



Preparing for a pandemic

Detecting, preventing, and containing the spread of avian influenza to humans

In mid-2003, highly pathogenic avian influenza, or HPAI, began to affect poultry in parts of Southeast Asia, spreading within months to eight countries in an outbreak that was unprecedented in its geographical extent. The disease remained confined to Southeast Asia until mid-2005, when the virus spread through parts of Central Asia to Europe,

Africa, and the Middle East—affecting more than 60 countries in all and leading to the loss of more than 100 million birds.

The outbreaks are largely caused by a novel H5N1 strain of influenza A, against which people are not immune. The H5N1 strain has been able to cross the species barrier and infect humans, causing severe disease with high mortality. As of October 2006, H5N1 has led to 256 confirmed cases of HPAI in humans, resulting in 151 deaths.¹ The ability of the H5N1 subtype to rapidly mutate and acquire genes from influenza viruses affecting other species raises the concern that they will gain the ability to spread efficiently among humans and cause a global influenza pandemic. The World Health Organization (WHO) estimates that an influenza pandemic could result in up to 50 million deaths worldwide,² and the World Bank estimates the global impact of a pandemic of moderate severity to be approximately US\$800 billion.³

To help prevent or control such a pandemic, PATH is strengthening influenza pandemic preparedness in Georgia and Ukraine. In both countries, we are intensifying surveillance for human cases of avian influenza, heightening awareness, and procuring diagnostic and prevention supplies. These efforts support WHO's goal of ensuring rapid characterization of the new virus subtype and early detection, notification, and response to additional cases.⁴

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Facilitating delivery of nevirapine to newborns

Improved packaging of antiretrovirals for prevention of mother-to-child HIV transmission

Project name

Nevirapine infant-dose pouch

Location

Kenya

Methods

Technology development and introduction

Partners

Boehringer Ingelheim, Elizabeth Glaser Pediatric AIDS Foundation, Family Health International, National AIDS and STD Control Program of Kenya, Population Services International

Funders

Sapling Foundation; US Agency for International Development, through the HealthTech Program

For more information

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Last year, about 700,000 children—almost all of them in Africa—became infected with HIV. In most cases, the virus came to them from their mothers, transmitted during pregnancy, labor, or breastfeeding.

An infant dose of nevirapine, in combination with additional treatment for the mother, is highly effective at preventing mother-to-child transmission (PMTCT). As part of a public-private partnership with the international pharmaceutical company Boehringer Ingelheim and the US Agency for International Development (USAID), PATH has developed a simple foil pouch that can play an essential role in programs that deliver this necessary medication—and help give women the power to protect their infants against infection.

Identifying obstacles to nevirapine distribution

Nevirapine is a low-cost and efficacious therapy for PMTCT. A combination of a 200-mg nevirapine tablet for the mother, taken at the onset of labor, and 0.6 mL of nevirapine syrup for the infant, given within 72 hours after birth, has been shown to reduce the risk of mother-to-child HIV transmission by almost half.¹

Achieving widespread use of nevirapine for infants in developing countries has been a challenge, however. The high prevalence of births outside the health care system requires that the mother or birth attendant have the medication at home—or that the infant be brought to a health facility with sufficient supplies within 72 hours after birth. Distributing a tablet of nevirapine to HIV-positive pregnant women as long as several months before they give birth is becoming standard, but distributing the infant dose of nevirapine syrup in advance is much more rare—largely because of the lack of easy-to-use, high-quality protective packaging for individual doses.

Many of the current packaging practices are makeshift, using materials such as discarded medication boxes and aluminum foil. These practices are time-consuming and difficult; health workers report that when they have no supplies on hand, they do not provide the medication for women to take home. Such packaging also offers very little protection for the medication.

An effective packaging solution

To overcome these challenges, PATH began researching alternative packaging solutions. The team identified and evaluated more than ten options for administering a single dose of nevirapine syrup, on the basis of:

- Ability to accurately deliver 0.6 mL of nevirapine.
- Ease of use for individuals with little or no training.
- Tamper evidence.
- Construction from high-quality materials that can protect the dose before it is dispensed.
- Feasibility of use at the facility level.

Boehringer Ingelheim tested the compatibility of some of these packaging options for storing their nevirapine syrup, and Population Services International helped to evaluate acceptability in Tanzania and Zambia.

The result is a self-sealing, foil-laminate pouch, used in combination with an oral dispenser that can be securely capped. Health care workers fill an oral dispenser with nevirapine, cap the dispenser, and seal it in the pouch by removing an adhesive strip. The pouch protects the dispenser and medication and makes it less likely that the medication will be accidentally dispensed.

The pouch is printed with instructions about administration of the nevirapine syrup. It also allows health workers to record the expiration date and other notes—reminding pregnant women to return to the clinic for another dose, should the first expire before they give birth. (Boehringer Ingelheim's guidelines state that nevirapine syrup should not be stored in an individual oral dispenser for more than two months.)

Pilot introduction in Kenya

In February 2006, PATH worked with the Elizabeth Glaser Pediatric AIDS Foundation and the National AIDS and STD Control Program of Kenya to pilot the introduction of the nevirapine infant-dose pouch. Health workers in 13 health care facilities in Kenya's Eastern, Central, Western, Nyanza, and Rift Valley provinces participated.

Our objectives were to find out how well the pouch and dispenser combination would work in health facilities that provide PMTCT services; to assess acceptability among health care providers and HIV-positive pregnant women; and to evaluate ease of use. Providers distributed 543 pouched doses to HIV-positive pregnant women during the course of the pilot. After the pouch and dispenser had been used in clinics for four months, members of the evaluation team interviewed 45 providers and 57 HIV-positive new mothers.

Eighty-five percent of providers interviewed reported that the pouch took less time to use than the packaging methods previously in place, and 93 percent found the pouches easy to use. Almost all—96 percent—said that they felt there was an increase in the quality of the services they were providing. Ninety-eight percent of mothers reported that they liked the packaging. Many said that the pouch and dispenser were easy to use and that they had no difficulty understanding the instructions, and all said that their infants had received nevirapine, regardless of whether the birth had taken place at home.

Based on the results of this pilot, reinforced by successful use of the pouch and dispenser in facilities supported by Family Health

International, the Government of Kenya has committed to begin introducing the pouch countrywide by the end of 2006.

Integrating nevirapine into PMTCT programs

PATH has offered Kenya's National AIDS and STD Control Program a one-year supply of pouches to facilitate broader introduction. The program is planning to introduce the nevirapine infant-dose pouch nationally and developing a sustainability strategy for the future. We hope that by the end of 2006, the pouch will be available at many of the facilities offering PMTCT services in Kenya.

The team is making information from the pilot studies available to the global community, so that other countries can implement similar pilot programs. We are also continuing our collaboration with Boehringer Ingelheim, USAID, and other agencies to establish a sustainable supply of pouches for organizations implementing PMTCT programs. These steps should dramatically reduce the obstacles to making pre-labor distribution of nevirapine a part of PMTCT programs throughout Africa. ■

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A new foil pouch protects the birth dose of nevirapine, allowing health workers to send home vital medication before delivery of an at-risk infant.

Preventing postpartum hemorrhage

Project supports
a low-cost
method that
can save
women's lives

Project name

Prevention of Postpartum Hemorrhage Initiative (POPPHI)

Locations

Bangladesh, Benin, Bolivia, Burkina Faso, Cameroon, Dominican Republic, Ecuador, El Salvador, Ethiopia, Ghana, Guatemala, Honduras, Indonesia, Malawi, Mali, Nepal, Nicaragua, Pakistan, Peru, Tanzania, Uganda

Methods

Qualitative and quantitative research, small-grants support, technical leadership and assistance

Partners

US Agency for International Development (USAID), RTI International, EngenderHealth, International Federation of Gynecology and Obstetrics, International Confederation of Midwives

Funder

USAID

For more information

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At least 25 percent of all maternal deaths worldwide—up to 60 percent in some countries—are caused by postpartum hemorrhage (PPH).¹ One of the world's leading causes of maternal mortality, PPH can kill quickly—in some cases, within two hours. For women who survive, PPH can result in long-term effects.

Active management of the third stage of labor (AMTSL) is a proven approach to reducing PPH—one that can lessen the incidence of PPH by up to 60 percent.² The Prevention of Postpartum Hemorrhage Initiative (POPPHI) is working to expand use of this method and, in turn, reduce the number of women who die from this complication.

International endorsement and use

AMTSL is an evidence-based, low-cost intervention that involves three components:

- The use of a uterotonic agent within one minute after the birth of the infant.
- Delivery of the placenta with controlled cord traction.
- Massage of the uterus after delivery of the placenta.

In 2003, the International Federation of Gynecology and Obstetrics (FIGO) and the International Confederation of Midwives (ICM) issued a joint statement recommending that every woman should be offered AMTSL to reduce her risk of PPH. The World Health Organization's evidence-based manual, *Managing Complications in Pregnancy and Childbirth*, also describes AMTSL as the internationally accepted standard of care. The effectiveness of AMTSL is well documented, but research has shown a significant gap between knowledge and practice.²

Increasing uptake

To reduce PPH, the POPPHI team is encouraging and monitoring AMTSL use globally. The program's goals include:

- Expanding AMTSL through non-training approaches to improve provider practice.



An AMTSL success story

In the Dominican Republic—1 of the 15 small-grant recipients—a unique public-private partnership is helping promote AMTSL. The national obstetrician-gynecologist association and nursing school are working with the ministry

of public health and drug suppliers to secure a 50-percent discount on ampoule purchases—plus a donation of oxytocin to the nine hospitals involved in provider training. The partnership also includes advocacy for AMTSL and provision of information on oxytocin logistics and storage for drug suppliers.

- Improving the quality and availability of AMTSL at health facilities and the community level.
- Making uterotonic drugs and devices available to countries at a low cost.

Key aspects of this work include providing ready-to-use materials and resources for promoting AMTSL, implementing a small-grants program to assist local professional associations to promote the method, and supporting the US Agency for International Development in coordinating and collaborating efforts with all partner organizations.

In pursuit of frontline insights

In late 2005, the POPPHI team launched a ten-country study on current AMTSL practices and barriers to use in East Africa, West Africa, Latin America, and Asia. Research teams in each country observed a nationally representative sample of deliveries at health care facilities and collected information at those facilities and on individual country policies, pre-service and in-service education, and AMTSL supplies and logistics. To capture relevant knowledge, perceptions, and practices in the community, study teams in East Africa also conducted focus group discussions with mothers and interviews with traditional birth attendants and community leaders.

Findings

Research findings from Tanzania and Ethiopia indicate relatively low use of AMTSL in both countries. Yet the study data reveal significant differences in how the method is implemented and supported in each country.

In Ethiopia, for example, where the vast majority of women give birth outside of formal health facilities, researchers observed correct use of AMTSL (as defined by FIGO and ICM) in only 29 percent of births observed at 23 facilities. A variety of factors account for this relatively low rate: the delayed administration of oxytocin following the delivery of the fetus, lack of controlled cord traction, and lack of uterine massage immediately following delivery of the placenta. In addition, researchers found that pre- and in-service training of physicians and midwives does not consistently emphasize the method.

In Tanzania, where women generally have greater access to trained health care providers than do women in Ethiopia, only 7 percent of deliveries

observed at 29 facilities met the criteria for correct AMTSL use, and only 9 percent of health care providers correctly defined the method's components. The study identified one practice as the primary cause of this low adherence: use of a uterotonic drug during or after delivery of the placenta, versus immediately following the delivery of the fetus.

POPPHI will complete the remaining eight studies and conduct country-specific meetings with national stakeholders to disseminate the data by mid-2007. The team's preliminary experience indicates that countries are committed to supporting and collaborating with efforts to use the findings to both clarify roles and improve AMTSL uptake.

Implications and next steps

The complete study results will help global policymakers and decision-makers assess AMTSL practices and identify major barriers to use, serving as an important supplement to the information that multinational agencies distribute. With information in hand, individual countries will be better able to strengthen uptake and use of the method and promote skilled attendance at birth.

To build on these activities, POPPHI will identify and encourage interventions that are essential to preventing and controlling PPH. The team will also assess and incorporate emerging information—such as new evidence on the role of misoprostol for PPH³—that may prove pivotal in saving new mothers' lives. ■

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Improving the quality of vaccine programs

Management tools strengthen services and performance

Project name

Improving Routine Immunization Services

Location

Vietnam

Methods

Capacity building, training

Partners

Vietnam's National Expanded Program on Immunization, Ministry of Health

Funder

Bill & Melinda Gates Foundation

For more information

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With more than 90 percent of infants in Vietnam receiving all recommended vaccinations,¹ Vietnam's National Expanded Program on Immunization (NEPI) has achieved impressive coverage levels. A 2003 review by national and international experts concluded that the program performs remarkably well in the face of limited resources and considerable obstacles, including the country's challenging terrain, cultural diversity, and high staff turnover. Until complete coverage is reached, however, there is room for progress, and many skills, practices, and management procedures can be improved.

Focusing on Vietnam's Ha Tinh province, PATH is working to improve the quality of immunization services that are already in place. Supportive supervision is a key strategy for increasing both health workers' and managers' capacity and impact.

What is supportive supervision?

Supportive supervision is a process in which supervisors work with staff to improve their skills and practices—often by encouraging effective two-way communication, identifying and resolving problems, and conducting robust performance planning and monitoring. The relationship between the supervisor and supervisee is based in mentorship rather than fault-finding. By using these supportive techniques, all contact between supervisors and staff is optimized to provide ongoing reinforcement of good practices and to ensure that weaker performers (both individuals and projects) receive the extra support they need to increase service quality.



Optimizing existing processes

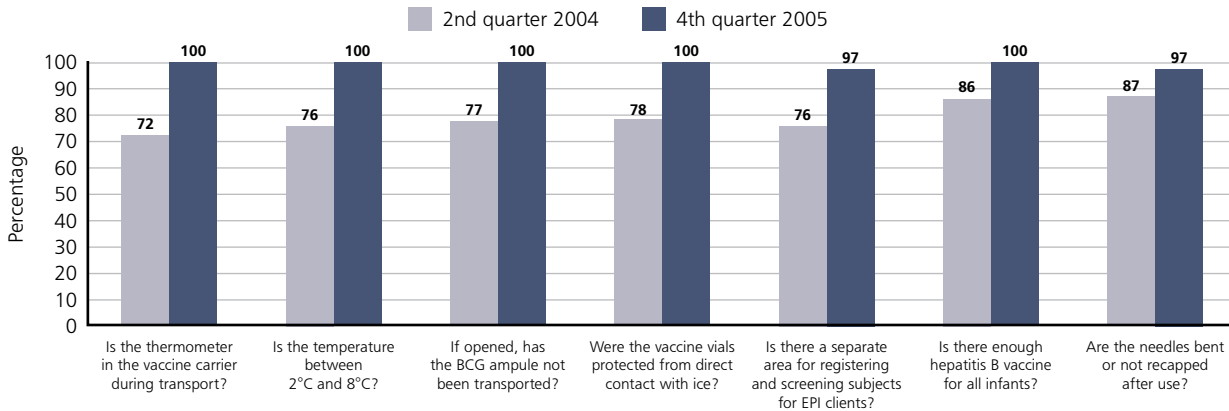
Although Vietnam's health services typically embrace the traditional supervisor-employee relationship, this particular management strategy has resonated in the project area. NEPI mandates regular meetings between each level of management structure (national, regional, province, district, commune, and village). Prior to implementation of supportive supervision, meetings were used only for discussing administrative issues, such as salary. The review identified these meetings as ideal opportunities for supervisors to review supervision plans and monitor progress, regardless of whether the supervisors were able to conduct supervisory visits during those times. The meetings now provide a window for supervisors to review skills and practices that need to be updated, disseminate job aids and visual guides, and promote necessary skills and appropriate management practices.

In Vietnam's Ha Tinh province, PATH trained 70 supervisors in supportive supervision methods that led to immediate, significant performance improvements.

Integrating the approach on the ground

In 2004, PATH began training province- and district-level supervisors in supportive supervision methods. PATH developed a curriculum that includes adult-learning principles, training techniques, and effective communication skills. Staff conducted a highly interactive training, with the majority of the sessions devoted to discussion,

Improvements after introduction of skills/tasks checklists



role-playing, and two-way communication. In all, PATH included 70 province and district supervisors (all medical or assistant medical doctors) in a three-day training in April 2004, with another three-day refresher training in April 2005.

In coordination with province and national immunization program managers, PATH identified and quantified performance expectations onto a matrix, which became an important supervision tool for measuring worker performance against specific indicators. These indicators then helped the team assess and document workers' competency, responsibilities, and follow-up actions. Province and national program leaders also approved and documented roles and responsibilities for supervisors at each level and modified existing checklists to consist of information that guides supervisors in identifying and resolving performance problems. These leaders formalized a comprehensive supervision plan for all supervisors, enabling them to prioritize sites for supervisory visits, optimize monthly meetings, and link refresher trainings into overall planning and monitoring.

Maximizing a limited budget

Vietnam's budget for supervisory visits was not increased for this project. As a result, supervisors had to prioritize their visits according to the performance of health centers.

Typically, health centers with poorer performance are located in areas that are difficult to access, so supervisors had to proactively plan which sites to visit. They based cost decisions on job tools that assess transportation and per diem costs to determine total supervision costs. They regularly evaluated the status of community health centers based on service improvements or declines; the health centers' status changed accordingly. By using these quantitative measures, supervisors

were better able to prioritize trips and thereby support the weaker programs' performance.

To maximize their productivity, supervisors were required to prepare detailed work plans before each site visit, which included reviewing previous visit reports and arranging on-site training for health workers when needed.

Project success and expansion

During the project's first year, PATH initiated this pilot project in five districts in Ha Tinh. One year later, the project had demonstrated dramatic improvements and was expanded to the province's six remaining districts. Again, performance indicators for specific tasks and skills increased substantially (see figure).

PATH staff presented the project results in several quarterly Expanded Programme on Immunization (EPI) meetings. The results caught the attention of key decision-makers, and national and regional EPI staff have since requested that the supportive supervision performance checklists be added to the Vietnamese edition of *Immunization in Practice*, the World Health Organization's technical manual.

PATH will continue to support NEPI in consolidating, packaging, and refining this model based on the pilot project in Ha Tinh province, with the hope that it can be expanded to other regions. The Vietnamese Government is already considering implementing supportive supervision as a part of its national immunization program. ■

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Increasing access to safe abortion

Dialogue creates opportunities for informed choice

Project name

Dialogues for Life

Location

Nepal

Method

Behavior change communication

Partners

Department of Health Services, Government of Nepal; Family Planning Association of Nepal; NAMUNA Integrated Development Council; Center for Research on Environment, Health, and Population Activities

Funders

William and Flora Hewlett Foundation, Fred H. Bixby Foundation, Ipas, and private donors

For more information

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Nepal has one of the highest maternal mortality rates in South Asia,¹ and unsafe abortion is a major contributor, at one point responsible for 15 to 30 percent of maternal deaths.^{2,3} Although the Government of Nepal liberalized its abortion law in 2002, women still face significant social and familial barriers to accessing safe abortion—fear of social ostracism, gender inequities, and inadequate understanding of the health consequences of unsafe abortion.

In 2003, the Government of Nepal developed a national strategy for reducing the country's maternal mortality rate, in part by improving community awareness about new abortion laws and services. At the request of the Nepali government, PATH has developed and implemented a behavior change communication (BCC) program aimed at helping women overcome barriers to safe abortion.

Planning and testing Dialogues for Life

In 2004, PATH worked with community members, government officials, and nongovernmental groups in Nepal to design Dialogues for Life, a BCC program aimed at increasing women's power to choose and access safe and legal abortion. Dialogues for Life works through facilitated dialogue groups and community outreach to help women and their families reconsider beliefs that stand in the way of access. It also provides vital information about reproductive health.

In 2005, PATH launched a nine-month pilot project to gauge the strategy's effectiveness. The Family Planning Association of Nepal and NAMUNA Integrated Development Council implemented this project in the Kathmandu Valley and Rupendehi, in the southern Terai region. PATH worked with these partners to form 26 dialogue groups (478 participants total) and to train facilitators to run the groups. The groups met every other week for about two hours, with regular supervisory visits from PATH.

Direct talk and community action

The dialogue groups used techniques such as role-playing, games, and facilitated discussion to explore reproductive health topics—including safe abortion, family planning, HIV and AIDS, rape, and social issues such as gender discrimination—that affect women's ability to avoid abortion and to seek safe abortions if necessary. Within this supportive environment, hundreds of participants, most of them women, delved into the health issues affecting them and their communities and families.

With support from PATH, Nepali government and nongovernmental partners developed brochures, posters, and radio programming to spread information about clinic referrals and where to access safe and legal abortions—and to share the stories of people who make safer choices about their reproductive health. Dialogue group members came together to attend rallies marking International Women's Day and World AIDS Day, demonstrating a new freedom from fear of stigmatization.

Measuring change

To gauge the impact of the Dialogues for Life strategy on abortion-related behaviors, the project team interviewed participants individually, analyzed records from dialogue group meetings and community events, and collected case studies throughout the nine-month pilot. The team collected data on knowledge about

reproductive health, participants' willingness and ability to address reproductive health issues with family and community members, and use of family-planning services. The assessment showed that:

- Participants' knowledge of reproductive health issues increased, on some topics dramatically. For example, at the beginning of the project, only 33 percent of participants knew that a woman does not need a husband's consent to have a legal abortion; by the end, 79 percent correctly responded to this survey question.
- Women were more comfortable discussing reproductive health with their husbands and partners, who have great influence on decisions about contraception and abortion.
- The number of women using contraception increased by 23 percent over the course of the project. Among married women of reproductive age, 65 percent of project participants reported using a modern method of contraception—a much greater proportion than the national rate of 35 percent.

In addition to learning about the abortion law, reproductive health, and family planning, participants gained invaluable communication skills and became confident about ways to discuss sensitive reproductive health topics. Information sessions increased participants' knowledge of reproductive health. The combination of discussion and information sessions was effective in helping people think deeply in ways that were relevant to their real lives.

An unanticipated outcome of this project was the creation of community change agents who spontaneously provided personal support to fellow community members: they shared knowledge, made referrals and provided escorts, and helped community members in difficult situations. These individuals are carrying the positive results of the discussion groups into communities, magnifying the impact of individual change.

Next steps

In June 2006, PATH, the Family Planning Association of Nepal, and NAMUNA Integrated Development Council presented the Dialogues



Nepali women gather to learn about reproductive health and engage in dialogue about the social and familial obstacles that limit their access to safe abortion.

for Life evaluation results to the BCC Working Group of the national Technical Committee for the Implementation of Comprehensive Abortion Care in Kathmandu. Based on the pilot results, government and nongovernmental partners recommended that the Dialogues for Life strategy be expanded to at least three additional districts to promote healthier reproductive health behaviors in Nepal. PATH will continue to work with local partners to integrate elements of Dialogues for Life into ongoing nongovernmental organization programming, identify resources to scale up the approach by training new partners, and introduce new methods for sharing stories of successful behavior change through Magnet Theatre and radio, using Dialogues for Life approaches and the stories of participants whose lives are improved. ■

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Project name

Assisting countries to respond to the avian influenza threat

Locations

Georgia and Ukraine

Methods

Surveillance, communication, procurement

Partners

Georgia: Curatio International Foundation; Ministry of Labor, Health, and Social Affairs; National Center for Disease Control; WHO; UNICEF; World Bank; US Centers for Disease Control and Prevention(CDC); Ministry of Agriculture; the AgVantage Project; US Defense Threat Reduction Agency (DTRA)

Ukraine: Ministry of Health, Ministry of Agrarian Policy, Ukrainian Sanitary Epidemiological Station National Laboratory, Regional Influenza Center of Odesa, DTRA

Funders

US Agency for International Development, US Department of Health and Human Services/CDC

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Strengthening surveillance and awareness in Georgia

Recent outbreaks with human fatalities in two neighboring countries—Turkey and Azerbaijan—highlight the critical HPAI threat facing Georgia. To keep HPAI at bay, PATH, Curatio International Foundation, the Government of Georgia, and other stakeholders are strengthening influenza surveillance; information, education, and communication (IEC) activities; and procurement planning to help implement Georgia’s National Avian Influenza Preparedness Plan.

Strengthening the health system’s surveillance capacity (including its capacity to monitor for H5N1) may have the greatest impact on the country’s preparedness. PATH and its partners convened a multidisciplinary surveillance task force to design an early warning system for humans to detect unusual or unexplained events of acute respiratory illnesses and ensure that appropriate laboratory and public health responses are triggered. As part of this effort, the team developed technical guidelines (see box) and began training all public health workers and 100 frontline physicians around the country. They will complement these activities by providing on-the-job technical assistance when the system is fully implemented later this year.

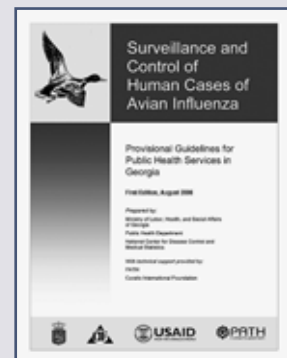
Because most IEC efforts in Georgia have focused on the general population, the team set out to raise awareness among the media, health authorities, local government authorities, and health workers. After developing talking points and communication guidelines for different epidemiological scenarios, the team also trained 43 central and regional spokespersons and several media representatives. Training for all public health workers in the country is now under way.

After assessing the immediate need for commodities for influenza surveillance in humans, the team initiated procurement of laboratory equipment; reagents; supplies capable of detecting new virus strains, such as H5N1; and personal protective equipment (PPE). These goods are being shipped to the country now. PATH will reinforce these procurement activities by developing a master inventory of all commodities required for pandemic influenza preparedness.

New guidelines for surveillance and control

Surveillance and Control of Human Cases of Avian Influenza: Provisional Guidelines for Public Health Services in Georgia is the first resource for public health workers and medical professionals who may face H5N1 infections in Georgia. The manual includes comprehensive information on various influenza surveillance topics, including:

- Recommended case definitions and case-notification procedures.
- Case-validation methods, requirements, and procedures.
- Early warning systems, including routine and active surveillance.
- Protocols for case/outbreak investigation, control, and response.
- Recommendations for delivering infection prevention/community education messages.



The guide is available for download from PATH’s website at www.path.org/publications/pub.php?id=1308.

Increasing preparedness, procuring supplies in Ukraine

Ukraine reported its first case of HPAI in December 2005, when the Ministry of Agricultural Policy detected the virus in dead domestic fowl. The virus subsequently spread from east to west in the southern region of Crimea, eventually affecting four districts. The outbreaks likely followed birds' migratory pathways.

PATH is working with the Ukraine Government to implement a comprehensive surveillance and detection strategy focused on strengthening laboratory and epidemiology capacity and infrastructure. An additional component focuses on developing an effective communication and control plan at the national and regional levels. The team is also working with the government to ensure that Ukraine has the PPE supplies it needs to detect and manage a potential outbreak.

In late 2005, PATH conducted a rapid assessment of pandemic preparedness in three oblasts: Donetsk, Crimea, and Odesa, all considered high-risk regions. The team collected information from sanitary epidemiological stations, veterinary services, and emergency and infectious disease hospitals regarding preparedness plans, coordination among oblast departments, diagnostic capacity, and the availability of PPE and disinfectant for both veterinary and health care workers. Based on the findings and corresponding requests, PATH procured commodities for poultry cullers as well as laboratories and delivered them to the Ministry of Emergencies and Ukraine's regional laboratories. To strengthen Ukraine's capacity for timely and accurate detection of H5N1, PATH also collaborated with the US Defense Threat Reduction Agency to provide veterinary and human health laboratories with equipment and supplies for rapid determination using real-time polymerase chain reaction.

In late 2006, PATH began a new phase of its work in Ukraine, collaborating with the ministry of health to strengthen its national rapid response and containment strategy, with the goal of mitigating a potential human outbreak of avian influenza. Key activities include:

- Ensuring sufficient laboratory and diagnostic capacity for routine surveillance to provide rapid confirmation of human cases.

- Providing the Regional Influenza Center of Odesa (RIC-O) with sufficient laboratory equipment and reagents to diagnose both human and animal influenza.
- Training selected RIC-O laboratory staff to perform sophisticated diagnostic techniques.
- Establishing a national network for countrywide active surveillance by routine monitoring at the regional and national levels.
- Establishing a sentinel surveillance system for influenza-like illnesses.
- Developing a seasonal vaccination strategy for high-risk groups.
- Implementing infection-control protocols consistent with internationally recognized standards at the rayon level in the RIC-O area of responsibility.

Moving forward

PATH will continue its efforts to prepare for a potential influenza pandemic. In Georgia, the team will refine the early warning and surveillance systems by analyzing the feedback from system users and international experience and training additional media representatives and spokespersons to deliver accurate communication and risk-reduction messages.

Collectively, these surveillance and procurement efforts are strengthening the essential components of the countries' preparedness for the immense impact that an influenza pandemic could bring. ■

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News—and an invitation—from PATH

Tell us what you think!

As *Directions in Global Health* completes its third year, PATH would like to enlist your help in evaluating the newsletter. What do you like about the publication? What do you hope to see in future issues? Please visit www.path.org/apps/directions/ to complete a short reader survey. We want *Directions* to be valuable to readers.

In appreciation of your time, each survey respondent will receive a set of blank note cards featuring photos from projects around the world.



Visit www.path.org/apps/directions/ to participate in our reader survey and receive a set of complimentary note cards

Recognition

Fast Company Social Capitalist award

For the fourth consecutive year, PATH was selected as a winner in the 2007 *Fast Company*/Monitor Group Social Capitalist Awards. The December issue of *Fast Company* features all of the Social Capitalist Award winners. Detailed information and podcasts are available on the magazine's website (www.fastcompany.com).



SolarChill award

The SolarChill Vaccine Cooler and Refrigerator Project won the Cooling Industry Award for Environmental Pioneer: Refrigeration. The project partners—the Danish Technological Institute, Greenpeace, PATH, UNICEF, the United Nations Environment Program, and the World Health Organization—were recognized for their work on this publicly owned, environmentally sound, reliable, and affordable technology.



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New awards and milestones

Immunization success in Cambodia

According to USAID's 2005 Demographic and Health Survey, national immunization coverage in

Cambodia increased from 39 to 67 percent from 2000 to 2005, helping to generate a 40-percent decline in infant mortality and a 37-percent decrease in the immunization dropout rate. With funding from the GAVI Alliance and technical assistance from PATH, the Cambodian Ministry of Health drove the success with proactive management reforms ranging from health-sector planning to vaccine financing to behavior change. These results are replicable in the world's poorest countries, and the lessons apply well beyond immunization programs.

Infant and Young Child Health and Nutrition award

The US Agency for International Development (USAID) has awarded PATH a five-year grant to improve infant and young child feeding practices—key to preventing death and illness among babies and children in the developing world.

Ultra Rice award

PATH has also received funding to advance the Ultra Rice® technology, a patented technology for fortifying rice with multiple micronutrients. The project will substantially expand demand and supply of Ultra Rice in four countries (Colombia, Brazil, China, and India) by focusing on product introduction, scale-up, and technology transfer. This grant was awarded by the Bill & Melinda Gates Foundation.

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:

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