

# DIRECTIONS

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## IN GLOBAL HEALTH

PATH/Evelyn Hockstein



## Increasing access to lifesaving products for women

**PATH advances an agenda for global action to reduce maternal deaths**

About 30 women die each hour from complications related to pregnancy or childbirth. Although medicines costing less than US\$1 per dose can prevent many of these deaths, these products often do not reach women in developing countries who need them. Even when products are available, the quality may be poor or local health care workers may not know how to use them effectively.

To increase access to and proper use of lifesaving products, PATH recently released an agenda for global action on maternal health medicines. We are also continuing to develop and introduce novel technologies to prevent maternal deaths.

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work with global  
health colleagues



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## The ripple effect

Visit a clinic or hospital in sub-Saharan Africa or Southeast Asia and you will find dedicated health workers doing their best to help women with complications related to pregnancy or childbirth. Often, however, they lack the medicines and other health supplies needed to provide effective services.

Postpartum hemorrhage, the leading cause of maternal death, can be effectively prevented and treated with two low-cost medicines: oxytocin and misoprostol. The US Agency for International Development has estimated that making these medicines available to all women giving birth will prevent 41 million cases of severe bleeding after childbirth and save 1.4 million lives over ten years. Experts at the Guttmacher Institute have likewise estimated that providing women wider access to modern contraceptives and family planning will reduce maternal deaths by one-third.

Ensuring adequate supplies of essential health products is a vital—and often overlooked—part of work to prevent maternal deaths. We must ensure that health workers and women in developing countries have access to lifesaving health products, many of which cost less than US\$1. All the skilled health care workers in the world cannot deliver the care women need if a clinic's stock is empty and the next round of supplies is weeks away.

Securing access to needed maternal health supplies is not enough, however. In some cases, the quality of products available in developing countries is poor and needs to be improved through better regulatory

Saving a mother has a powerful ripple effect. To save a mother is to save a family. And to save a family is to strengthen the community and nation.

systems. Other times, essential products and supplies are available, but health workers need to be trained in their proper use.

The recently formed UN Commission on Life-Saving Commodities for Women and Children is helping to identify and overcome obstacles that prevent widespread access to and proper use of maternal and reproductive health supplies. In addition, a new report

from PATH—*Safeguarding Pregnant Women With Essential Medicines: A Global Agenda to Improve Quality and Access*—offers a targeted agenda for global and national advocates, policymakers, and program implementers to increase the availability and quality of low-cost products to prevent maternal deaths. With political support and additional funding for proven, low-cost maternal health supplies

and the systems that support their delivery, we can drive improvements that will save millions of women.

Saving a mother has a powerful ripple effect. To save a mother is to save a family. And to save a family is to strengthen the community and nation.

We now have an incredible opportunity to build brighter futures for women, families, communities, and nations by increasing the availability and appropriate use of maternal health supplies. This work will help to set in motion a wave of health and prosperity that spreads across the globe.

Catharine Taylor, MSc Econ, directs PATH's Maternal and Child Health and Nutrition Global Program.



## NEW ON PATH.ORG

### Meeting our meningitis commitment

[www.path.org/blog/2012/10/meningitis-commitment/](http://www.path.org/blog/2012/10/meningitis-commitment/)

Visit our blog to see a short video made at the Clinton Global Initiative annual meeting. It features Steve Davis, PATH's president and CEO, talking about progress to introduce a vaccine against deadly meningitis A in sub-Saharan Africa.

### New rotavirus vaccine website

<http://sites.path.org/rotavirusvaccine/>

Check out our new website on increasing access to rotavirus vaccine to prevent severe diarrhea among young children.

### Turning recommendations into reality

[www.path.org/blog/2012/09/recommendations-into-reality/](http://www.path.org/blog/2012/09/recommendations-into-reality/)

Rachel Wilson, senior director for policy and advocacy, tells how PATH is working to turn the recommendations of the UN Commission on Life-Saving Commodities for Women and Children into reality.

### Pharmacies deliver more than medicine

[www.path.org/stories/suong.php](http://www.path.org/stories/suong.php)

Find out about PATH's work to strengthen the role of private pharmacies in Vietnam and other countries.

# Improving health and nutrition through orange-fleshed sweetpotatoes

## PATH links agriculture and nutrition for better maternal and child health

Orange-fleshed sweetpotatoes are rich in beta-carotene that the body can convert into vitamin A, a nutrient that is especially important for young children and pregnant or lactating women. Across sub-Saharan Africa, as many as 43 million children under age five are at risk of vitamin A deficiency, which contributes to significant rates of blindness, disease, and premature death.

Through an innovative project called Mama SASHA—Sweetpotato Action for Security and Health in Africa—PATH and the International Potato Center are improving maternal and child health by blending antenatal care, sweetpotato cultivation, and nutrition education. The five-year project aims to strengthen the use of antenatal care services and boost consumption of orange-fleshed sweetpotatoes across two districts in Western Province, Kenya, where less nutritious white- and yellow-fleshed sweetpotatoes are already part of the local diet.

### An integrated approach

Here's how the project works: Community health workers encourage pregnant women to seek antenatal care early and consistently during their pregnancies. Nutrition and health messages are reinforced by health workers who lead more than 200 monthly clubs for pregnant women and new mothers. During antenatal care visits, nurses provide nutrition and health counseling as well as vouchers that can be redeemed for sweetpotato vines from local farmers. Community health workers and agricultural advisers make home visits to offer planting and growing tips.

PATH and the International Potato Center are partnering on the project



PATH/Eric Becker

Growing orange-fleshed sweetpotatoes can provide women and their families a source of extra income as well as needed nutrients.

with government ministries, local agricultural organizations, and university researchers. The project is being implemented through the AIDS, Population, and Health Integrated Assistance Plus project, an initiative led by PATH and funded by the US Agency for International Development to strengthen health services in western Kenya.

### Delivering health and economic benefits

Mama SASHA has reached nearly 3,000 women in western Kenya, more than three times the original target. Local health care workers say women are showing up earlier for antenatal care. In-facility births and immunization rates are up, eye and skin infections are down, and connections between health facilities and the communities they serve are growing stronger. This is leading to new opportunities to improve family health and prevent disease and illness. In addition, some families are seeing unexpected


economic benefits by selling surplus sweetpotatoes to earn extra income.

Researchers from the University of Toronto and Emory University are helping to evaluate the project's impact on maternal and child health and nutrition, using a cross-sectional household survey and a separate cohort study to assess changes in vitamin A status, children's height and weight, and other indicators. Reports from participants, community health workers, and health care providers suggest that this integrated approach is delivering important health benefits to families and providing incentives to health workers to deliver high-quality services. ■

### FOR MORE INFORMATION

Contact Carol Levin, senior health economist, at [clevin@path.org](mailto:clevin@path.org).

This work has been funded by the International Potato Center.

 Read more about the Mama SASHA project at [www.path.org/projects/sweetpotato-project.php](http://www.path.org/projects/sweetpotato-project.php).



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## Consultations with stakeholders

To gather information on how to increase access to maternal health medicines and other products, PATH held in-person interviews with 27 key stakeholders representing donor countries, multilateral organizations, bilateral programs, product developers, and nongovernmental organizations. These interviews shaped the agenda for five roundtable discussions held between May and July 2012 with more than 130 maternal health stakeholders from across Asia, sub-Saharan Africa, Europe, and North America. PATH used the findings to prepare the agenda for action, which is laid out in a report titled *Safeguarding Pregnant Women with Essential Medicines: A Global Agenda to Improve Quality and Access* (available online at [www.path.org/publications/](http://www.path.org/publications/)).

The report focuses on use of oxytocin and misoprostol for prevention and treatment of postpartum hemorrhage (excessive bleeding after childbirth) and on magnesium sulfate for preeclampsia and eclampsia (which are associated with a dangerous rise in blood pressure during pregnancy). These conditions are the most common causes of maternal death.

## Agenda highlights

The new agenda for action emphasizes the value of innovation, public-private partnerships, and market-based approaches for reaching more women in developing countries with needed supplies. Recommendations include:

- Strengthening local and national data collection systems to better manage supplies of essential medicines.
- Certifying a select number of manufacturers to produce high-quality maternal health medicines on a global scale.
- Enhancing local manufacturers' capacity for quality assurance.
- Creating new heat-stable formulations for oxytocin and moisture-proof packaging for misoprostol tablets to protect them during transport and storage.
- Developing a simplified dosing regimen and related packaging for magnesium sulfate for easier use.

- Conducting research to understand and address issues related to client demand for and use of maternal health medicines.
- Investing in strengthening supply chains for essential medicines.

The agenda for action will help global and national advocates, policymakers, and program implementers lead efforts to increase the quality, availability, and appropriate use of oxytocin, misoprostol, and magnesium sulfate to save women's lives.

## Ties to recent work by a United Nations commission

PATH released the agenda for action during the United Nations General Assembly in late September in parallel with the launch of a new report from the United Nations Commission on Life-Saving Commodities for Women and Children. Whereas PATH's agenda for action specifically addresses 3 maternal health medicines, the UN commission's recommendations cover 13 simple, affordable health products that span maternal, newborn, child, and reproductive health. The UN commission's recommendations focus on scaling up innovative technologies, strengthening regulatory systems, implementing strategies to increase demand for products, and developing new approaches to improve local access to those products.

PATH played an important role in informing the recommendations of the UN commission. Our work ranged from presenting background research on several product areas to leading technical working groups on best practices and innovations. Moving forward, PATH will convene two expert groups and work with partners to develop detailed implementation plans to optimize the recommendations related to one crosscutting issue—innovation—and one commodity—chlorhexidine. Chlorhexidine is an antiseptic used to prevent infection of the newborn umbilical cord stump.



Heat-stable formulations of oxytocin (left) and simplified dosing and packaging for magnesium sulfate (right) may help to reduce maternal deaths.



## Developing and introducing maternal health products

PATH's work to reduce maternal mortality has included developing and introducing a number of health technologies. For example, PATH has worked to reduce deaths from postpartum hemorrhage by advancing use of oxytocin in the Uniject™ injection system—an injection system originally developed by PATH. Wider use of this product has the potential to make this treatment available to all women, wherever they give birth. The easy-to-use, injection-ready format enables use by midwives, village health workers, and others in the community with lower levels of health care training.

PATH has partnered with commercial firms to manufacture oxytocin in Uniject. The product has been registered for commercial sale in a number of countries, including Argentina, Bolivia, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, and Uruguay. PATH has helped to pilot the use of oxytocin in Uniject by lower-level health workers in Latin America and Africa, and the results will guide further work to introduce this promising product.

PATH has also explored innovative solutions to address the temperature sensitivity of oxytocin. These include packaging oxytocin with a small sticker that measures cumulative exposure to potentially damaging heat, as well as developing more heat-stable, non-injectable formulations such as nasal sprays.

Other PATH projects to prevent maternal deaths include:

- Refining and introducing an affordable nonpneumatic antishock garment. The reusable, wetsuit-like garment can be used to apply pressure to the lower part of a woman's body to manage blood loss from postpartum hemorrhage.
- Developing a low-cost balloon tamponade that can be inserted into the uterus and filled with saline to control severe bleeding.
- Investigating new tools and technologies for preventing, diagnosing, and treating maternal sepsis, or severe infection after childbirth, which accounts for up to 15 percent of maternal deaths.

Expanding women's options for family planning is another component of PATH's work to protect women's health and prevent maternal deaths. This includes increasing access to injectable contraceptives, such as through use of depo-subQ provera 104™ in the Uniject injection system; developing and introducing the Woman's Condom, which is designed to address the shortcomings of earlier female condoms; and

developing the one-size-fits-most SILCS diaphragm, which has proved to be easy to use, comfortable, and acceptable to women in low-resource settings.

In addition, PATH recently collaborated with Merck through the Merck for Mothers program to assess nearly 40 technologies that show promise for reducing maternal deaths. See a related article on page 7.


## Overcoming challenges to meet women's health needs

Improving access to high-quality, lifesaving commodities for women will require overcoming complex challenges related to market development, the regulatory environment, and shortfalls in supply and demand. The new agenda for global action on maternal health medicines developed by PATH and recommendations from the UN Commission on Life-Saving Commodities for Women and Children suggest that community engagement, innovation, public-private partnerships, and market-based approaches are critical to sustainable improvements. ■

### FOR MORE INFORMATION

Contact Rachel Wilson, senior director for policy and advocacy, at [rwilson@path.org](mailto:rwilson@path.org).

The advocacy work described in this article has been funded by the Bill & Melinda Gates Foundation.

 Read PATH's new report and agenda for global action on maternal health supplies at [www.path.org/publications/detail.php?i=2207](http://www.path.org/publications/detail.php?i=2207).

Uniject is a trademark of BD.

Depo-subQ provera 104 is a trademark of Pfizer.

Photos: PATH/Patrick McKern



In cases of postpartum hemorrhage, an antishock garment can be wrapped tightly around the mother's abdomen, pelvis, and legs to manage blood loss until she reaches an emergency care facility. PATH is reducing costs and increasing availability of the garment.

# Reviving hepatitis B vaccination in Vietnam

## PATH helps newborn vaccination program get back on track

Hepatitis B is a viral infection that damages the liver and kills an estimated 600,000 people each year. The highest rates of infection are in Southeast Asia. To prevent mother-to-child transmission of the virus, newborns should be vaccinated against hepatitis B within 24 hours of birth.

Vietnam introduced hepatitis B birth dose vaccination nationwide in 2003, and by 2006, nearly two-thirds of newborns received it. In 2007, however, news that some newborns had adverse health events after receiving the vaccine caused vaccination rates to plummet, even though the World Health Organization found no evidence that the events were related to the vaccine.

PATH is now helping Vietnam revive its newborn vaccination program. Our work to build confidence in vaccine safety and train health workers is boosting vaccine coverage.

### Facing special challenges in Vietnam

In Vietnam, more than 8 percent of the population is chronically infected with the hepatitis B virus, and the risk of mother-to-child transmission is high. Nevertheless, the percentage of newborns receiving a birth dose of vaccine fell from 64 percent in 2006 to 20 percent in 2008 because of fears about vaccine safety.

In 2009, PATH began working with national and international partners to restore confidence in the safety of hepatitis B vaccine and increase vaccination rates. We helped Vietnam's National Expanded Program on Immunization (NEPI) develop a new action plan and

technical guidelines for vaccine use. Advocacy by PATH and other groups prompted the Ministry of Health to reaffirm its recommendation for a birth dose.

In Hai Duong province, PATH collaborated with local health officials to tailor the national plan to local conditions. We trained almost 1,000 workers in hospitals and health centers on vaccine use, including immunization safety and vaccine storage.

Working with the National Center for Health Education and Communication and NEPI, PATH also led informational campaigns in Hai Duong. We provided health workers with information for counseling pregnant women. We also used television and radio messages, as well as posters at health facilities, to raise community awareness of the need for vaccination.

### Getting back on track

Four months after restarting the hepatitis B birth dose program in January 2011, more than 90 percent of infants were receiving the vaccine within 24 hours of birth, up from only 2 percent in Hai Duong in 2008. Today, more than 85 percent of newborns in the province receive the vaccine without assistance from the project.

PATH is now helping two other provinces implement the Hai Duong model. Early data show an increase in


coverage of 10 percentage points or more in each province.

Every province in Vietnam is now distributing the hepatitis B birth dose, and national vaccination rates are improving. PATH and other groups are helping Vietnam get back on track to reach the internationally recommended target of at least 80 percent coverage. ■

### FOR MORE INFORMATION

Contact Mona Byrkit, country program leader, at [mbyrkit@path.org](mailto:mbyrkit@path.org).

This work has been funded by the Martin-Fabert Foundation.

 Read more about PATH's work related to hepatitis B vaccination in Vietnam at [www.path.org/publications/detail.php?i=1928](http://www.path.org/publications/detail.php?i=1928).



Nguyen Ba Quang

More than 85 percent of newborns in Hai Duong province now receive a birth dose of hepatitis B vaccine.



## PATH and Merck assess technologies for maternal health

PATH is collaborating with Merck to reduce maternal mortality in developing countries. As part of an initiative called Merck for Mothers, researchers from both organizations have identified and assessed nearly 40 tools and technologies with the potential to prevent deaths from complications during pregnancy and childbirth. The effort will help to guide advancement of critical maternal health solutions.

The assessment used a new Technology Opportunity Mapping Tool, which applies 22 criteria to compare innovations at various stages of development. Evaluation criteria include effectiveness, safety, ease of use, alignment with international guidelines, donor financial support, manufacturing

costs, potential markets, and clarity of regulatory pathways. To assess the number of lives that each technology might save, the project team used an impact model developed by the Research Triangle Institute.

Many of the assessed innovations address the two leading causes of maternal death. These are postpartum hemorrhage, or excessive bleeding after childbirth, and preeclampsia/eclampsia, associated with a dangerous rise in blood pressure and protein in the urine during pregnancy.

PATH and Merck plan to share the findings, insights, and recommendations from this effort with donors, national governments, businesses, and other groups to help guide investment decisions for maternal health solutions. Both are encouraging multisectoral participation in the campaign to save women's lives. ■




Merck & Co., Inc.

PATH and Merck for Mothers recently hosted a forum on innovation to reduce maternal mortality. Held in New York City during United Nations General Assembly week, the well-attended event featured a technology exhibit and panel discussion.

### FOR MORE INFORMATION

Contact Paul LaBarre, senior technical officer, at [plabarre@path.org](mailto:plabarre@path.org).

Funding for the technology assessment was provided by Merck, which is known as MSD outside the United States and Canada.

 Read more about PATH's work to ensure safe birth at [www.path.org/our-work/safe-birth.php](http://www.path.org/our-work/safe-birth.php).

## Fighting childhood TB in Tanzania

Each year, tuberculosis (TB) sickens at least half a million children and kills up to 70,000. Yet pediatric cases often go undetected because diagnosing TB in children is difficult. Also, health workers often lack training on how to manage pediatric cases.

In Tanzania, where about 8.5 percent of all TB cases are among children, PATH and the Geisel School of Medicine at Dartmouth College supported the country's National TB and Leprosy Program (NTLP) to develop guidelines to improve diagnosis and treatment for the youngest patients. The guidelines outline how workers at all levels of the health care system can help in

diagnosing, treating, and caring for children with TB. They also provide health workers with the knowledge and best practices to address issues related to nutrition, TB-HIV co-infection, multidrug-resistant TB, and prevention of TB transmission in health facilities.

PATH and Dartmouth staff worked closely with NTLP to develop a training curriculum to introduce the new guidelines throughout Tanzania. PATH trained nearly 300 health workers within the first six months of the curriculum's debut, and NTLP and other partners trained an additional 25 trainers and 375 health workers. As a result of these efforts, many health facilities now educate their own staff about childhood TB. PATH continues to train health workers and


coordinators and provide technical assistance, supportive supervision, and mentoring.

As the new pediatric TB guidelines are rolled out, PATH anticipates a dramatic increase in the number of children diagnosed with TB who may otherwise have gone undetected. We are now exploring a similar model to protect children from TB in the Democratic Republic of Congo. ■

### FOR MORE INFORMATION

Contact Dr. Rose Olotu, technical officer, at [rolotu@path.org](mailto:rolotu@path.org).

This work is funded by the US Agency for International Development.


 Read more about PATH's work related to tuberculosis at [www.path.org/our-work/tuberculosis.php](http://www.path.org/our-work/tuberculosis.php).

# NEWS AND NOTES

## PATH NEWS


### PATH's CEO moderates session at Clinton Global Initiative meeting

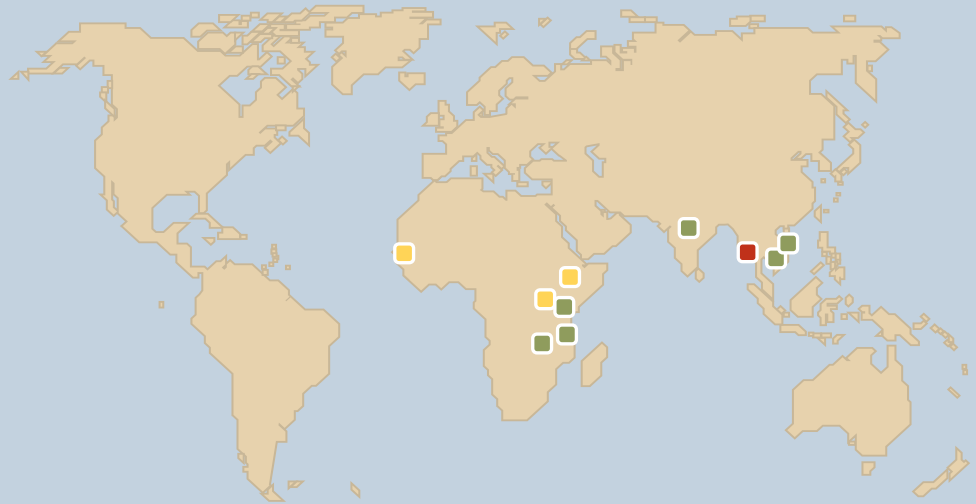
Steve Davis, PATH's president and CEO, moderated a discussion at the Clinton Global Initiative annual meeting in September exploring how best to design technologies and products for the world's poorest consumers. He shared PATH's experience in advancing low-cost, culturally relevant tools, strengthening developing-country capacity and markets, and partnering across industries to effectively reach low-income people with important health resources. The session mirrored the meeting's theme of "designing for impact," which PATH has been doing for nearly 40 years.

 Read more about Davis' thoughts on designing for impact at [www.path.org/blog/2012/09/designing-for-impact/](http://www.path.org/blog/2012/09/designing-for-impact/).

### Moving toward a malaria-free world

New content on our website details how PATH is poised to fight malaria from all sides and eventually eliminate the disease. Through our new drug development program, we have created a semisynthetic form of artemisinin that will soon provide developing countries with a stable, affordable supply of the gold-standard malaria treatment. In Zambia and other countries, we are introducing innovative methods to prevent, control, and ultimately eliminate the parasite. In addition, we are driving development of the world's first malaria vaccine.


 Read more at [www.path.org/our-work/malaria.php](http://www.path.org/our-work/malaria.php).



## PROGRAM NOTES

### ■ ETHIOPIA, SENEGAL, UGANDA: Injectable contraceptives will reach up to 3 million women


PATH and our partners are collaborating to reach women in sub-Saharan Africa and South Asia with an affordable, injectable contraceptive. The product will be packaged in PATH's prefilled, autodisable Uniject™ injection system to improve women's access to family planning options in even the most remote regions. The project will provide as many as 12 million doses of the contraceptive to women in up to six countries, beginning in Ethiopia, Senegal, and Uganda.

 Read more about the project at [www.path.org/news/pr120711-depo-uniject.php](http://www.path.org/news/pr120711-depo-uniject.php).

### ■ MYANMAR: New project focuses on newborn health


PATH has launched our first project in Myanmar, also known as Burma, to

improve the health of newborns in three townships in Yangon. We are also exploring the introduction of vaccines and other technologies to improve maternal and child health and nutrition in the country.

 Read more at [www.path.org/news/an120703-path-myanmar-project.php](http://www.path.org/news/an120703-path-myanmar-project.php).

### ■ MULTICOUNTRY: Magazine features top findings from Safe Water Project

A new, single-issue magazine, called *Perspectives*, compiles findings and assessments from PATH's Safe Water Project. The five-year project explored ways to increase access to and use of household water treatment and safe storage products among low-income households in developing countries.

 Read more at <http://sites.path.org/water/>.

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

*Directions in Global Health* shares information about PATH's programmatic work with colleagues around the world. To subscribe to this newsletter, please send your contact information to [publications@path.org](mailto:publications@path.org). To subscribe to other PATH publications—including *News From PATH*, our organizational e-newsletter—go to [www.path.org/sign-up.php#news](http://www.path.org/sign-up.php#news).



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