

DIRECTIONS

I N G L O B A L H E A L T H

AUGUST 2005 VOLUME 2, ISSUE 2



INSIDE:

Vitamin A deficiency	2
Vulnerable populations	4
Rapid syphilis tests	6
Home-based care	8

Reaching youth in Africa

Alliance engages adolescents in and out of school

Access to reproductive health information and services for young men and women is crucial in reducing the estimated 7,000 HIV infections that occur each day and 15 million early pregnancies that occur each year among adolescents.¹ Given the additional tools offered by life-planning skills training, adolescents can take charge of their own lives and make strong contributions to their communities and countries. But the adolescents most in need are also the hardest to reach: young men and women who have never attended school or have left because of early pregnancy or to help support their families.

In 2000, the African Youth Alliance (AYA)—implemented by PATH, Pathfinder International, and the United Nations Population Fund, in partnership with more than 60 local agencies—launched a comprehensive program designed to

continued on page 10



Identifying vitamin A deficiency

New test for measuring prevalence

Project name

Retinol-binding protein enzyme immunoassay

Locations

Cambodia, Guinea Bissau, Nicaragua, Senegal, Tanzania, Thailand, Zimbabwe

Methods

Technology development and commercialization

Partners

Helen Keller International; Institute of Nutrition of Central America and Panama; Johns Hopkins University; London School of Hygiene and Tropical Medicine; Mahidol University; MOST; Scimedix; Tanzania National Institute of Medical Research; University of California, Davis; University of Massachusetts; University of Washington; US Agency for International Development (USAID)

Funder

USAID (for PATH's HealthTech program)

For more information

Please contact Tala de los Santos, senior commercialization associate, at tdelossantos@path.org.

Information is the first step toward prevention and treatment of severe vitamin A deficiency (VAD). VAD puts an estimated 100 million children in 118 countries at risk of blindness or death,¹ in part because governments and other public health decision-makers do not have good estimates of its prevalence in the populations they serve. A number of strategies are available to prevent VAD—what is missing is an affordable and easy-to-use test that can provide the information needed to guide their application and measure their effectiveness.

PATH has developed an enzyme immunoassay for detecting VAD that is less costly and gives results more rapidly than the currently used method; that can be performed on standard laboratory equipment; and that uses samples obtained by fingerstick, rather than by a more invasive venipuncture. It should provide developing countries with a more acceptable and appropriate tool for measuring the impact of VAD in populations at risk.

A new approach to detection

The standard way to identify VAD is to use high-performance liquid chromatography (HPLC) to measure levels of retinol in venous blood. This process requires specialized laboratory facilities with skilled staff. It can take months for specimens to be obtained, transported to a laboratory with the necessary capacity, and analyzed. Costs are often high, and samples can be damaged during transport and storage.

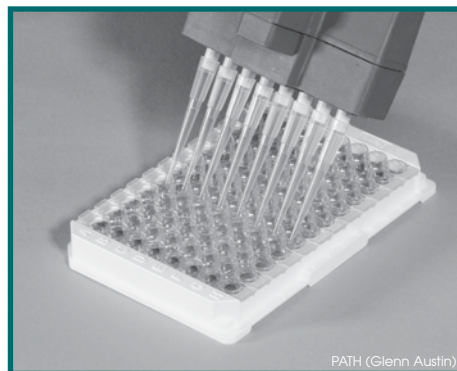
The assay developed by PATH measures levels of retinol-binding protein—a surrogate marker for retinol that is more stable and easier to detect in small samples. The retinol-binding protein enzyme immunoassay (RBP-EIA) offers several advantages over the traditional HPLC assay:

- It can be carried out using standard laboratory equipment.
- It requires only a small sample, which can be obtained from capillary blood. The required blood can be collected through a fingerstick—a method that is less invasive and requires less technical skill than venipuncture.
- The associated equipment, training, and skill needed are much less than for HPLC, and therefore the cost of the test is much lower.
- It yields results in less than 40 minutes.

The test is packaged as a kit, with controls and a set of strip wells that can be read on a portable EIA reader, for ease of use in the field.

RBP-EIA: a valid alternative

Laboratory and field studies conducted in Tanzania and Cambodia have demonstrated that RBP-EIA is a reliable and accurate tool for estimating VAD



PATH (Glenn Austin)

A new test offers a reliable and cost-effective way to measure the prevalence of vitamin A deficiency in the developing world—information that is vital in targeted efforts to reduce malnutrition.

prevalence in populations, and a good alternative to HPLC with serum retinol.² In one evaluation, which used samples from children in Cambodia, the prevalence measured by RBP-EIA was 20.2 percent, and the prevalence measured by HPLC was 20.4 percent—a statistically insignificant difference.³

To confirm these results and test another aspect of the RBP-EIA—the use of capillary blood instead of venous blood—PATH, the University of Washington, and Thailand's Institute of Nutrition at Mahidol University conducted an additional evaluation of the RBP-EIA in 2004. The study included 195 children aged 1 through 5 years (the age group most affected by VAD) from Om Koi and Mae Cham districts in Thailand. Study coordinators selected Thailand because it has laboratory capacity adequate for reliable testing and met other requirements, such as significant population levels of VAD.

The focus of this evaluation was to evaluate the sensitivity and specificity of RBP-EIA using capillary blood, with HPLC in venous blood as the reference standard. Using the standard cutoff point for VAD (<0.70 μmol of retinol per liter of blood), the sensitivity of the test was 64 percent, and the specificity was 99 percent. Use of a higher cutoff point (0.825 $\mu\text{mol/L}$) increases the sensitivity to 86 percent. These results are the first evidence that venous blood and capillary blood are comparable for measuring VAD.

New sample types and commercialization

PATH has also evaluated whether dried blood spots can be used in the RBP-EIA. Dried blood spots are easy to collect and very stable, when handled and stored properly. Results from experiments using samples from Zimbabwe and Guinea Bissau demonstrated a good correlation between the results of RBP-EIA with dried blood spots and serum retinol.

PATH has licensed the RBP-EIA technology to Scimedx, a commercial diagnostics company in the United States, which has made significant progress toward commercial availability and is currently engaged in quality assurance activities. PATH and Scimedx are working closely with researchers and public health staff in developing

countries to ensure that the test is used properly by providing technical support and developing training guides and toolkits to accompany the tests.

Once the RBP-EIA is available, we expect that it will facilitate national vitamin A assessments and increase the number of countries that will be able to conduct VAD prevalence surveys—allowing those countries to respond to the needs of children who are affected by this deficiency. ■



At a health center in Thailand, a worker seeks parents' permission for their children's participation in a study evaluating vitamin A deficiency in the community.

REFERENCES

1. UNICEF. Vitamin A webpage. Available at: http://www.unicef.org/nutrition/23964_vitamina.html. Accessed June 27, 2005.
2. Hix J, Martinez C, Buchanan I, Morgan J, Tam M, Shankar A. Development of a rapid enzyme immunoassay for the detection of retinol-binding protein. *American Journal of Clinical Nutrition*. 2004;79(1):93–98.
3. Hix J, Rasca P, Morgan J, et al. Validation of a rapid enzyme immunoassay for the quantitation of retinol binding protein to assess vitamin A status within populations. Presented at: 21st International Vitamin A Consultative Group meeting, February 2003; Marrakech, Morocco.

Targeting vulnerable populations in Georgia

HIV prevention efforts aim to curtail epidemic

Project name

STI and HIV Prevention (SHIP) Project

Location

Georgia

Methods

Communication for social change, outreach to key populations, voluntary counseling and testing

Partners

Save the Children, Bemoni Public Union, Tanadgoma Center for Information & Counseling on Reproductive Health, Ministry of Health of Georgia

Funder

US Agency for International Development

For more information

Please contact Amie Bishop, Ukraine country program leader, at abishop@path.org.

Nowhere is HIV spreading faster than in Eastern Europe, where social and economic instability is fostering drug use and commercial sex. Although HIV rates in Georgia currently are low, both commercial sex work and injection drug use are on the rise, and most new infections occur among people who engage in these activities.¹ By working with these vulnerable groups, Georgia has an opportunity to stave off HIV and AIDS and help curtail a national epidemic.

To help control sexually transmitted infections (STIs) and HIV, PATH collaborates with Save the Children and local organizations on the STI and HIV Prevention (SHIP) Project, implemented in Georgia's two largest cities, Tbilisi and Batumi. PATH has conducted formative research for the project, helped develop educational materials, and provided technical assistance in several areas, including training and voluntary counseling and testing (VCT).

Positive deviance informs messages

Since its inception in May 2002, the project has reached more than 15,000 individuals, most of whom are female sex workers, injection drug users (most of whom are male), prisoners, and others at high risk of HIV and STIs. Outreach activities include peer education, mass media, and distribution of educational materials.

The SHIP team has used an especially creative and effective approach to formulate messages to sex workers: "positive deviance." The approach, pioneered by Save the Children, is based on the premise that, within a community, some individuals maintain better health because of certain positive behaviors that differ from

Resources for health programs in Georgia

The SHIP Project was the first program in Georgia to introduce voluntary counseling and testing (VCT) as a standard component of HIV prevention, and the PATH-developed VCT protocols and training manuals have been adopted by the National AIDS Center. The materials include:

- *Counseling on HIV & AIDS: A Training Manual*. This manual features a curriculum for training health workers in VCT. It includes information on the global HIV epidemic; the HIV and AIDS situation in Georgia and Eastern Europe; HIV transmission and prevention; ethical, social, and legal issues for health care workers to consider; effective counseling methods; and prevention of burnout. To order copies, contact publications@path.org.
- *A Guide to Developing Materials on HIV/AIDS and STIs*. This guide describes recommended methods for developing print, audiovisual, and mass media materials for almost any population. Based on a manual produced by PATH and Family Health International, the Georgia edition is available in Russian and English at www.path.org.

the norm. When peers mimic the divergent behaviors, they achieve similar benefits.

During focus group discussions, the SHIP team identified female sex workers who were able to avoid sexual violence and consistently use condoms with their clients. Staff interviewed the sex workers about their attitudes and practices and used what was learned to develop outreach materials.

A comic book, for example, tells the story of Natalie, a sex worker who finds herself in difficult situations when a client refuses to pay her and when another client tries to beat her. She seeks advice from her friend Elza, who counsels Natalie about ways to stay safe—such as refusing to ride alone in a car with more than one man, avoiding intoxicated clients, and negotiating condom use before going with a client.

After testing the comic book among sex workers who visited counseling clinics, the project team printed and distributed it to women working in saunas, on the streets, and through cell phone networks. One year later, an evaluation indicated that the comic books effectively engaged sex workers and gave them a way to share information with their peers.

Building Georgia's capacity for VCT

The comic book and other outreach materials also include information encouraging individuals to seek voluntary HIV counseling and testing. People who learn they are seronegative can then be counseled on ways to remain disease-free. Those who are seropositive can obtain other medical and supportive services and learn how to avoid transmitting the infection to others.

To ensure that high-quality VCT services are available, PATH developed a curriculum and conducted a series of training workshops for health workers. PATH trained representatives from local nongovernmental organizations and health clinics to provide client-friendly counseling and accurate information. PATH also conducted a series of workshops to train trainers in VCT, ensuring that the number of skilled service providers will expand to meet the growing demand for services. To date, PATH has trained more than 30 trainers who have begun to conduct trainings themselves.



A comic book shares sex workers' tips for negotiating condom use and avoiding violence.

Reaching out to others

Earlier this year, the SHIP project received a favorable independent evaluation and a two-year extension from the funder. The SHIP team will now expand use of the positive deviance approach to additional populations, such as sailors, and to the city of Kutaisi, as well as to the breakaway region of Abkhazia, where PATH will take the lead in implementation. ■

REFERENCE

1. Joint United Nations Programme on HIV/AIDS (UNAIDS), World Health Organization (WHO). *AIDS Epidemic Update 2004*. Geneva: UNAIDS/WHO; 2004.

Evaluating rapid syphilis tests

Cost analysis helps strengthen antenatal care

Project name

Cost analysis of rapid syphilis tests in antenatal care clinics

Locations

Bolivia, Mozambique

Method

Cost analysis

Partners

Health Alliance International, Population Council

Funder

Bill & Melinda Gates Foundation

For more information

Contact Carol Levin, senior health economist, at clevin@path.org.

Left untreated, syphilis infection during pregnancy can lead to stillbirth, neonatal death, premature delivery, or congenital syphilis among newborns. Although prevalence rates are high and inexpensive treatment is available, antenatal syphilis screening is sporadic in many countries.

The standard syphilis test—a rapid plasma reagin (RPR) assay—is accurate and cost-effective, but it requires well-equipped laboratories and trained workers. Newer, rapid diagnostic tests such as the immunochromatographic strip (ICS) test can identify *Treponema pallidum* antibodies from a drop of fingerstick blood in 15 minutes without laboratory facilities or trained personnel, making testing and treatment possible in a single visit.¹ Although they are commercially available, ICS tests are not widely used.

To determine which test would be most feasible and affordable for low-resource settings, PATH and its partners are estimating the clinical and economic impact of rapid diagnostic tests in prenatal care clinics. Health Alliance International and the Population Council are leading studies in Mozambique and Bolivia, and PATH is conducting an economic analysis of the study results.

Different contexts, different needs

In Mozambique, universal syphilis screening has been a national policy since 1979, but screening is inconsistent, especially at the province level. Poor laboratory quality, supply shortages, late prenatal attendance, and low partner notification and treatment rates all contribute to the low screening rates. The study team therefore set out to compare the clinical and economic impact of the ICS and RPR tests in clinics with laboratories and to determine the impact of introducing the ICS test in clinics without laboratories. They worked with over 100 clinics in two provinces.

In Bolivia, all women have universal maternal-child insurance, which pays up to 7 Bolivianos (approximately US\$1.00) for each syphilis test conducted as part of antenatal care. But most antenatal testing clinics in rural settings lack guidelines and infrastructure for providing screening and treatment for maternal and congenital syphilis. When testing is done, the samples are sent to an off-site laboratory, and results are not available for several days—instead of immediately, so that treatment can be offered at the same visit. One study found that 50 percent of results never get back to the clinic at all.² The study team therefore compared the feasibility, acceptability, and costs associated with rapid syphilis testing in antenatal care settings in four provinces. They focused on urban maternity hospitals and rural health care centers that lack the infrastructure and personnel to perform traditional syphilis tests.

Evaluating costs

PATH staff collected cost data from a selection of participating study clinics during four field visits to the two countries in 2003 and 2004. Using a microcosting method, the team collected facility-based data on start-up costs and the cost of the syphilis test, equipment, labor, other required supplies, and treatment. The study team also collected data on the utilization of syphilis screening services (e.g., number of women screened, number of women treated).

New test increases reach

In both Mozambique and Bolivia, introducing rapid syphilis tests increased screening coverage among pregnant women and reduced the risk of congenital syphilis. In both countries, the average costs for the ICS tests were found to be slightly higher than for the RPR. This is primarily due to awareness-raising and training expenses, which diminish significantly one year after introduction.

The analysis in Mozambique showed that the ICS test is cost-effective in settings both with and without laboratory services. Introducing the ICS test into clinics where testing was not previously conducted can avert significant disease burden for less than US\$1 per woman screened and approximately US\$15 per woman screened and treated.

The average cost of syphilis testing was higher in Bolivia than in Mozambique, primarily because of higher health care costs and use of a different, more expensive commercial test. The RPR test was slightly more cost-effective than the ICS test in urban hospitals, where antenatal care services provide a range of diagnostic services and laboratories are well-equipped. While ease of use and quality concerns may favor the use of the ICS test in urban settings, the potential for overtreatment of previously infected individuals—who will test positive with the ICS test—must also be considered.

In addition to cost data, the demonstration activities had considerable impact on the study participants' health: In Mozambique, the project identified and treated an estimated 10,000 cases of maternal syphilis and more than 1,500 cases of congenital syphilis. In Bolivia, the activities led to a 6 percent increase in prenatal syphilis testing.

Programmatic implications

In Bolivia, the study results have demonstrated that it is possible to implement rapid syphilis screening in rural areas, which previously was thought to be impossible. The Bolivian Ministry of Health (MOH) is interested in increasing uptake of the rapid tests and is now including them in the universal insurance guidelines.



Cost-effective syphilis testing in antenatal clinics can help countries reduce the risk of congenital syphilis.

In Mozambique, the presentation of preliminary study findings led to discussions within the MOH to seek ways to integrate essential prenatal care services (like syphilis testing) with new interventions, including prevention of mother-to-child transmission of HIV and malaria treatment. As a result, the MOH has agreed to design, test, and subsequently scale up an integrated prenatal care system for Mozambique that is likely to include syphilis screening and treatment. ■

REFERENCES

1. The Sexually Transmitted Diseases Diagnostics Initiative (SDI) and the United Nations Development Programme/World Bank/World Health Organization (WHO) Special Programme for Research and Training in Tropical Diseases (TDR). *Laboratory-Based Evaluation of Rapid Syphilis Tests: Results From 8 SDI Sites*. Geneva: WHO/TDR, 2003.
2. Deperthes BD, Meheus A, O'Reilly K, Broutet N. Maternal and congenital syphilis programmes: case studies in Bolivia, Kenya and South Africa. *Bulletin of the World Health Organization*. 2004;82(6):410–416.

Caring for people with AIDS

Study assesses feasibility of home-based care kits

Project name

Home-based care kits

Location

South Africa

Methods

Quantitative survey, key informant interviews, literature review

Partners

Reproductive Health Research Unit at the University of Witwatersrand; Department of Health, South Africa

Funder

Atlantic Philanthropies

For more information

Please contact Siri Wood, program officer, at swood@path.org.

As the HIV/AIDS epidemic in South Africa progresses, public services have become vastly overstretched, and families and communities face increasingly heavy burdens as they care for the sick. Many of the 6.3 million adults and children living with HIV and AIDS¹ receive their primary care at home, where simple resources that are common at hospitals and health care centers—such as gauze and antiseptics—are difficult to obtain.

Hundreds of organizations throughout the country are working to make home-based care (HBC) more effective by providing palliative care kits to caregivers. To assess the current status of HBC and evaluate the feasibility of scaling up the production and distribution of HBC kits, PATH and the Reproductive Health Research Unit (RHRU) of the University of Witwatersrand conducted a study of the feasibility of producing and distributing HBC kits in South Africa.

Assessing the need for kits

The team conducted a nationwide survey and key informant interviews on topics including kit contents and availability, how the kits are used, who uses them, how the kits are distributed to families in need, and how the kits and the supplies they contain are replenished. In all, 466 questionnaires were sent to HBC organizations in all of South Africa's nine provinces; 215 (46 percent) were returned, primarily from representatives of nongovernmental and community-based organizations. The team also conducted 60 interviews with staff from HBC organizations from each province, government officials who work in this area, and kit manufacturers. A review of available literature on community-based care and support in Africa supplemented these activities.

Who uses HBC kits?

A variety of HBC kits are used by health care professionals, volunteers, and family members. In many cases, the caregivers are not highly trained. Only 12 percent of the surveyed organizations employ nurses, and although the South African



Danny Bolin, Presbyterian Church (USA)

An estimated 800 organizations in South Africa are focusing on home-based care of people living with AIDS. The PATH-RHRU study identified ways to strengthen their efforts.

government has developed a standard HBC training course, many community caregivers have not received any training.

Kit contents and costs

Kit contents vary greatly depending on the HBC organization and the type of user. The study found that the most common and essential kit items were gauze, cotton wool, gloves, antiseptic, aqueous cream, linen savers, and disinfectants. Kits for professional caregivers may also carry items such as pain relief medications, antibiotics, or clinical supplies.

Kit prices range from US\$25 to US\$130. The vast majority of survey respondents stated that their clients cannot afford these costs on their own. Furthermore, the study found that professional caregivers rarely leave HBC kits with the households in which they work.

Obtaining and replenishing kits

The study team found little evidence of an organized system of distributing supplies and using kits. Some HBC organizations acquire kits or kit supplies from the local department of health or pharmacies, some develop their own kits, and others purchase or receive donated kits from private companies.

Most HBC organizations said that replenishing kit supplies was a challenge. Some hospitals, clinics, and other health care organizations carry kit supplies, but approaches to resupply vary from one district or province to another. Staff noted that popular items such as gloves and soap are seldom available and that they spend a disproportionate amount of time trying to access supplies.

A need for better coordination

The demand for HBC kits in South Africa is strong, and kits are viewed as important resources for AIDS care. Many HBC organizations expressed frustration at not being able to fulfill their clients' need for the kits and higher-quality care. The primary challenges to effective use of the kits were insufficient kit production and distribution networks, an irregular supply chain, and a lack of trained staff. Kits will have the greatest impact when the systems that support their use are well coordinated and target user needs.



PATH (Siri Wood/Rani Boehlke)

Increasingly, families and communities are providing palliative care for people living with AIDS.

Turning information into action

During the summer of 2005, PATH assembled stakeholders in two provinces to disseminate and discuss these research findings. The meetings stimulated dialogue about ways to improve comprehensive care and support through HBC programs. PATH is now designing a project that will address these needs and help improve the care of patients at home. ■

REFERENCE

1. South Africa National Department of Health. *National HIV and Syphilis Antenatal Sero-Prevalance Survey in South Africa 2004*. Pretoria, South Africa: National Department of Health; 2005. Available at: <http://www.doh.gov.za/docs/hiv-syphilis-f.html>. Accessed August 18, 2005.



Project name

African Youth Alliance

Locations

Botswana, Ghana,
Tanzania, Uganda

Methods

Behavior change
communication, life-
planning skills training,
working with livelihood
programs

Partners

Pathfinder International,
United Nations
Population Fund

Funder

Bill & Melinda Gates
Foundation

For more information

Please contact
Colleen Conroy,
senior program officer, at
cconroy@path-dc.org.

improve sexual and reproductive health among young people ages 10 to 24 years in Botswana, Ghana, Tanzania, and Uganda. Until 2005, when the program wrapped up, PATH's role was to lead AYA's behavior change activities and the integration of adolescent sexual and reproductive health information into livelihood programs by implementing innovative strategies that meet the unique needs of young people in and out of school.

A centerpiece of PATH's program was a highly adaptable curriculum that offers comprehensive information about sexual and reproductive health and can be used to help adolescents develop better self-esteem and learn effective communication, problem-solving, and relationship skills (for example, how to negotiate condom use). The curriculum can be effectively covered by a trained teacher within 40 hours and adapted to both in-school and less formal out-of-school settings.

Working with youth through educational systems

Primary and secondary schools and vocational training centers are major channels for life-planning skills education. These institutions provide a sustainable structure that allows integration of supplementary curricula into the existing syllabus, strengthening of teachers' skills and willingness to discuss sensitive issues with students, and implementation of long-term school education policies.

Primary and secondary schools

In Botswana, PATH trained teachers in primary and secondary schools in seven districts to use the life-planning skills curriculum. As of 2004, 8,355 youth in primary and secondary schools had attended these courses. Peer educators carried similar messages to more than 13,000 in-school youth, and community activities (including public dance, drama, and musical performances) emphasizing information about prevention of unintended pregnancy and AIDS reached more than 22,000 youth. The peer educators facilitated in-school and community dialogue, bridging the gap between formal and informal education opportunities.

Vocational training centers

In 2001, the establishment of a government agency in Zanzibar with responsibility for vocational training opened the door to integration of life-planning skills training and sexual and reproductive health education into the entire system of vocational institutes. As a result in part of AYA's close collaboration with and support of the Ministry of Youth, Employment, Women and Children Development, the government legislated a policy requiring that vocational training centers throughout Zanzibar include life-planning skills training in their programs.

PATH worked with representatives from the new government division and with heads of 59 of Zanzibar's 70 vocational training centers to develop standards for life-planning skills content. These workshops led to the introduction of pilot programs at six vocational education centers, for which PATH provided materials, technical support, and guidance. During 2004, 19 more centers integrated sexual and reproductive health and life-planning skills training (using the PATH curriculum) into their curricula, based on lessons from the six pilot centers.

Reaching out-of-school youth

In Uganda, 7 percent of adolescents aged 15 to 19 years and 12 percent of young people aged 20 to 24 years have never attended school.² These youth lack the access to reproductive health information and services provided by the school system, and therefore their risk of early pregnancy and HIV infection is very high—for example, 60 percent of girls without formal education bear children while they are still teenagers, compared with 33 percent of girls who attend primary school.³

The value of local connections

PATH's connections with local implementing partners and other organizations allowed us to reach youth who were disconnected from traditional routes of communication (for example, through schools and after-school activities). We made contact with potential participants through partners that were already established in communities through their work with young people. Contracts with youth-founded and youth-managed nongovernmental organizations provided local experience in implementing peer education strategies and conducting effective entertainment-education strategies in the region.

Replacing formal structure

PATH designed a structured life-planning skills training program to provide a reliable source of necessary information and training for out-of-school youth. We collaborated with local partners to organize 20-hour courses based on the PATH curriculum and led by trained youth facilitators. These courses were held at schools, health clinics, and churches—wherever we could offer classes at regular times and places, making it easy for youth to attend. Classes were complemented by entertainment-education activities (including dance and drama performances) that drew young people in, reinforced messages conveyed during the classes, and stimulated community involvement.

The semiformal structure offered better quality control, was easily adapted by implementing partners, and allowed us to monitor the information received by participating youth. The courses quickly drew more applicants than there was space to accommodate. An estimated 12,000 Ugandan youth from 96 different sites attended.

Sustainability efforts

These programs reach youth at a crucial stage in their development, helping to reduce high-risk behaviors and introduce new ideas that can change young people's lives. AYA makes sure that project activities and the curriculum stay up to date by monitoring the results of its programs. The results of a survey that assesses the cumulative effect of the efforts of all AYA partners, which should be available in late 2005, will guide ongoing efforts.

Part of PATH's work in all four countries was to build the capacity of implementing partners

from the private and government sectors so that the progress made during the program would continue after its end. PATH has left behind a network of teachers who are prepared to teach the life-planning skills curriculum, as well as a group of well-trained youth facilitators. The PATH curriculum has become part of the national curriculum in Uganda, Tanzania, and Zanzibar, and in Uganda, implementing partners are coming together to find ways to continue portions of the work. ■

REFERENCES

1. *Adolescent and Youth Sexual and Reproductive Health: Charting Directions for a Second Generation of Programming*. A report on a workshop of the UNFPA in collaboration with the Population Council. New York: United Nations Population Fund; 2002.
2. Uganda Bureau of Statistics (UBOS), ORC Macro. *Uganda DHS EdData Survey 2001: Education Data for Decision-Making*. Calverton, MD: UBOS and ORC Macro; 2001.
3. UBOS, ORC Macro. *Uganda Demographic and Health Survey 2000–2001*. Calverton, MD: UBOS and ORC Macro; 2001.



PATH (Lisa Mueller)

Youth in Tanzania learn about goal-setting and other life-planning skills from a peer facilitator trained by PATH.

New challenges and opportunities

In addition to expanding our ongoing work, PATH engages in new projects designed to fit the changing landscape of global health. PATH is grateful to the many donors that make these and other initiatives possible.

Fast diagnosis for fever

PATH, in collaboration with the University of Washington, Micronics, and Nanogen, is developing the rapid diagnostic card—an inexpensive, rugged, credit card-sized platform that will test for malaria, typhoid, measles, influenza, rickettsial infection, and infection with flaviviruses. This device will give point-of-care results and requires only a single drop of blood.

Malaria Control and Evaluation Partnership in Africa (MACEPA)

In Zambia, PATH is collaborating with the government and with local nongovernmental organizations to increase the impact of the country's malaria control program. Our work will assist in expanding Zambia's national program and build support for similar programs throughout Africa.

Evaluating *Haemophilus influenzae* type b (Hib) immunization programs

PATH plans to evaluate the impact of Senegal's recent introduction of Hib vaccine into the routine infant immunization schedule. The information gathered will help other countries in West Africa develop Hib vaccine introduction and financing policies and inform efforts by international organizations, such as the Global Alliance for Vaccines and Immunization, to strengthen immunization programs worldwide.

Protection against human papillomavirus (HPV)

To reduce the incidence of cervical cancer, PATH is planning a long-term program to prepare for introduction of an HPV vaccine (once available) in developing countries. We are proposing ways to address common barriers to vaccine introduction—for example, by working with industry to ensure availability, identifying early-introducer countries, helping them plan for introduction, and making sure up-to-date information is available to those who need it.

Reducing HIV/STI risk in India

PATH is strengthening the skills of more than 300 organizations involved in the Avahan Initiative, which is encouraging safer sexual behavior in six Indian states. PATH is helping the organizations reduce HIV/STI risk among vulnerable populations through community-level interpersonal communication, including peer outreach, community-led advocacy, and cutting-edge dialogue processes.

Education in rural China

PATH and the All China Women's Federation are implementing a model program built on a new way of thinking about girls' education in rural China. The program brings communities together to make sure young girls start and stay in school and equips girls with skills they need to plan for the future and make good decisions about reproductive health. ■

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.

Directions in Global Health shares information about PATH's programmatic experiences with colleagues around the world. Produced three times per year, *Directions* is available free of charge. To subscribe, please send your contact information to:

PATH
Attn: Publications
1455 NW Leary Way
Seattle, WA 98107 USA
publications@path.org

For more information about PATH's work, please visit our website at www.path.org.

Editors: Michele Burns,
Dawn McCarra Bass

Design: Jennifer Fox,
Patrick McKern

Contributors: Susie Bloodworth,
Colleen Conroy, John Hix,
Carol Levin, Anna Marshall,
Siri Wood

Global access. Global commitment. Redesigned.

PATH is pleased to announce the revision of our website: www.path.org. The revised site tells the PATH story with specific examples of our work, and it is easier to navigate, so site visitors can connect with the topics that most interest them.



Copyright © 2005, Program for
Appropriate Technology in Health (PATH).
All rights reserved.

Printed on recycled paper.

ISSN 1549-8662