



Eliminating meningitis in Africa

Partnership creates a new model for advancing a better vaccine

In the “meningitis belt,” a vast area that stretches from Senegal to Ethiopia, meningitis epidemics strike without warning. Unless antibiotics are available and used quickly, mortality rates can soar. The disease affects young adults, adolescents, and children, enabling epidemics to quickly evolve into social, human, and economic disasters. An estimated 450 million people in 21 countries are at risk.

Throughout the last century, sub-Saharan Africa has endured local meningitis epidemics every year, as well as large-scale epidemics every 8 to 12 years. Outbreaks between 1995 and 2004 resulted in close to 700,000 cases of illness and 60,000 deaths. A 1996 outbreak, the largest ever recorded, caused 250,000 cases and some 25,000 deaths, with more than 40,000 and 100,000 cases, respectively, in Burkina Faso and Nigeria alone. Long-term sequelae—deafness, mental retardation, epilepsy, and a variety of neurological conditions—affect up to one-quarter of survivors.¹

The Meningitis Vaccine Project (MVP), a partnership between the World Health Organization (WHO) and PATH, was created in 2001 to eliminate these epidemics. MVP's primary goal is to advance the development, testing, and licensure of conjugate meningococcal vaccines. Its approach represents a new paradigm for vaccine development—a consortium where the raw materials come from one source, the technology from another, and the

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Preventing mother-to-child HIV transmission

Ukraine project increases access to prevention interventions

Project name

Prevention of Mother-to-Child Transmission in Ukraine

Location

Ukraine (Odesa, Mykolayiv, Sevastopol, Simferopol, Feodesiya, and Yalta oblasts)

Methods

Training; information, education, and communication; outreach

Partners

Ukraine Ministry of Health; regional health care departments; HIV/AIDS centers; Alternative in Odesa; Coalition of HIV Service Organizations in Crimea; Unitus in Mykolayiv; Centre for Women's Initiatives in Sevastopol; New Social Technologies in Yalta; AIHA; JSI; Médecins Sans Frontières; AIDS Foundation East-West

Funder

US Agency for International Development

For more information

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In 1995, there were 12 cases of mother-to-child HIV transmission in Ukraine. In 2004, there were nearly 2,300 cases—reflecting an increase of 25 percent over the previous year. Women now account for about 40 percent of known HIV infections, and in 2004, the rate of HIV transmission from mothers to infants was estimated to be 8.4 percent.¹

Although the antiretroviral drugs needed to prevent mother-to-child transmission are available in Ukraine, and some health care providers—especially obstetrician-gynecologists—are trained to respond to the clinical needs of HIV-positive pregnant women, few health services make use of complementary approaches to reduce transmission rates. PATH and its partners are therefore strengthening Ukraine's capacity to integrate prevention of mother-to-child transmission (PMTCT) interventions into maternal and child health services and increase women's access to and use of these essential interventions. This work focuses on improving providers' skills in counseling, interpersonal communication, and education—for HIV-positive and -negative women and their partners—and strengthening community-based support. The project builds on a successful model program PATH conducted in Odesa oblast from 2001 to 2003.

Assessing information needs

PATH began by administering a knowledge, attitudes, and practices survey to 517 obstetrician-gynecologists and midwives in southern Ukraine. The report revealed major gaps in providers' knowledge of HIV/AIDS and PMTCT, highlighting the need for training on topics such as HIV transmission.

The team also conducted focus group discussions with 27 HIV-positive mothers who had delivered babies in the previous two years. Women reported that HIV-related stigma and discrimination were widespread, particularly at maternity homes; that voluntary counseling and testing (VCT) was unavailable at antenatal care clinics and maternity homes; and that providers frequently violated confidentiality. The women valued peer support and perceived VCT to be a critical entry point to prevention information and personal risk assessment.

Strengthening providers' skills

In response to women's desire for better support from health care workers, PATH is building maternal and child health care providers' skills in interpersonal communication, VCT, postpartum family-planning counseling, and referral to community-based medical services (regardless of the woman's or child's serostatus). The project team has already trained more than 500 providers—including chief doctors, department heads, obstetrician-gynecologists, and midwives—in VCT, referrals, and related techniques. Partner organizations participate in the trainings, presenting their own initiatives for VCT and supportive counseling, which helps promote and integrate support for people living with HIV/AIDS and their families.

In addition to strengthening VCT and referral capacities, the project is providing technical assistance for a VCT supervision system and strengthening facility capacity to integrate PMTCT into maternal and child health services. To promote sustainability, PATH is working to institutionalize VCT quality assurance. For example, the team developed a training curriculum that is being incorporated into medical education institutions; they are also ensuring the participation of people living with HIV and AIDS in all aspects of the project.



In Ukraine, PATH is working to strengthen the skills of maternal and child health care workers so they can better support and care for HIV-positive mothers. More than 500 providers have already been trained.

Educating women and their partners

In addition, the team is increasing access to information, expanding the proportion of women and families receiving comprehensive information about PMTCT services, and disseminating information—including a brochure for pregnant women—to families and providers about their right to and the benefits of VCT. Women should have a greater ability to seek out high-quality VCT services and a better understanding of the benefits, which in turn should increase the number who actually receive services—as well as the proportion of HIV-positive pregnant women who complete a course of antiretroviral prophylaxis.

Fostering support networks

Because community-based psychosocial support is so important for HIV-positive individuals, PATH is working to increase the availability, accessibility, and use of community-based support groups for HIV-positive pregnant women and mothers. In each of the target oblasts, the team is strengthening and expanding support groups and volunteer outreach and creating a welcoming health facility environment for peer-support programs. For instance, the team is establishing self-sustaining peer-support programs in target cities so that newly diagnosed women are offered counseling and support. Through collaboration with the leaders of these groups and with local partners, PATH has

developed highly targeted, pretested materials and messages for outreach to vulnerable women, especially sex workers and injection drug users.

Project reach

By September 2007, PATH will train up to 75 percent of the midwives and obstetrician-gynecologists in the principal oblast cities, which include Odesa City, Mykolayiv City, Sevastopol, Simferopol, Yalta, and Feodosiya. Given that the majority of women, especially those who are HIV positive, are likely to deliver their babies in major municipal or oblast facilities in these cities, the project should achieve high coverage of the main at-risk populations. Furthermore, because these hospitals are responsible for providing guidance to medical workers in smaller towns, areas outside of the target oblasts will benefit indirectly from the project's main interventions.

In all, PATH estimates that the project will reach approximately 50,000 pregnant women per year in the target sites and 2,500 HIV-positive pregnant women, newborns, and families. ■

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Influencing culture to change behavior

A small-grants
program
catalyzes
local action

Project name

Culture and Health
Program for Africa
(CHAPS)

Locations

Egypt, Kenya, Nigeria,
South Africa

Methods

Advocacy, training,
communication for social
change, community
mobilization, materials
development, technology
development

Partners

More than 50
implementing partners
in Africa

Funder

Ford Foundation

For more information

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Culture has a vital influence on health, shaping definitions of illness and guiding choices that affect health—including decisions about sex, nutrition, and health-seeking behaviors. In 2000, PATH instituted the Culture and Health Program for Africa (CHAPS) to encourage community reflection on cultural practices that have an impact on health. Since then, CHAPS has funded 58 projects in Egypt, Kenya, Nigeria, and South Africa.

The intersection of health and culture

CHAPS supports highly creative projects that would not usually receive international health funding. It is driven by the idea that community members are ideally positioned to use culture to promote healthy behaviors—whether by discouraging practices that impede health-seeking behavior or by encouraging those that promote physical and mental well-being.

Nkukut: changing outcomes through community discourse

In Nigeria, the Human Empowerment and Development Project used a CHAPS grant to engage communities in critical discussion about *nkukut*—a practice common among the Annang ethnic/cultural group, in which women give birth in religious centers, rather than hospitals. The community believes that to do otherwise will bring poor health to the child. However, workers at such centers are not required to undergo training and may be distrustful of modern medicine. Adherence to *nkukut* has led to poor health outcomes for mothers and children and increasing maternal mortality rates.

The project inspired and guided dialogue about *nkukut* to reduce reliance on the practice. Participants shared information with communities through communications materials such as documentaries, posters, flyers, and pamphlets. Workshops encouraged individuals to discuss their experiences and consider *nkukut*'s impact on the community. Project staff also designed a training curriculum to provide workers at *nkukut* centers with the skills needed for safer delivery and postpartum care; 55 such workers completed training as traditional birth attendants.

Re-framing violence against women

A grant from the CHAPS program supported the efforts of the Progressive Primary Health Care (PPHC), a national nongovernmental organization in South Africa, to help individuals and families reconsider traditionally acceptable forms of gender-based violence. PPHC staff led workshops and carried out door-to-door campaigns—with trained community members—to counsel women about their rights, encourage those living in violent households to speak out, and help men understand the damaging effects of violence.

The grant allowed PPHC to hold 22 training workshops for community members; form anti-sexual violence forums in all five districts of Free State Province; and develop a training manual on preventing gender-based violence. The organization was also able to help form and provide training to community groups on preventing and addressing gender-based violence. Such groups are the foundation of community-wide change.

Improving health in the workplace

In Bessteel, Cairo, a CHAPS project modified traditional carding machinery to alleviate health problems caused by inhalation of cotton dust. The carding machines used to process cotton (cleaning and straightening fibers for mattresses,

pillows, and upholstered furniture) produce high levels of cotton fibers and dust, causing severe respiratory problems—including an asthma-like illness that can lead to long-term impairment—among workers.

Members of the Central Association for Developing and Producing Environmental Technology (CADPET), in collaboration with engineers and cotton carders, developed an improved version of the carding machine. The new machine is completely enclosed: no dust escapes, and there's no risk that exposed machinery will injure workers. After initial testing, the organization produced 14 of the new machines with their own funds. CADPET has also acted to protect workers by distributing dust masks and through education, providing a safer working environment and a better understanding of risks and prevention.

Relying on native foods

A CHAPS grant to a Kenyan women's group has helped educate a poverty-stricken region about abundant local food sources. In arid Pokot, families struggle to find healthy food sources. Staples common elsewhere in Kenya, such as corn and beans, are difficult to grow—and in this high-poverty area, families cannot afford to purchase them at nearby markets.

The Tomwo Women's Group approached village elders to learn how to make use of the abundance of wild fruits and greens native to the region—many of which had been displaced by foreign foods in the last century. Relying on traditional knowledge and methods, the group began selecting edible wild foods to feed their undernourished children. Not only are these foods readily available, but they provide a more varied and nutritious diet.

The Tomwo Women's Group now uses traditional songs, dances, and crafts to carry messages about nutrition and local food sources to other villages. Within a short while, children in these communities have begun to look healthier—a change noticed even by local health centers.

Local leadership

PATH staff work with community members and representatives from local organizations to administer the projects, drawing on their knowledge of local culture and connections with communities. These groups collaborate with PATH to select projects that are community-

driven, engage culture to promote health, and offer useful lessons to other communities. Almost 70 percent of grants have been awarded to individuals and organizations in rural areas, where traditional values are most deeply rooted and health challenges are greatest.

Stimulating public awareness and dialogue

One of the goals of the CHAPS program is to increase public awareness of the importance of culture in health. Many grantees undertake advocacy activities to engage community leaders and policymakers. CHAPS grantees also find creative ways to share experiences through the media to influence policy- and decision-makers; many projects have been featured on radio and television in Nigeria, Kenya, and Egypt.

Haba na Haba, a video documenting four CHAPS projects in Kenya, has been a useful advocacy piece, sparking dialogue among educators, government ministries, and local nongovernmental organizations. The film and other such materials continue to raise public awareness of the relationship between culture and health, not just in Africa, but worldwide.



Catalyzing change through cultural reflection

CHAPS demonstrates that social change can occur at a local level through simple, small-scale interventions. It provides community members the opportunity to see that their efforts can have a positive impact on the lives of others. In all four countries, CHAPS is reaching its goal of increasing awareness and dialogue about cultural practices that affect health and engaging communities in developing strategies and participating in related activities. CHAPS projects serve as catalysts within their communities, helping others begin to recognize and discuss the ways in which specific cultural practices affect mental and physical health. ■

Communication strategies for HIV prevention

Training truck drivers to slow the epidemic in India

Project name

Inter-Act

Location

India

Methods

Interpersonal communication, peer facilitation, behavior change communication

Partner

Transport Corporation of India Foundation

Funder

Bill & Melinda Gates Foundation, through the India AIDS Initiative (Avahan)

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Truck drivers, like other populations on the move, are particularly vulnerable to HIV and other sexually transmitted infections (STIs). On the road for most of the year, migrant drivers and their driving assistants often participate in high-risk behaviors, such as unprotected sex, including unprotected male-to-male sexual practices. Drivers may then transmit infections to wives and girlfriends at home, with a high cost to families and communities.

Breaking the chain of infection requires behavior change for the truck drivers and social change for the communities where they live and work. On the highways of six Indian states with the highest prevalence of HIV—Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Manipur, and Nagaland—as well as other parts of India, PATH is using innovative interpersonal communication approaches to help truck drivers protect themselves against infection. This work is part of the India AIDS Initiative (“Avahan”), a broad effort to scale up HIV/STI prevention interventions for key populations in India.

From truck drivers to peer facilitators

Project activities center on training sessions for truck drivers that both inform them about HIV and STI prevention and train them to use interpersonal communication methods to assist their peers in addressing prevention barriers. These sessions focus on analyzing local contexts and overcoming barriers such as lack of information, limited access to services, negative community attitudes, and legal obstacles.

At the start of the project, PATH worked with organizations in the Avahan Initiative to recruit and train a pilot group of 20 drivers and driving assistants as peer interpersonal communication facilitators. These facilitators underwent a 14-day training course that included a 7-day period of supervised fieldwork. The training program was conducted during weekends so that participants did not have to miss long periods of work.

During the training, experienced facilitators worked with the core group to demonstrate facilitation skills and mentor fieldwork, until the group became adept at generating dialogue and debate about the most effective risk-reduction strategies and action. Detailed feedback from training sessions was immensely useful in strengthening other components of the HIV/STI prevention program for truck drivers and driving assistants.

Once the training was complete, the pilot core group began part-time work with the project, carrying on their professional work while facilitating interpersonal communication sessions among their peers.

Methods that inform and engage

PATH trained peer facilitators to use dialogue-based interpersonal communication and other methods to elicit critical reflection about barriers to HIV prevention and to help participants share and analyze risk-reduction techniques. Methods that were particularly successful included:



Innovative communication strategies help truck drivers in India avoid HIV infection.

- **Graffiti.** This method uses drawing to bring sensitive topics to the table for discussion. Participants sketch sexual practices in which they commonly engage and identify the HIV risk associated with each practice. They then discuss how to make the practices safer.
- **Statues.** After a facilitated brainstorming session, small groups form tableaux—standing frozen in place—to demonstrate ways to reduce HIV risk. Participants are drawn into discussion among themselves and then are engaged in critical thinking about other groups’ ideas.
- **How hot is the spot?** To help participants identify and remove barriers to risk reduction, facilitators ask them to draw a map and indicate the locations where high-risk behavior is most likely to occur, ranking “spots” by level of risk or number of people at risk. Discussion centers on high-risk areas, and groups brainstorm ideas for making changes that will reduce risk.

Adapted from participatory learning and action methods, these techniques help develop rapport and create real engagement, rather than passive participation. They stimulate dialogue and debate and encourage problem-solving.

Removing the stigma barrier

The fear of stigmatization is a powerful deterrent to accessing HIV prevention services, and truck drivers interface with a range of stakeholders—transporters, brokers, doctors, social workers, the police, and the community—who evaluate their behavior. Truck driving is not a high-status profession, and drivers face the additional stigma of being associated with the spread of HIV. Many truck drivers fear that participating in prevention activities may increase this association, which makes this group particularly difficult to reach.

The pilot project showed that peer facilitators were able to provide a credible interface between prevention activities and the truck-driving community, helping to create an environment in which the only distinction is between “safe” and “unsafe” behaviors—not between “good” and “bad” or “right” and “wrong.” The success of this strategy is reflected in the training program’s high retention rate and in the fact that many truck drivers who heard about the project volunteered to participate on their own initiative.

Moving targets

While truck drivers’ mobility can be a challenge in interventions meant to reach this group, the pilot project showed that it can also be an asset, allowing peer facilitators, who travel to multiple transportation hubs and cover thousands of miles, to work with much larger groups of people and over wide geographic areas.



Truck drivers and assistants, whose work places them at high risk of HIV infection, participate in peer-facilitated, interactive workshops that encourage healthier choices.

Scaling up success

Making drivers emissaries to the truck-driving community has created a comfortable environment for exploring difficult subjects, increasing the chance that drivers will fully engage in HIV prevention interventions. PATH is working closely with Avahan partners to scale up this peer-to-peer interpersonal communication approach in the six largest trucking centers in India (Ghaziabad, Kanpur, Indore, Nagpur, Pune, and Bangalore). PATH provides ongoing training and in-field mentoring and is helping the partners strengthen their own ability to provide training to truck drivers.

As an increasingly large pool of trained peer facilitators sign up for assignments, Avahan partners will be able to support HIV prevention among more than 63,000 truck drivers and assistants each month, reaching a total population of more than 1.5 million. ■

Assessing the impact of neonatal resuscitators

Research informs technology use and selection

Project name

Neonatal Resuscitator Evaluation

Locations

Indonesia, United States

Methods

User and laboratory testing

Partners

Seattle Midwifery School, University of Washington Department of Pediatrics and School of Medicine

Funders

US Agency for International Development (through PATH's HealthTech program), Save the Children

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Birth attendants in many countries face a daunting challenge: they lack a simple medical device that could help avert nearly one million neonatal deaths each year.

When properly used, neonatal resuscitators are critical components of efforts to reduce neonatal mortality due to birth asphyxia. In low-resource settings, however, the devices are often expensive or difficult to procure—which means that their use is limited. The unreliability of the system for supplying replacement parts and a lack of training for birth attendants further limit use.

Even when program managers and other decision-makers are prepared to purchase the devices, they often lack information about which neonatal resuscitators are easiest to use, work best, and are the best value. To inform their decisions, PATH conducted a comprehensive evaluation of neonatal resuscitators designed to achieve two objectives: provide public health policymakers and program leaders with the information they need to dedicate resources for equipment and training, and identify device features that influence and help ensure correct and consistent use.

Evaluating the devices in action

Research began in 2004 when PATH conducted a pilot evaluation of five commercially available neonatal resuscitators in Indonesia and the United States. Based on the outcomes of this assessment, the team launched a second study in Indonesia, where more than 400 midwives received training and were equipped with a neonatal resuscitator. The team evaluated the change in birth-related deaths due to asphyxia.

To further increase awareness about affordable and reliable neonatal resuscitators, PATH evaluated 11 neonatal resuscitators from two model categories: bag-and-mask and tube-and-mask. PATH gathered data through discussions and written feedback from users, observation of users, and measurement of proximal pressure, tidal volume, and breaths per minute (as recorded by a test lung apparatus). Researchers observed skilled users (Seattle-area midwives) and unskilled users (staff volunteers) disassembling and reassembling the devices and then using them to “resuscitate” a mannequin.

From research to recommendations

The team found that certain resuscitator features and characteristics influenced user interactions. For example, color-coded parts facilitated correct assembly. During use, some devices caused increased user fatigue, while other models were awkward to hold and manipulate.

PATH also identified several features that contribute to the safety and effectiveness of all neonatal resuscitators. For instance, a form-fitting mask can help provide a good seal around the newborn's mouth, and a pressure-release valve can help protect fragile lungs.

Furthermore, the assessment indicated that:

- Most bag-and-mask resuscitators included in the study meet internationally recognized (American Society for Testing and Materials) standards for function.

- Most bag-and-mask resuscitators include a correctly functioning pressure-limiting valve to help prevent lung damage.
- Proper and correct use of bag-and-mask resuscitators varies among users and is not directly correlated with resuscitator design.
- Tube-and-mask models are associated with greater user fatigue and greater variability in performance.
- The instructions that accompany the devices are often incomplete or written at a moderately difficult level (e.g., high school or college reading level).

These and other evaluation results were used to develop *Practical Selection of Neonatal Resuscitators: A Field Guide*, which provides detailed device information, a list of specific features, resuscitator parameters, laboratory evaluations, user feedback, and usability data. To access the field guide, visit www.path.org/publications/pub.php?id=1147.

Weigh-in from the experts

To gain additional insight, PATH surveyed neonatal health experts to understand the practices and preferences for both types of neonatal resuscitators. In general, the survey participants indicated that bag-and-mask models are used by more practitioners and in more places than tube-and-mask designs. Providers' needs included frequent refresher training and appropriately sized devices, especially for use with preterm and low-birthweight infants. Other concerns included device readiness at delivery and use after long periods of inactivity.

The programmatic implications of this work include the need to improve health workers' confidence and ability to keep the devices clean and in safe working order over time. These issues should be reviewed in detail during periodic refresher courses.

Most important, researchers learned that the most significant variable in resuscitator effectiveness may be the users. Birth attendants who receive high-quality instruction are most successful in using the devices effectively. When choosing a device, program managers must decide what type of resuscitator and price range are most important for their setting.

Next steps

PATH is now turning its attention to the ongoing supply of neonatal resuscitators. By fall 2006, the team will release an inventory of all neonatal resuscitators available globally and begin evaluating reusable resuscitators that cost less than US\$30. To encourage pricing that developing-country health systems can afford, PATH plans to assist medical equipment manufacturers in Africa and Asia to increase their distribution profile and adapt effective and existing resuscitator designs. ■



PATH's in-depth evaluation of neonatal resuscitators will help public health decision-makers assess which model of resuscitator works best for their programs. PATH evaluated the designs and usability of both bag-and-mask (middle photo) and tube-and-mask (bottom photo) models.



Project name

Meningitis Vaccine Project

Location

Sub-Saharan Africa

Methods

Vaccine research and development, capacity building, surveillance

Partners

SynCo Bio Partners BV, Serum Institute of India Limited, US Food and Drug Administration, US Centers for Disease Control and Prevention, National Institutes of Health, iGATE Clinical Research International, Agence Africaine pour la Recherche en Santé Humaine, Health Protection Agency, National Institute for Biological Standards and Control, Medical Research Council Laboratories, Centre pour le Développement des Vaccins-Mali

Funder

Bill & Melinda Gates Foundation

For more information

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manufacturing facility from another, with a north-to-south transfer of technology and capacity.

The limitations of current efforts

Over the last 20 years, control of epidemic meningitis in Africa has emphasized surveillance and reactive mass immunizations with meningococcal polysaccharide vaccines. Meningitis-belt countries spend an estimated US\$20 million on these efforts each year.

But these strategies are only moderately effective. Because of weak surveillance and laboratory systems, immunizations typically are given in the last phase of the epidemic, often with discouraging results. Furthermore, vaccine supplies often are unsteady, even during epidemics. Polysaccharide vaccines are ineffective in children under two years, and in older children and adults, they provide protection for only three to five years. They do not decrease carriage of the bacteria or induce herd immunity (in which transmission of the bacterium is blocked, thus extending protection to unvaccinated individuals).

Conjugate vaccines show promise

In contrast, conjugate vaccines provide protection to young children, are highly immunogenic, provide long-lasting protection, and decrease carriage and transmission of the disease. MVP is therefore advancing a conjugate vaccine that protects against group A meningococcal meningitis, which causes 85 percent of epidemics and approximately one-half of endemic meningitis in Africa. This “Men A conjugate” vaccine will be given as a single dose to 1- to 29-year-olds in mass vaccination campaigns. The vaccine will be used preventively, rather than reactively, which offers an opportunity to coordinate with other mass immunization campaigns (such as those for yellow fever and measles).

Ensuring affordability

Because African public health officials have emphasized the importance of price, ensuring that the new vaccine is affordable and cost-effective is one of MVP’s core objectives. To ensure a low-price, high-quality vaccine, MVP is coordinating the efforts of SynCo Bio Partners BV in the Netherlands, which is supplying meningococcal polysaccharide A (one of the two main components of the vaccine); the Serum Institute of India Limited (SIIL) for vaccine manufacturing and supply of tetanus toxoid (the second main component of the vaccine); and the US Food and Drug Administration’s Center for Biologics Evaluation and Research for development of the conjugation technology.

SIIL has agreed to manufacture a Men A conjugate vaccine at a target price of US\$0.40 per dose, which meets the requirements cited by African public health officials. MVP’s cost-effectiveness research demonstrates that preventive use of a vaccine at this price will cost less than current expenditures in hyperendemic areas—even before lost livelihood income and disability savings are taken into account.

Vaccine development gains momentum

MVP has rapidly progressed from vaccine research and development to clinical development of the Men A conjugate vaccine. In 2003, the Center for Biologics Evaluation and Research transferred its conjugation technology to SIIL, which has since scaled up and validated the process for larger-scale production.

In 2005, a Phase 1 clinical study was initiated in India. Results from the study confirmed that the vaccine candidate is safe and immunogenic after a single dose

in healthy adults. MVP is now launching a Phase 2 study of safety, immunogenicity, and memory induction among toddlers 12 to 23 months old in Mali and The Gambia. After additional studies, MVP and SIIL will prepare the first submission file for commercial license and WHO prequalification in early 2009.

Introducing the vaccine

Vaccine introduction will be phased according to disease burden and programmatic strengths. MVP has developed plans for a 2008–2009 demonstration study that will immunize approximately five million people and measure the public health impact. MVP is already collaborating with African health officials and public health experts to prepare for broader introduction in 2009.

MVP also supports initiatives that provide decision-makers with information about the public health impact of the new vaccine. For example, the team is providing comprehensive, interactive information on meningococcal meningitis through the Advanced Immunization Management (AIM) e-Learning tool (<http://aim.path.org>). MVP is developing the initial module in French for translation to English by the end of 2006. In addition, MVP is reaching hyperendemic areas with appropriate and accessible information and training for journalists, national officials, health workers, and communities.

Building capacity

Since 2002, the MVP surveillance team based at the WHO Regional Office for Africa's Multi-Disease Surveillance Center in Ouagadougou, Burkina Faso, has been enhancing the skills of national surveillance personnel in epidemiology, data management and analysis, and laboratory capacity. Weekly surveillance data from 14 countries now alert health authorities in the early stages of an epidemic, thereby enhancing epidemic control in the meningitis belt.

Since 2005, MVP has also been providing training and capacity development toward implementation of clinical study sites in Mali and The Gambia, including staff training and infrastructure building. MVP's efforts to improve capacity at

clinical sites will ultimately reach six clinical sites in Africa. Improving study site capacity at all sites not only ensures effective study implementation but also meets MVP's objective of strengthening health systems and structures in Africa.



Deafness is the most common sequela of meningitis in Africa. At the CEFISE school in Ouagadougou, Burkina Faso, deaf children learn how to produce sounds through creative exercises, like blowing bubbles. MVP's efforts should help eliminate deafness and other meningitis effects.

A sustainable model

MVP provides a model for international partnerships that address well-defined public health goals within the boundaries of users' financial realities. By building sustainable public health capacity through training and partnerships and improving knowledge through communication and advocacy, MVP has advanced a cost-effective vaccine that will address Africa's specific health needs. This approach may be a useful model for developing other orphan vaccines or drugs whose primary markets are low-income countries in the developing world. ■

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