitalized.³ Although infection is common among children worldwide, almost all deaths occur in the world's poorest countries because of limited access to simple, lifesaving care.

PATH's Rotavirus Vaccine Program—a partnership with the World Health Organization (WHO) and the US Centers for Disease Control and Prevention—was established in 2003 with funding from the GAVI Alliance. This partnership has contributed a number of important achievements, including:

- Establishing and expanding worldwide surveillance networks, in collaboration with developing countries, to gather critical information on rotavirus disease burden.
- Conducting clinical trials, in collaboration with vaccine manufacturers, to evaluate vaccine efficacy and safety in several countries in Africa and Asia. Results expected in 2009 will inform WHO recommendations on global use.
- Recruiting powerful partners with a broad interest in child survival to help address specific country needs.
- Providing crucial information to shape policy decisions about rotavirus vaccines at both the global and national levels.
- Generating renewed interest in delivering much-needed interventions against diarrheal disease that will save the lives of children.

To learn more about the program, visit www.rotavirusvaccine.org.

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 launched the Enhanced Diarrheal Disease Control Initiative as a resource for public, private, and community leaders to advance the spectrum of interventions to control diarrheal disease. As part of this initiative, we developed an online library (www.eddcontrol.org) that brings together information and guidelines, in multiple languages, on new and existing interventions. The initiative has addressed both clinical and community barriers to diarrheal disease control, increased the knowledge base on diarrheal disease, coordinated with the public and private sectors, and established linkages among development partners. The approach is being successfully implemented in Africa, Asia, Eastern Europe, and Latin America.

In Nicaragua, for example, PATH joined with the Ministry of Health (MOH); NicaSalud, a coalition of local NGOs; UNICEF; and others to train health workers to provide zinc treatment and new low-osmolarity oral rehydration solution. A parallel project by Merck & Co. and the MOH resulted in the launch and widespread use of rotavirus vaccine, which reached nearly 80 percent of eligible children in the first year.

In Kenya, PATH piloted a community-based approach that includes holding workshops on practical methods to increase rates of breastfeeding, use of oral rehydration solution, zinc treatment, and proper hygiene. The learnings from this project will be integrated into Kenya's National Diarrheal Disease Control Framework. In the Republic of

Georgia, PATH has similarly worked with the MOH to develop diarrheal disease control strategies, strengthen rotavirus surveillance, and train health workers on diarrheal disease management and guidelines.

In Vietnam, we are helping strengthen national policies and update clinical guidelines to inform a pilot project in Binh Dinh province to scale up use of zinc and low-osmolarity oral rehydration solution. The experience in Binh Dinh will influence national planning, and Vietnam's efforts may serve as an example to other countries in the Mekong region.

Looking ahead

In the coming year, much-anticipated results of clinical trials in Africa and Asia will potentially expand use of existing rotavirus vaccines in developing countries. Simultaneously, PATH will push forward on development of new, low-cost vaccines against rotavirus, *Shigella*, and enterotoxigenic *Escherichia coli* and expand our enhanced approach to diarrheal disease control to additional countries. We will further advance technologies to improve access to clean water and to rapidly identify pathogens in low-resource settings, and we will continue to promote behaviors to reduce the impact of diarrheal disease. Through all of these efforts, PATH will help to reenergize and strengthen the global response to a persistent and deadly health threat affecting the most vulnerable among us. ■

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Diarrheal disease

Primary project names

Advancing Rotavirus Vaccine Development, Enteric Vaccine Initiative, Rotavirus Vaccine Program

Locations

Global

Methods

Advocacy, behavior change communication, clinical trials, disease surveillance, public-private partnerships, systems strengthening, technical assistance, technology development, vaccine development

Partners

ACE BioSciences; Bharat Biotech International Ltd.; China National Biotech Group's Wuhan Institute of Biological Products; Department of Biotechnology, Government of India; EndoLogics, Inc.; GlaxoSmithKline Biologicals; Merck & Co.; Murdoch Childrens Research Institute; National Institute of Immunology (India); Shantha Biotechnics Ltd.; Society for Applied Studies; Tulane University; US Centers for Disease Control and Prevention; US National Institutes of Health; World Health Organization

Funders

Bill & Melinda Gates Foundation, GAVI Alliance, US Agency for International Development, US National Institutes of Health, World Bank

For more information

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Global health resources on the web

In 2008, PATH redesigned our primary website (www.path.org) to serve our audiences better, and we improved the Vaccine Resource Library (see below), an easy-to-use site that collects and serves up the world's best immunization resources. In addition, we offer a variety of high-quality, specialized websites on global health.

Cervical cancer

RHO Cervical Cancer (www.rho.org) is a clearinghouse for cervical cancer resources from the world's leading experts and organizations.

Diagnostic tests

RDT Info (www.rapid-diagnostics.org/index.htm) provides information about rapid diagnostic tests for health managers and decision-makers in developing countries. A new website for our **Center for Point-of-Care Diagnostics** (www.path.org/dxcenter) encourages the development of diagnostic tests for low-resource settings.

Diarrheal disease

Our resource center for enhanced diarrheal disease control (www.eddcontrol.org), created in collaboration with UNICEF, highlights proven interventions for combating diarrheal disease.

Immunization

The **AIM e-Learning Tool** (<http://aim.path.org>) is a suite of online modules for senior managers of immunization programs. Materials are available in Chinese, English, French, Indonesian, and Russian.

Malaria

The **PATH Malaria Vaccine Initiative** (www.malariavaccine.org) provides updates on promising malaria vaccines. The **MACEPA Learning Community** (www.macepalearningcommunity.org) website presents lessons learned on malaria control in African countries.

Postpartum hemorrhage

Postpartum Hemorrhage Prevention (www.pphprevention.org) offers tools, research, and data to support global efforts to reduce postpartum


hemorrhage, the major cause of maternal deaths worldwide.

Violence prevention

The **InterCambios Alliance** (www.alianzaintercambios.org) provides resources for responding to gender-based violence. The site is available in English and Spanish.

For more information on our work and web resources, or to sign up for any of our e-newsletters, please visit "For our colleagues," on the PATH website, www.path.org.

PATH launches new Vaccine Resource Library

 www.path.org/vaccineresources

PATH is pleased to announce the launch of its redesigned and upgraded Vaccine Resource Library (VRL). The VRL seeks to gather the leading immunization resources in a single, easy-to-use website.

The VRL offers a variety of high-quality, scientifically accurate documents and links on specific diseases and topics in immunization. The resources are organized in a web-based database that provides a number of ways to view information and access content. Materials on the site are collected from a variety of sources and address subjects ranging from diseases and vaccines such as influenza, hepatitis B, and rotavirus to related immunization topics such as injection safety, service delivery, and immunization financing.

The VRL is geared to health professionals in the developing and industrialized worlds as well as journalists, policymakers, community leaders, parents, and others interested in vaccine-related resources.

Visit PATH's new Vaccine Resource Library at www.path.org/vaccineresources.

PATH is an international, nonprofit organization that creates sustainable, culturally relevant solutions that enable communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, we help provide appropriate health technologies and vital strategies that change the way people think and act. Our work improves global health and well-being. For more information, please visit www.path.org.

Directions in Global Health shares information about PATH's programmatic work with colleagues around the world. To subscribe, please send your contact information to publications@path.org. To learn more about PATH's work or sign up to receive email updates, contact the publications team by email (publications@path.org) or regular mail (PATH, 1455 NW Leary Way, Seattle, WA 98107, USA).

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