

PATH Today

A Newsletter for Friends and Supporters

Fall 2010

New ideas brewing in our shop and lab

In the eyes of PATH's innovators, a can of heat-on-demand coffee is more than a morning beverage. It's the inspiration for a technology that can bring tests for malaria, HIV, or tuberculosis (TB) right into the home, enabling health workers to diagnose serious illness as easily as making a cup of joe.

A self-heating diagnostic device is just one of the newest innovations brewing in PATH's product development shop and laboratory. Here's an inside look at some of the technologies we're working on right now.

Diagnosis? Just add heat

Reaching a health center in rural Africa means days of travel and perhaps weeks of income for some families. Imagine balancing that against the need to get the right treatment, fast, for a new baby. That's where the self-heating cup of coffee comes into play.

Motivated by technology recognized by coffee-drinkers and Cup-a-Soup consumers alike, PATH technicians developed a simple device that heats samples to the optimal temperature required for diagnosis. Nestled in a prototype thermos, the small device uses calcium oxide and water to create heat that is held at 65°C to produce an accurate test result. It works without electricity—so it can be used in very rural settings, even in patients' homes.



PATH/Patrick McKern

PATH technicians used heat-on-demand technology to develop a device that holds promise for rapid, accurate disease diagnosis even in patients' homes.

We're now testing the device—called NINA, short for non-instrumented nucleic acid amplification—for diagnosing some of the deadliest diseases: malaria, HIV, and TB. And it holds promise for diagnosing illness in less than an hour, compared to several days for traditional lab-based tests. That means even tiny infants and those too sick to travel can receive results fast and begin critical treatment right away.

Two angles on safer childbirth

Severe bleeding after childbirth, called postpartum hemorrhage, is the leading cause of death among mothers worldwide. In a well-stocked hospital, the condition isn't hard to treat. But in the developing world, geography and economics keep women from getting the help they need. PATH is working on two different solutions: a garment

that helps a woman experiencing hemorrhage by applying pressure from the outside, and an inflatable device that stops bleeding from the inside.

The antishock garment, which looks and feels like a wetsuit, was originally developed by NASA to treat shock after major injuries and has more recently been adopted by health facilities around the world—particularly in Nigeria and India. Fastened tightly around a woman's legs and abdomen, it forces blood to her critical organs and stabilizes her for as long as two days while she waits to be transported to a hospital for emergency treatment. The suit is already a favored tool in some countries.

But it's expensive. Some health centers reuse the garment until it is ripped and falling apart. And others can't

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At the brink: preparing to launch a meningitis vaccine

Epidemic meningitis is as predictable in Africa as a winter cold in the United States. But it's far more serious: one of every ten people who catch meningitis will die.

This December, however, children in Burkina Faso will become the first in the world's meningitis belt to receive a new vaccine—and the first to grow up without fear of the disease. Within a few weeks up to 36 million people between the ages of 1 and 29 years in Burkina Faso and neighboring countries will receive the same vaccine.

Called MenAfriVac™, the vaccine was developed through the Meningitis Vaccine Project (MVP)—a partnership between PATH and the World Health Organization. MenAfriVac™ is historic not only because it targets the strain of the disease most damaging in Africa but because its widespread introduction will change so many lives so quickly.

In Africa, about 450 million people in 21 countries live at risk of meningitis. Children, adolescents, and young adults are especially threatened. During the dry, dusty meningitis season, families live with daily fear. Some sell all of their possessions just to afford their child's treatment.

Next year, for the first time, the dry season may no longer bring deadly and disabling meningitis. It's with excitement and gratitude toward you, our supporters, that we anticipate Africa's first mass immunization campaigns against the disease. Thank you for sharing this historic moment with us!

Our staff will be in West Africa in December to document the historic launch of the vaccine. For more information, visit www.path.org. ●

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afford it at all—which means that who lives and who dies comes down to a question of where you give birth and what your family can afford. PATH is exploring ways to reduce the cost of the suit and to establish quality standards that will enable more countries and clinics to purchase it.

The balloon tamponade addresses maternal bleeding internally, using a balloon inflated with water to apply pressure to the inside of a woman's uterus and stem blood flow. Commercial devices can cost more than \$200—so innovative health providers in Bangladesh, Ghana, and several other countries have fashioned their own, grassroots versions using string, a water bottle, a catheter, and a condom or even a rubber glove for inflating.

PATH is working on a way to manufacture a reliable, pre-assembled tamponade for less than \$10. That brings it within reach for women in need not only in urban hospitals but in remote health facilities in places like Bhutan and South Africa that aren't equipped to handle these emergencies.

The vaccine conundrum

Like food, vaccines can go bad if they aren't properly refrigerated. It's a huge challenge in places where electricity comes from a generator or not at all. Scientists have found a way to safely store vaccines without refrigeration—essentially, by dehydrating them. But the process of recombining the powder with liquid is prone to contamination and large amounts of vaccine waste.

PATH is working with medical device developers to design easy-to-use solutions, including a playing card-size blister pack that stores a single dose of the vaccine powder and liquid separately. When the device is folded in half, a seal between the liquid and powder breaks, mixing the powder and liquid in a single chamber, ready to be injected.

Not only does the device solve the rehydration problem, it reduces the need for measuring (and the possibility of error) and saves precious unused vaccine. Eventually it could be used with emerging vaccines against malaria, tuberculosis, even HIV, to protect the health of families living in some of the poorest regions of the world.

Innovation and your support

Every day, our experts look for solutions that are high quality, easy to use, and affordable, even for people living on less than \$1 a day. And your support makes it possible—allowing us to pursue early concepts that leap across continents and huge economic disparities.

These examples are just a few of the more than 85 technologies that PATH has developed or adapted since our inception to address some of the world's most pressing health needs. With your help, we are continuing to put good health within reach for all. ●



A water bottle and condom form a grassroots tamponade that PATH is adapting into a medical device.

PATH/Patrick McKern

1 + 1 = lives saved

You've supported PATH in the past. Now challenge others to do the same. We've extended the 1+1 Challenge through November 1, and we invite you to make a gift and inspire others to take action. The challenge will match all gifts made during PATH's December drive.

Every person who considers a gift to PATH during that time will know that their impact is doubled by the match—and with their gifts, your impact doubles too! Make your gift online at www.path.org/challenge/ and join our challenge!

Thank you for another successful Breakfast!

Our tremendous thanks to the nearly 800 guests who joined us in May for the 2010 Breakfast for Global Health and helped raise a stunning \$663,357 for the Catalyst Fund. President and CEO Chris Elias conducted a science experiment to show the power of a catalyst, and special guest June Omollo, a member of PATH's Kenya team, talked about the impact of HIV on her own life and the hope that PATH's work is bringing to her country.

Read June's story, check out our new video, *Firefly*, and see more about the Breakfast at www.path.org/donate/breakfast.php.

Reaching more lives in Africa

PATH has added two new country offices—Ethiopia and Zambia—to our presence in Africa, extending our longstanding efforts to improve health in both countries and enabling us to integrate our existing work in the countries with new initiatives. We'll continue to focus on tackling HIV/AIDS and malaria, boosting nutrition for infants and young children, and protecting women from life-threatening hemorrhage after birth while also finding new ways to address the countries' most urgent health priorities.

Former board member to lead India program

Steve Davis, a long-time member of PATH's board of directors whose term ended earlier this year, is stepping into a new role as interim leader of PATH's India country program. A familiar face at our Seattle-based events, Davis has worked closely with PATH for nine years and has traveled to many of our project sites in India and other countries. Davis is continuing his work as a senior advisor for McKinsey & Company's global Social Sector Office and as a senior fellow with the University of Washington School of Law but will spend the majority of time in his new temporary post at PATH.

Give through work, increase your impact

Americans donate \$4.8 billion to charity each year through workplace giving campaigns. That's a lot of impact—and one of the easiest ways to give. You choose how much and how often, and the donation is made directly through payroll. Many employers will even match your gift, increasing your impact.

Last year, we were able to put an extra \$60,000 toward our work—thanks entirely to donors who asked their employers to match their gifts! Contact your human resources department for more information. ●

PATH'S MISSION

*is to improve
the health of people
around the world by
advancing technologies,
strengthening systems,
and encouraging
healthy behaviors.*



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Contact us

For information about upcoming events, contact events@path.org.

For questions about giving opportunities or other feedback, contact Jan Jacobs, director of Donor Relations, at jajacobs@path.org or 206.302.4565.

The faces of hope

What does TB look like? In Tanzania, PATH posed that question to communities—and received a range of miraculous stories about how access to essential health care has saved their lives.

The project, based on the Amaya-Lacson TB PhotoVoice model, asks people who are in treatment for TB and for TB-HIV—a dangerous

co-infection that affects about half of people diagnosed with TB in Tanzania—to share their experiences through photographs and stories. The inspiring results capture the daily struggles and triumphs of men and women as both patients and people.

PATH is using the photos and stories to spark discussion about TB and HIV, reduce stigma, encourage testing, and show the positive effects of care designed specifically for people with

both diseases. Since 2005, we have helped to reach more than 49,000 patients in Tanzania with critical care to make them stronger and healthier. Through the Tanzania PhotoVoice Project, individuals are finding a creative way to become advocates and agents for change in their communities.

The project is funded by the US Agency for International Development. ●

All photos this page: PATH



"I was very weak and my neighbor had to give me a lift on his bicycle as I could not walk to the clinic," said Habiba, photographed here. But after taking medication, her strength returned. "Since then I have been able to go to the clinic on foot by myself."



Athumani was referred to an AIDS clinic, where he met other patients and learned more about HIV. "This gave me hope and comfort," he said.



Lucas was diagnosed with TB in July 2008 after lengthy and unsuccessful treatment by traditional healers in his village. "I am grateful to my sister who took me to Misungwi District Hospital... I now feel better and I'm regaining my strength."

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