

Tackling noncommunicable diseases

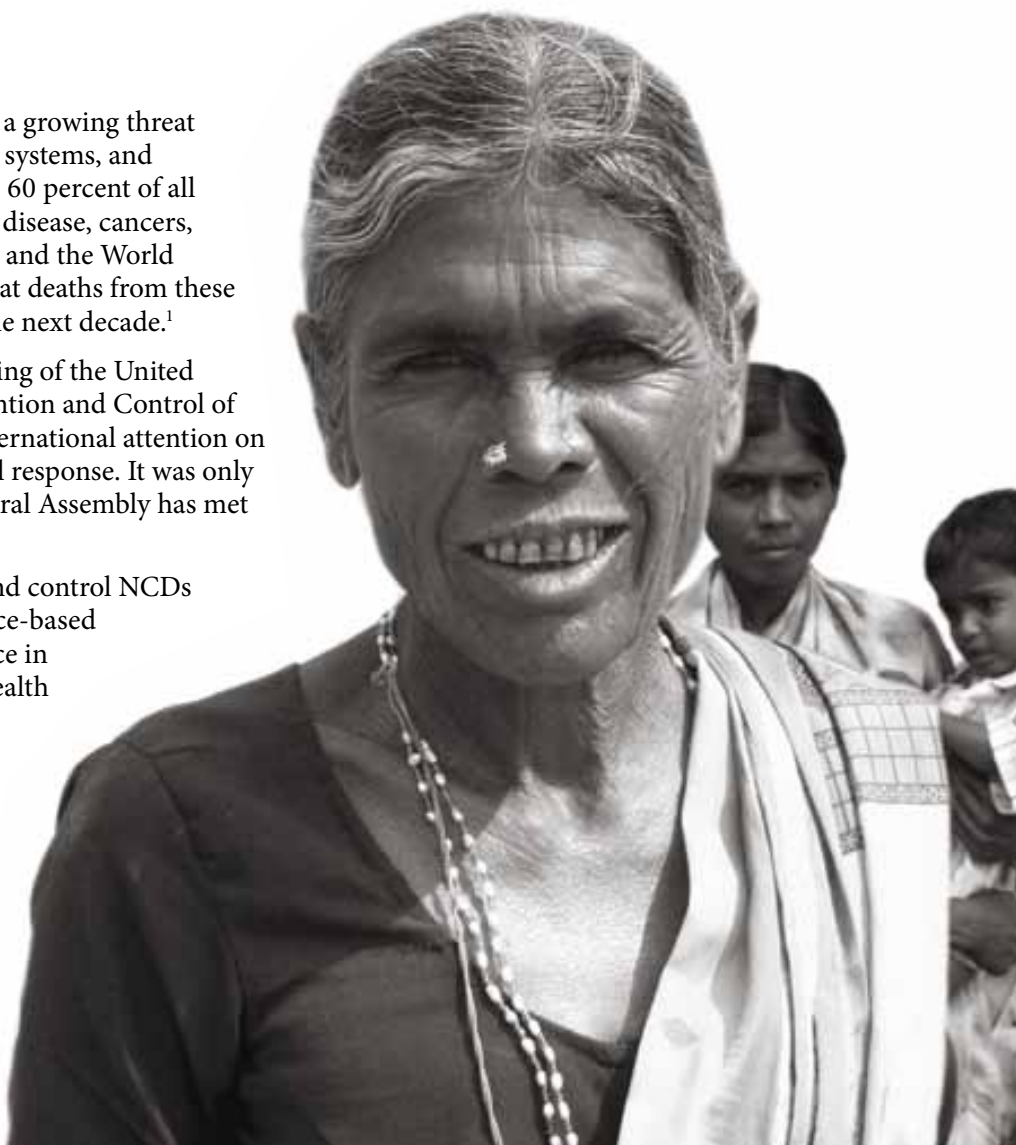
PATH's approach emphasizes innovation, collaboration, and prevention

Noncommunicable diseases (NCDs) are a growing threat to individuals, communities, health care systems, and economies around the world. More than 60 percent of all deaths are attributable to cardiovascular disease, cancers, chronic respiratory illness, and diabetes, and the World Health Organization (WHO) projects that deaths from these NCDs will increase by 17 percent over the next decade.¹

In September 2011, the High-Level Meeting of the United Nations General Assembly on the Prevention and Control of Noncommunicable Diseases focused international attention on the need for a coordinated, multisectoral response. It was only the second time in history that the General Assembly has met on a health issue.

PATH is helping to prevent, diagnose, and control NCDs in low-resource settings through evidence-based solutions. We are applying our experience in reproductive health, behavior change, health system strengthening, and technology development and introduction to tackle NCD-related challenges. A new and growing portfolio of diabetes projects complements our long history of work on cervical and breast cancer.

Continued on page 10



PATH/Satvir Malhotra

Country programs

Project names

AIDS, Population, and Health Integrated Assistance *plus*; AIDS Response in Forces in Uniform Project; Enhanced Diarrheal Disease Control Initiative; Health Care Waste Management Project; HIV-Free Generation, Kenya; Regional Outreach Addressing AIDS Through Development Strategies II Project; Safe Water and AIDS Project; Sweetpotato Action for Security and Health in Africa

Location

Kenya

Methods

Behavior change communication, health system strengthening, monitoring and evaluation, technology development and introduction

Partners

Elizabeth Glaser Pediatric AIDS Foundation, FHI 360, GBCHealth, International Potato Center, Jhpiego, Kenya Ministry of Health, World Vision, and others

Funders

Bill & Melinda Gates Foundation, Nike Foundation, US Agency for International Development, US Centers for Disease Control and Prevention, and others

For more information

Please contact Rosemarie Muganda-Onyando, deputy country leader, at rmuganda@path.org.

Reaching a milestone in Kenya

PATH celebrates 20 years of providing new approaches and technical expertise to address urgent health issues

FOR TWO DECADES, PATH HAS HELPED Kenya's health care sector improve services and strengthen community networks while empowering Kenyans to adopt healthier lifestyles. Because half of Kenya's population is under 25 years old and HIV infection is pervasive, our Kenya program has built core strengths in adolescent and reproductive health and in programming to address HIV and AIDS. Kenya is home to PATH's largest country program.

Much of our current work in Kenya focuses on integration of services for better outcomes (see related article on page 8). Our collaborative projects now reach millions of Kenyans.

Harnessing the power of innovation

To improve the health of pregnant women and young children, PATH initiated a groundbreaking collaboration with the International Potato Center and local agricultural organizations in western Kenya. This unique multisectoral project links agriculture and nutrition interventions to health services. Pregnant women who visit targeted health clinics receive nutrition counseling and vouchers for vines they can plant to grow sweetpotatoes, a good source of vitamin A for optimal maternal and child health. We are assessing the impact on newborns and their mothers.

We are also working to establish safe, environmentally friendly, and sustainable medical waste management systems to prevent biomedical transmission of HIV and



PATH/Wendy Stone

Improving nutrition and preventing diarrheal disease among young children are critical parts of PATH's work in Kenya.

other bloodborne pathogens. This novel, integrated project has three main components:

- Strengthening the health care waste management system.
- Increasing capacity in procurement and commodity management systems.
- Encouraging behaviors among health workers and community members to reduce unnecessary use of injections and promote safe disposal of medical wastes.

To prevent waterborne illness, we are increasing access to safe water for vulnerable groups, such as those with HIV/AIDS. Our innovative approach includes testing the potential of distributing ceramic water filters as part of a "basket of goods" business model. We train local vendors to sell the water filters

along with health products such as sanitary pads, soap, and condoms.

In conjunction with the Global Campaign for Microbicides, housed at PATH, we are accelerating development of and access to vaginal microbicides and oral pre-exposure prophylaxis to prevent HIV infection in Kenya, especially among women. This includes partnering with potential users to identify and address practical issues related to products and with policymakers and standards agencies to ensure that prevention tools reach communities most vulnerable to HIV.

A community-focused, user-driven search for solutions

Because diarrheal disease is one of the top killers of young Kenyan children, PATH has helped develop and revise national diarrheal disease control plans to ensure rapid uptake of new prevention and treatment interventions and reinforce the use of established interventions. We train health care workers and community members to use oral rehydration therapy and other methods to reduce diarrheal disease. We also create special areas in hospitals where mothers can access these lifesaving treatments for their children.

To improve health care for uniformed, nonmilitary forces and their families, we have increased access to tuberculosis and HIV/AIDS services among police and wildlife officers and other groups. Our technical and financial assistance enables each uniformed service to:

- Better manage and facilitate the delivery of high-quality HIV services.
- Strengthen health systems and scale up integrated service delivery.
- Expand coverage of innovative, evidence-based approaches to promote healthy behaviors.

- Strengthen the framework for tracking progress and demonstrating results.

Another HIV prevention project uses targeted communication campaigns and educational programs to help truckers and other highly mobile populations make smart choices about sexual behavior to protect themselves and their families from HIV. PATH leads the strategic communication interventions for this project, which began in Kenya and now covers the main transportation corridors throughout East Africa.

Scaling up work for greater impact

PATH also leads East Africa's largest integrated health project, designed to improve health services for 10 million people in Nyanza and Western provinces. Launched in 2011, the AIDS, Population, and Health Integrated Assistance *plus* project (APHIA*plus*) is a five-year effort to integrate services for HIV/AIDS, tuberculosis, malaria, and maternal and child health. APHIA*plus* also addresses circumstances that affect health, such as poverty, lack of education, the environment, and sociocultural norms.

To accelerate national HIV prevention efforts, PATH is building and supporting a self-sustaining, independent entity known as the Partnership for an HIV-Free Generation, Kenya. The group's goal is to inspire and provide opportunities for youth to live healthy and productive lives. We join with both private- and public-sector organizations to create and expand effective programs targeting youth 10 to 24 years of age. In partnership with GBCHealth, we are implementing a mass media campaign based on an iconic youth lifestyle brand known as G-PANGE.

Dedication to sustainability

Through innovative, integrated approaches tailored to local needs, PATH has helped to improve health outcomes in Kenya for two decades. We are now taking lessons learned and extending our work to additional geographic areas and concerns. Through collaboration with public and private partners in multiple sectors, we aim for sustainable impact at scale across the spectrum of Kenya's health issues. ■

Documented success in program integration

From 2006 through 2010, PATH led the AIDS, Population, and Health Integrated Assistance II project (APHIA II) in Kenya's Western Province. Results of cross-cutting interventions to address high-priority health concerns included:

- Reaching nearly 1.5 million people with HIV testing and counseling services.
- Achieving an 80 to 100 percent increase in the number of HIV-positive pregnant women who visited prenatal care clinics and enrolled in programs to prevent mother-to-child transmission.
- Reaching 442,000 people with innovative weekly radio programming on family planning, gender violence, reproductive health, tuberculosis, malaria, and other topics.

PATH's work on APHIA II laid the foundation for APHIA*plus* in Western and Nyanza provinces.

Influenza

Improving influenza control

PATH supports capacity-building in Vietnam and Senegal

Project names

Enhancing Influenza Vaccine Production, Influenza Surveillance and Vaccine Effectiveness

Locations

Senegal, Vietnam

Methods

Clinical trials, disease surveillance, regulatory approval processes, technical assistance, vaccine development and introduction

Partners

Institut de Recherche pour le Développement (Senegal), Institut Pasteur de Dakar (Senegal), Institute of Vaccines and Medical Biologicals (Vietnam); ministries of health, Senegal and Vietnam; World Health Organization

Funders

Biomedical Advanced Research and Development Authority within the US Department of Health and Human Services, US Centers for Disease Control and Prevention

For more information

Please contact Lauren Newhouse, senior communications associate, at lnewhouse@path.org.

COLLABORATING WITH COUNTRIES

to strengthen their capacity to develop and introduce health solutions is a critical element of PATH's work. This includes enhancing skills and infrastructure for clinical trials, helping developing-country manufacturers meet international standards for health products, and generating the information needed to make critical public health decisions.

One example is our work in Vietnam to facilitate the production of high-quality influenza vaccines. Heightened capacity in Vietnam to manufacture these vaccines will improve global responsiveness to future influenza pandemics as well as increase local and regional vaccine supplies. Another example is our work in Senegal to better understand influenza circulation and vaccine effectiveness to inform control strategies in tropical, low-resource settings.

A strong foundation for providing support

PATH's support of country capacity-building is grounded in our own work to advance vaccines and other health products through all stages of the development and introduction process. The PATH Malaria Vaccine Initiative, for instance, has partnered with GlaxoSmithKline Biologicals and Africa-based research institutions to conduct large-scale clinical trials, with promising results.¹ The Meningitis Vaccine Project, a collaboration of PATH and the World Health Organization (WHO), has coordinated multicountry trials,

manufacturing, and regulatory approvals for a meningococcal A conjugate vaccine recently introduced in Africa's meningitis belt.² Other products developed or advanced by PATH include stickers to monitor exposure of vaccine vials to potentially damaging heat, autodisable syringes to prevent use of contaminated needles, and technologies to expand contraceptive options.

Facilitating influenza vaccine production in Vietnam

Seasonal influenza causes 250,000 to 500,000 deaths and up to 5 million cases of severe illness each year.³ A pandemic with a highly virulent influenza strain could kill millions. The influenza A(H1N1) pandemic of 2009 highlighted the importance of expanding vaccine production to address emergency needs, particularly in low-resource countries. Current influenza vaccines are difficult to produce rapidly in large quantities, and participation of many vaccine suppliers is vital to meeting demand.

Vietnam is one country with untapped potential to manufacture affordable, accessible influenza vaccines. Although Vietnam has a population of more than 80 million, it has had no local source of vaccine for seasonal outbreaks or pandemics.

PATH is working hand-in-hand with the government of Vietnam and other groups to establish independent, sustainable production of high-quality influenza vaccines in this Southeast Asian nation. This project—fully funded by the Biomedical Advanced Research and

Development Authority (BARDA) for US\$7.9 million—builds on support that BARDA is providing to WHO to prepare Vietnam and other countries for eventual licensure and commercial-scale manufacturing of influenza vaccines.

Over the past year, PATH has partnered with the Institute of Vaccines and Medical Biologicals of Vietnam, a state-run vaccine developer, to prepare its factory to manufacture influenza vaccines that meet international quality standards. The factory was recently built with support from WHO and other international partners. PATH has also worked with the ministry of health to establish policies and guidelines for developing, producing, and using these vaccines. Our collective goal is to advance locally produced influenza vaccine candidates through the clinical development process and to have a sustainable plan for vaccine use in Vietnam.

Enhancing influenza control and surveillance in Senegal

Existing influenza vaccines have not been well studied or used extensively in tropical countries, including most African nations. Also, little is known about the burden of influenza in these areas.

PATH has partnered with the Institut de Recherche pour le Développement and the Institut Pasteur de Dakar to assess influenza vaccine effectiveness in Senegal and to better understand influenza disease burden so public health officials can design optimal control strategies. This work—funded by the US Centers for Disease Control and Prevention (CDC) and cooperatively designed with CDC influenza experts—includes a large-scale study of the effectiveness of a previously approved, seasonal influenza vaccine among Senegalese children. In each year of the three-year project, about 9,000 children from randomly

selected villages in two districts were vaccinated with either an inactivated influenza vaccine or a beneficial control vaccine. The study will determine whether the influenza vaccine that has already proven safe and effective for children in other countries will protect children in sub-Saharan Africa.

As part of this project, researchers are conducting surveillance in Senegal to measure rates of influenza, including severe disease, and assess whether vaccinating children (the suspected main transmitters of influenza) will reduce disease in the rest of the community. Results will show whether a strategy focused on immunizing children will provide good protection for the community at lower cost than a more widespread immunization campaign.

Models for the future

PATH's collaborative work in Vietnam may serve as a model for establishing local production of influenza vaccines in developing countries. The project will report on lessons learned in Vietnam that may enhance vaccine development standards and clinical trial pathways in other nations with the potential to start new vaccine development and production programs. At the same time, new data on influenza disease burden and vaccine effectiveness in Senegal may help public health leaders in other tropical countries decide how to best use influenza vaccines.

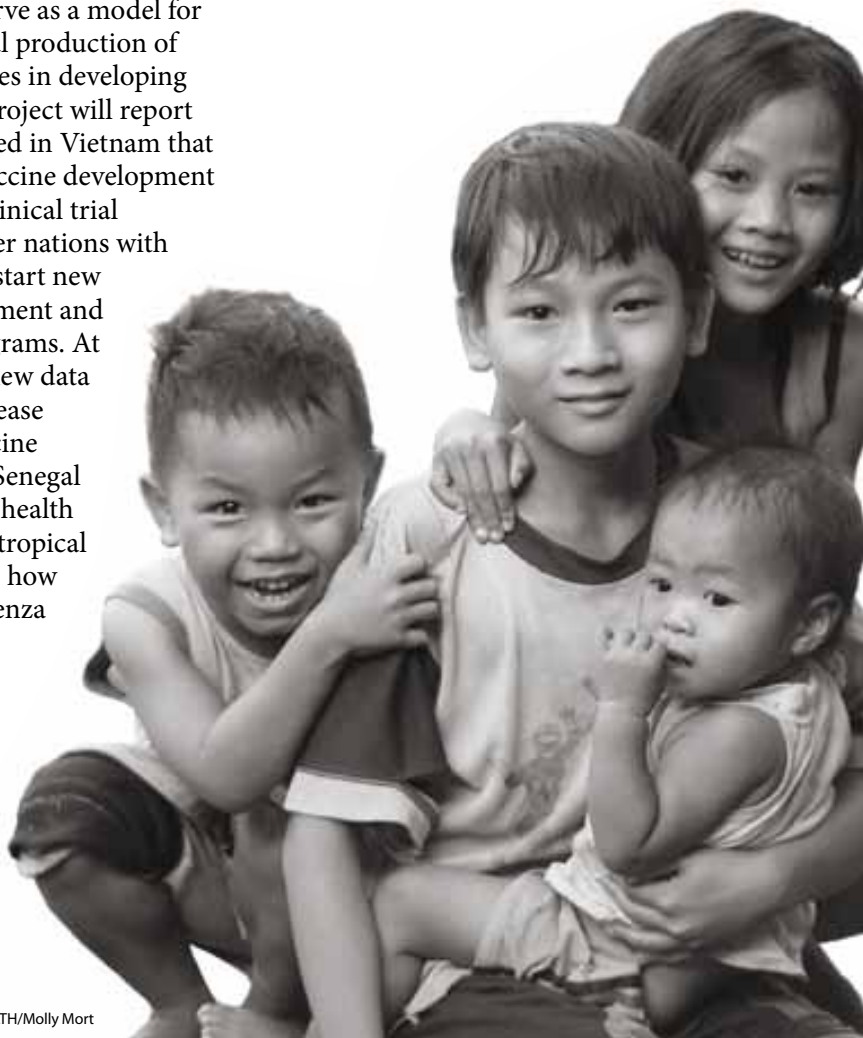
With PATH's support in a number of technical areas, developing countries are enhancing their

abilities to improve the health of their own citizens and of people in surrounding regions. Our partnerships to build global capacity for influenza control are also helping to protect people around the world from influenza outbreaks, including the next highly virulent pandemic. ■

REFERENCES

1. RTS,S Clinical Trials Partnership. First results of phase 3 trial of RTS,S/AS01 malaria vaccine in African children. *New England Journal of Medicine*. 2011;365:1863–1875.
2. Laforce FM, Okwo-Bele JM. Eliminating epidemic group A meningococcal meningitis in Africa through a new vaccine. *Health Affairs*. 2011;30(6):1049–1057.
3. Murray CJ, Lopez AD, Chin B, Feehan D, Hill KH. Estimation of potential global pandemic influenza mortality on the basis of vital registry data from the 1918–20 pandemic: a quantitative analysis. *The Lancet*. 2006;368(9554):2211–2218.

Young Vietnamese children will be better protected from influenza with local production of vaccine.



Behavior change

Project name

Breaking Gender Barriers

Locations

China

Methods

Advocacy, behavior change communication, capacity-building, operations research

Partners

China Family Planning Association, Kenya Scouts Association

Funder

Nike Foundation

For more informationPlease contact Lisa Mueller, program officer, at lmuel@path.org.

Educational sessions for young Chinese men challenged gender norms that can lead to negative health outcomes and behaviors.



Breaking gender barriers

Intervention with young men helps to improve gender equity and health in China

FOR MORE THAN HALF A CENTURY, Chinese laws have promoted and guaranteed gender equality, offering women and girls a chance to participate in the political process and attend school. Key gender issues remain, however. These include the feminization of poverty, income gaps and discrimination in hiring and firing, and high levels of reported gender-based and domestic violence.^{1,2}

Through education sessions with students and factory workers in Chongqing, China, and a corresponding communications campaign, PATH's Breaking Gender Barriers project worked with almost 6,000 young men, ages 15 to 24 years, to challenge gender norms that can lead to negative health outcomes. The project led to measurable improvements in attitudes and behaviors related to violence, sexuality, and relationships.

Engaging students and workers

With input from local stakeholders, PATH developed a training manual for use in China.³ We also taught vocational school teachers and staff from affiliates of the China Family Planning Association (CFPA) to facilitate gender-focused education sessions. Facilitators led participatory sessions with male students from three schools and young employees from a large group of factories. Through a group CFPA formed by using free instant messaging, facilitators exchanged ideas and articles about reproductive health.

Participating students and workers discussed topics such as gender and

power, sexuality, violence, healthy relationships, sexually transmitted infections and HIV, and fatherhood. After completing a set of sessions, they received a statue with the inscription "Real Man, Confident Man," indicating their willingness to change their behaviors in support of gender equity.

Communications to create a supportive environment

In addition to holding education sessions, the project developed and distributed communications materials, including towels, T-shirts, reusable bags, and umbrellas, with messages promoting equity between men and women. Key messages were reinforced through posters, billboards, tabletop displays, leaflets, and announcements posted at factories and schools.

To increase local ownership by CFPA affiliates, schools, and workplaces, the project worked continuously to sensitize stakeholders to the importance of addressing gender equity. By coordinating advocacy campaigns with CFPA events, gender messaging became part of a citywide effort to promote healthy behaviors for improved reproductive health.

Overcoming challenges to reach factory workers

Factory workers were more difficult to reach than students because of the workers' busy production schedules, high turnover rates, and sensitivity to discussing sex-related topics with co-workers. The project ultimately reached 1,543 factory workers, as well as 4,362 students.

PATH used several approaches to reach young men in the workplace. Factory managers learned about content by observing sessions or through other project advocacy efforts and then encouraged their employees' participation. Trained workers shared targeted messages with fellow employees. Facilitators led voluntary sessions at a nearby Internet café, and some conducted sessions during factory downtime or when workers finished early.

Documentation of effectiveness

PATH surveyed participants before and after the intervention to assess changes in attitudes and behaviors. Investigators used the Gender Equitable Men (GEM) Scale—a proven tool for assessing attitudes toward gender norms related to violence, sexuality, and relationships⁴—to quantify results. GEM Scale scores improved significantly for both students and workers, both on individual survey items and when the items were combined into the full scale. For example, the percentage of respondents who disagreed with the statement that “women should get paid less than men for doing the same work” rose from 63 to 83 percent among students and from 31 to 51 percent among workers. The proportion who disagreed with the statement that “women who dress sexy are ‘asking’ to be harassed” increased from 69 to 88 percent among students and from 32 to 60 percent among workers. The number who said they verbally or physically abused their partners decreased from 11 to 3 percent among students and from 25 to 11 percent among workers.

Nearly all participants indicated that they felt the program was useful. The evaluation also revealed that receiving an award was an incentive to participate, though it was not the main reason for participation.

During postintervention focus group discussions, some participants

Changing gender norms in Kenya

In Kenya's Coast Province, PATH collaborated with the Kenya Scouts Association and local government agencies to use innovative approaches to reach Scouts, Scout leaders, and other community members with critical information about gender norms and gender-based violence. One approach included the creation of a “gender equity badge” for Scouts. To earn the badge, girls and boys completed a series of gender-related educational and skill-building activities, and they participated in activities normally reserved for the opposite gender. For example, girls earned a “jobman” badge, which required them to work on a series of minor construction activities, and boys earned a babysitting badge.

PATH also created SAGE teams—Supporters and Actors of Gender Equity—through partnerships with 67 community-based organizations. By leading structured community dialogues on values, gender, sexuality, and gender-based violence, these teams built a supportive environment in which Scouts could practice the new behaviors they learned during other project activities.

suggested including women and girls in future interventions, as well as discussions about women's health and legal issues related to gender equity, violence, and conflict resolution. Facilitators suggested reaching out to younger age groups to begin a dialogue about sex, reproductive health, and gender norms before students form relationships and set attitudes about these topics.

The number of young men who reported abusing their female partners declined substantially after training.

Expanding equity

This unique gender-focused project in China provided male vocational students and factory workers with the knowledge and skills needed to become supportive companions to the women and girls in their lives. Documented changes in young men's attitudes and behaviors will contribute to better health outcomes, such as by reducing the risk of gender-based violence and sexually transmitted infections.

National and local leaders are already building on the project's accomplishments. For example, the Family Planning Association in Yuzhong, a neighboring district, included participatory teaching methods and reproductive health and HIV content in its youth program, and the CFPA integrated similar content into two of its national youth health projects. In Chongqing, many schools and teachers are continuing to carry out the intervention with additional students, even after formal completion of the PATH project. ■

REFERENCES

1. World Bank. *China Country Gender Review*. Beijing: World Bank East Asia Environment and Social Development Unit; 2002.
2. Lin T, Yongping J, Xiuhua J. *China's Gender Equality and Women's Development Report 1995-2005*. Beijing: Social Sciences Academic Press; 2006.
3. *Breaking Gender Barriers: Gender and Health Project with Young Men in China Facilitator Manual* was adapted from two manuals: (1) *Engaging Boys and Men in Gender Transformation: The Group Education Manual*, a 2008 publication by The ACQUIRE Project/Engender Health and Promundo, and (2) *SpringBud Healthy Development Project Life Planning Skills Training Manual*, a 2006 publication by PATH, the China Women's Federation, and the Guangxi Zhuang Autonomous Region Children's Foundation.
4. Pulerwitz J, Barker G. Measuring attitudes toward gender norms among young men in Brazil: development and psychometric evaluation of the GEM Scale. *Men and Masculinities*. 2008;10(3):322–338.

Health system strengthening

Project name

Integrated health services

Location

Global

Methods

Capacity-building, demonstration projects, health system strengthening, technical assistance, training

Partners


Elizabeth Glaser Pediatric AIDS Foundation; International Potato Center; local nongovernmental organizations; Ministry of Agriculture, Kenya; ministries of health of Kenya, Tanzania, and Vietnam (community, district, provincial, regional, and national levels); National Pediatric Hospital, Vietnam

Funders

Bill & Melinda Gates Foundation, US Agency for International Development

For more information

Please contact Dr. Jacqueline Sherris, vice president for global programs, at jsherris@path.org.

 Read more about PATH's work in integrated health services at www.path.org/publications/detail.php?i=2022.

Integrating health services

A coordinated approach to services improves health and strengthens systems



PATH/Wendy Stone

Maternal and child health services in Kenya have been integrated with HIV care to improve outcomes.

THE HEALTH NEEDS OF INDIVIDUALS and families are complex and often interconnected. Many people with HIV also have tuberculosis (TB). Pregnant women who need antenatal care also may benefit from nutrition services, and some may also need HIV care and treatment.

Yet health services and systems often focus on specific health issues rather than providing a continuum of services to meet a range of related health needs. Although experts have long advocated for better coordination of health services—for example, using a patient's visit to a health center to address multiple health and social concerns—progress on integration of services has been slow.

PATH is playing an important role in overcoming barriers to health services integration and

using our integration projects to demonstrate the benefits, such as greater efficiency and impact for health programs and services, more cost-effective use of health resources, and a more seamless health care experience for patients.¹ We have developed a new framework to guide our growing focus on integration of services as a strategy for improving health. Our approach builds on natural connections between health issues and services in our work around the world.

Integration at four levels

PATH develops integrated programming across as many as four levels of a country's health framework:

- **Facilities and communities.** Integration at this level means a focus on client-centered services,

such as expanded clinic hours, better referral systems, or greater access to treatments or other interventions to improve care.

- **Health organizations and agencies.** PATH works with ministries of health, nongovernmental organizations, and private-sector agencies to change how services are delivered and how money, time, and other resources are allocated.
- **Health systems.** PATH works on broader governance and capacity issues, engaging stakeholders at the national level on coordinated policies, processes, and infrastructure to support integrated programming.
- **Development sectors.** Integrated health services may involve sectors outside the health system. PATH's integration work may involve the educational system to administer vaccines through schools, for example, or the agricultural sector to lead programs addressing malnutrition.

At every level, coordination and planning are critical for making a smooth transition to integrated health services. Integration requires a careful look at budgets, staffing, training, community outreach, referral mechanisms, and other essential ingredients of successful programming.

Combining care and treatment for maternal and child health and HIV

Our work in Kenya provides one example of integration. Antenatal care programs in Kenya's government hospitals test nearly every pregnant woman for HIV. But until recently, only one-quarter of those identified as HIV positive were being successfully enrolled in follow-up treatment and care provided by separate HIV care centers. PATH worked with partners at the community and health organization levels to use maternal and child health clinics as the point

of entry for HIV-related services, smoothing the transition to HIV care and treatment for women and their families.

Maternal and child health providers received training in HIV care and treatment from the Ministry of Health, supported by PATH. Clinicians from HIV care centers and district health officials provided mentorship and supervision. Staff in maternal and child health consulting rooms received stocks of antiretroviral and other drugs to prescribe to patients, and they coordinated with HIV care centers on tools to track patients and medications.

This approach also opened the door for infants to receive more comprehensive HIV care and treatment, including diagnosis at birth, and provided opportunities for testing and treating spouses and family members. After 18 months of postbirth care in the maternal and child health clinic, mothers and their families are referred to the HIV care center for follow-up.

In Vietnam, service integration for child health and diarrheal disease has led to fewer hospital admissions for diarrhea, shorter hospital stays, and reduced use of antibiotics.

PATH's other integration projects include combined HIV/AIDS and TB diagnosis and care in Tanzania; integrated interventions for diarrheal disease and child health in Vietnam; and an approach linking agriculture and nutritional health in Kenya that provides nutrition counseling and plant vouchers for pregnant women so they can grow their own nutrient-rich, orange-fleshed sweetpotatoes.

Evaluating the impact of integration

In Kenya's Western Province, officials have reported an 80 to 100 percent increase in the number of HIV-positive mothers enrolled in follow-up care and an increase in women seeking family planning services. Better coordination has led to better compliance with drug treatment, earlier care for newborns, and new opportunities to promote HIV partner testing and information dissemination. Kenya now has rolled out the model nationally.

In Tanzania, combined TB and HIV services have been introduced at more than 800 public- and private-sector health facilities. In the regions where PATH works, 90 percent of TB patients are now routinely tested for HIV.

In Vietnam, informal evaluations of service integration for child health and diarrheal disease show fewer inpatient admissions for diarrhea treatment, shorter hospital stays, and reduced use of antibiotics to treat bacterial causes of diarrhea. And in Kenya, preliminary data show the orange-fleshed sweetpotato voucher is encouraging more women to start antenatal care earlier than in previous pregnancies.

Paving the way for scale-up

Streamlined, coordinated health services, programs, and systems magnify the impact of limited health resources and of health care providers on the people they serve. PATH is monitoring and evaluating how our integration projects affect health outcomes and sharing the results to demonstrate how integrated health services can be effectively introduced and scaled up in low-resource settings. ■

REFERENCE

1. World Health Organization (WHO). *Integrated Health Services: What and Why*. Geneva: WHO; 2008. WHO Technical Brief No. 1.

Tackling noncommunicable diseases, *from page 1*

Contributing factors and growing international concern

Until recently, chronic diseases such as diabetes have been associated primarily with wealthy nations and their lifestyles. Yet NCDs have become increasingly common in developing countries because of aging populations, changes in diet, tobacco use, and other factors. About 80 percent of the 36 million people who die each year from NCDs live in low- and middle-income countries.¹

The political declaration stemming from September's historic United Nations meeting called for development of national NCD plans by 2013; policy changes and public campaigns to reduce risk factors, such as smoking; and improvements in screening, counseling, and therapy. World leaders also highlighted the need for country-level leadership and new, nontraditional funding. WHO recently proposed a global monitoring framework and set of targets to assess progress in reducing the burden of NCDs.^{2,3}

The skyrocketing prevalence of diabetes is a primary concern. The number of people who have diabetes is projected to increase by 54 percent in the next two decades.⁴ Diabetes also contributes to deaths from cardiovascular disease, the world's leading cause of death, and often co-occurs with infectious diseases such as HIV/AIDS and tuberculosis.

Pursuing innovations in diabetes screening and care

To improve care for people with diabetes, PATH is collaborating with private-sector partners to develop, evaluate, and advance a portfolio of promising health technologies. Potential solutions include diagnostic tests in early phases of development, those on the cusp of commercial availability, and



In Ukraine, public events to raise awareness of breast cancer and advocacy by PATH have helped to change policies and increase use of screening methods.

adaptations of existing tools. We are launching studies of selected screening products in India and Tanzania.

We are also evaluating how the new technologies might fit within the continuum of diabetes care and catalyze broader health system strengthening and behavior change. We recently convened an international diabetes advisory group to discuss these issues. In addition, we are assessing how developing countries can integrate diabetes screening, education, and treatment within existing health care platforms.

Preventing cervical cancer

Cervical cancer kills 270,000 women each year, with more than 85 percent of those deaths occurring in developing countries. Screening women in their 30s and 40s for precancerous and cancerous lesions is critical for preventing deaths among women in the prime of life.⁵ Although widespread use of the Pap test has helped prevent deaths in industrialized nations, use of this

screening tool has been unsustainable in developing countries, which often lack needed equipment and appropriately trained health workers.

PATH was one of the first health organizations to focus on cervical cancer in developing countries in the 1990s. In 2003, we began working with private-sector collaborators to develop two rapid tests for the types of human papillomavirus (HPV) that cause most cervical cancers. The screening tests are safe, accurate, and affordable. We also helped develop the evidence base for a simple visual inspection method so women with limited access to health care facilities can receive screening close to their communities from local health workers.

Between 2003 and 2007, PATH's research partners screened more than 21,000 women in China and India, collected specimens for test development use, and offered free treatment as needed. Feedback from local partners verified that these screening tests are acceptable to women, health care providers, and other stakeholders.

More recently, we have accelerated access to new HPV vaccines, working in four countries to create tailored approaches to vaccine introduction and to provide education and training to families, decision-makers, and health care providers. We have created a set of practical tools that can be adapted by countries interested in introducing the vaccine and have worked with the GAVI Alliance and other groups to address vaccine financing.

In 2011, PATH and our partners completed vaccinations of 57,000 girls in India, Peru, Uganda, and Vietnam against HPV. The demonstration projects showed that HPV vaccination is acceptable and feasible in these areas and that high coverage can be attained through existing immunization programs.

Intervening against breast cancer

PATH has worked since 1997 to prevent deaths from breast cancer. In Ukraine, PATH helped to improve breast cancer detection and treatment by updating clinical facilities, developing patient education materials, and training health care providers. We also introduced the concept of peer support, which has grown into a national federation of survivor groups directly benefiting thousands of women.

Advocacy by PATH contributed to a change in Ukraine's national policy to support the use of clinical breast exams where access to mammography is limited. The percentage of cancers detected by screening has subsequently risen—from 20 to 40 percent in Chernihiv and from 55 to 70 percent in Kyiv between 1996 and 2009.

In Peru, PATH recently launched a community-based program for breast health in response to concerns about the inequitable distribution of screening and diagnostic services. The goal is to help the government

of Peru establish and strengthen innovative and sustainable strategies to reduce the growing burden of breast cancer. With our partners, we are training midwives to do clinical breast exams at health centers, training doctors to evaluate breast problems with fine needle aspiration biopsies, and training community health promoters to educate women about dangerous breast symptoms and the need for annual screening starting at age 40.

A collaborative, entrepreneurial approach to get results

The growing prevalence of NCDs poses a new challenge for developing countries as they confront long-standing issues with infectious diseases and maternal and child health. Effectively addressing NCDs will require even stronger commitment and collaboration to improve health outcomes and facilitate global development.

For more than a decade, PATH has collaborated with private- and public-sector partners to prevent, detect, and treat cervical cancer and breast cancer, and we are now addressing diabetes and other NCDs. By using an entrepreneurial approach to develop and deliver high-impact, low-cost solutions, we will help low- and middle-income countries meet future targets for reducing the toll of these diseases. ■

REFERENCES

1. World Health Organization (WHO). *2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases*. Geneva: WHO; 2008.
2. WHO. *Global Status Report on Noncommunicable Diseases 2010*. Geneva: WHO; 2011.
3. WHO. Proposals on NCD Targets from a WHO Technical Working Group. Available at: www.who.int/nmh/events/moscow_ncds_2011/web_consultation/en/.
4. International Diabetes Federation. *IDF Diabetes Atlas*, 4th ed.; 2009. Available at: www.idf.org/diabetesatlas/.
5. Goldie S, Gaffikin L, Goldhaber-Fiebert J, et al. Cost-effectiveness of cervical cancer screening in five developing countries. *The New England Journal of Medicine*. 2005;353:2158–2168.

Noncommunicable diseases

Project names

Community-Based Program for Breast Health (Peru); Novel, Low-Cost Technical Approaches for Diabetes Screening and Treatment; Screening Technologies to Advance Rapid Testing—Utility and Program Planning (START-UP); Ukraine Breast Cancer Assistance Project

Locations

China, India, Peru, Tanzania, Uganda, Ukraine, United States, Vietnam

Methods

Behavior change communication, capacity-building, education, technology development

Partners

Alliance for Cervical Cancer Prevention, Arbor Vita Corporation, Breast Health Global Initiative, Cervical Cancer Action, International Diabetes Federation, Jhpiego, National Cancer Institute of Peru, Norwegian Cancer Society, Pacific Northwest Diabetes Research Institute, Qiagen Corporation, Union for International Cancer Control, University of Washington, World Health Organization

Funders

Bill & Melinda Gates Foundation, John P. Hussman Foundation, National Institute for Biomedical Imaging and Bioengineering, US Agency for International Development

For more information

Jennifer Drake, senior program associate, at jdrake@path.org.

News and notes

Malaria vaccine candidate provides significant protection

First results from a large-scale phase 3 trial show that the world's most advanced malaria vaccine candidate, called RTS,S, provides young African children with significant protection from the disease. The data, released in October, showed that, among children ages 5 to 17 months, three doses of RTS,S reduced the risk of clinical malaria by 56 percent and severe malaria by 47 percent. The PATH Malaria Vaccine Initiative and GlaxoSmithKline Biologicals are leading the ongoing trial in seven African countries. Further data are expected by late 2012 as RTS,S moves closer to possible licensure and introduction.

Data move SILCS diaphragm closer to market

Results of a contraceptive effectiveness study announced in September show that the single-size, easy-to-use SILCS diaphragm, developed by PATH, provides similar protection to traditional diaphragms. Our research partner, CONRAD, collaborated on the diaphragm's development and led the two-year study of 450 US women. The results provide the final clinical validation of safety and effectiveness needed to pursue regulatory approvals to bring the

PATH website highlights the power of vaccines

Vaccines save the lives of 2.5 million children every year, and they have the potential to save millions more. PATH works across the spectrum of development and delivery to advance new vaccines and get them to the communities where they are most needed. A new section on our website explores how PATH harnesses the power of vaccines, from overcoming the obscurity of rotavirus in Nicaragua to tackling the case of Japanese encephalitis in Asia. Visit www.path.org/power-of-vaccines/ to watch a video about vaccines' potential and learn more about our work in this area.

THE POWER OF VACCINES



PATH/Patrick McKern

diaphragm to developed- and developing-country markets. Read more about the SILCS Diaphragm on our website at www.path.org/projects/silcs.php.

New planning tool for drug-resistant tuberculosis

PATH and the World Health Organization have launched a tool to help countries develop or strengthen a multidrug-resistant tuberculosis (MDR-TB) component within their national TB strategy. The *MDR-TB Planning Toolkit* was developed

with funding from the US Agency for International Development. It is available through PATH's online publications catalog at www.path.org/publications/.

A new voice at PATH: our blog

See what's on our minds in PATH's new blog. The blog features stories and commentary that show how PATH is working to bring health within reach for everyone. It also covers the work of our collaborators and current issues in global health. See www.path.org/blog/.

PATH is an international nonprofit organization that transforms global health through innovation. We take an entrepreneurial approach to developing and delivering high-impact, low-cost solutions, from lifesaving vaccines and devices to collaborative programs with communities. Through our work in more than 70 countries, PATH and our partners empower people to achieve their full potential.

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, visit the PATH website or subscribe to one or more of our electronic newsletters. These include *News From PATH* and several topic-specific e-newsletters. To subscribe, go to www.path.org/sign-up.php#news.

EDITORIAL TEAM: John Ballenot, Emeline Cokelet Meneken, Jolayne Houtz, Lesley Reed

DESIGNER: Patrick McKern

CONTRIBUTORS: Jennifer Drake, Lisa Mueller, Rosemarie Muganda-Onyando, Lauren Newhouse