

GLOBAL HEALTH AT BRIGHAM AND WOMEN'S HOSPITAL

Where medicine knows no bounds



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HIV does not differentiate rich from poor. Malaria does not stop spreading when it reaches a country's border. Cancer does not know where a person was born. Sickness does not discriminate, yet some areas of the world still lack much of the medical care that we take for granted. As a result, millions of people fall ill or die from health conditions that could have been prevented or treated. According to the World Health Organization:



Claire Farel, MD, MPH, graduate of the Hiatt Residency in Global Health Equity

- More than five million mothers and newborns needlessly die every year from childbirth complications, mostly in low-income settings.
- Almost half of all countries surveyed have access to less than half the essential medicines they need for basic healthcare.
- Children in low-income countries are 16 times more likely to die before reaching age five than children in high-income countries.

To address these inequities effectively, systems of care that transcend economic, political, and geographic boundaries must be developed to tackle the world's most pressing health problems. Brigham and Women's Hospital (BWH) is one of few academic medical centers in the world that integrates our expertise in training, care, and research—the three core areas that together can dramatically advance patients' well-being wherever they live. This deep commitment to all patients drives us to do everything possible to make a lasting difference, particularly for those who lack access to care.

By making global health a priority, BWH affirms our mission of providing compassionate medicine for all people, no matter their economic status. Our wide-ranging efforts advance caring and curing for patients in the United States and internationally. Let us tell you how.

WE EXPAND HEALTHCARE ACCESS AND IMPROVE MEDICAL SYSTEMS IN THE WORLD'S MOST VULNERABLE COMMUNITIES

BWH melds the clinic with the classroom. Our unique ability to simultaneously advance and integrate global health care training, delivery, and research fuels and connects the work of our major partners, Harvard University and Partners In Health. BWH provides Harvard with the latest findings from the field to shape academic curricula, preparing the next generation of global health experts to create effective, sustainable healthcare models tailored to the needs of specific countries and communities. We arm Partners In Health with the medical trainees and physician-leaders who direct and help execute on-the-ground care in more than 10 countries.

Our global health portfolio provides innovative approaches to healthcare delivery worldwide. In many cases, BWH's work cuts across all three areas of medical training, care, and research, pushing the boundaries of medical possibility internationally. Here, we shine a spotlight on some of our key efforts.

TRAINING LEADERS

We train top medical talent both here and abroad to work in global settings.

Doris and Howard Hiatt Residency in Global Health Equity and Internal Medicine

The caliber of BWH's global health residents is unmatched. Up to six physicians annually are drawn from the hospital's internal medicine residency program, one of the top such programs in the world, to participate in the Hiatt Residency. This three-year program begins after the first year of the internal medicine residency. All physicians train initially at Partners In Health sites in Rwanda and Haiti, and then continue their training at these and other sites in countries such as Lesotho, Botswana, Uganda, Mexico, and Nepal. Supervised and mentored by experienced BWH physicians, they deliver medical care, conduct research, and assist in developing health policy. In the field, where they spend more than a year over the course of their training, residents learn to work with diverse colleagues within the confines of an area's political, economic, and social climates.

Global Health Equity Residency and Fellowships in Surgery and Health Disparities

Bringing state-of-the-art surgical care to resource-poor settings, the Global Health Equity Residency and Fellowships prepare trainees in low- and middle-income countries and fund their research, which is focused on relieving the vast health disparities that result from economic and geographic barriers. Residents concentrate on global initiatives within the general surgery residency at BWH, and have conducted research in wound care, assisted in increasing national surgery delivery capacity, and led groundbreaking investigations in surgical epidemiology. Senior fellows are entirely field-based in Rwanda or Haiti and act as surgical consultants focused on clinical care and education.



**Paul Farmer, MD, PhD, Chief of BWH
Division of Global Health Equity**

Global Women's Health Fellowship

There is a great need for physician-leaders to address the structural and social inequalities that affect women's health and well-being around the globe. As the first training program of its kind in the U.S., the BWH Global Women's Health Fellowship was launched in 2007 to enable top physicians to develop leadership skills and research expertise that will improve the health of all women and transform their care. Each fellow participates in two years of intensive academic and field training and research on issues such as preventing HIV transmission between mothers and infants, exploring methods to reduce rates of cardiovascular disease among women in India, and analyzing gender-based violence and resilience in post-conflict areas. Fellows to date have collaborated with local governments, hospitals, and academic medical centers on four different continents to address these and other pressing women's health needs.

Rwanda Human Resources for Health Program

Today in Rwanda, fewer than 650 physicians (only 30 of them surgeons) serve more than 11 million people. In contrast, BWH alone employs 140 surgeons. To address these challenges, the Rwandan Ministry of Health developed the Rwanda Human Resources for Health Program, a consortium that includes 23 of the top medical, nursing, and public health schools in the U.S. Faculty from BWH, Harvard, and other U.S. institutions support Rwanda's growing medical infrastructure, helping to establish a complete national healthcare system there. More than 100 U.S. faculty and global health experts travel to Rwanda for one-year terms to help train Rwandan physicians, surgeons, dentists, nurses, midwives, and health managers. By the program's 2019 conclusion, Rwanda is expected to become a first-rate site of medical care and health education.

CLINICAL CARE

Our expert clinicians, who assume leadership roles and deliver care in a variety of settings, strengthen health systems, programs, and facilities globally. They provide surgery, primary care, pediatric care, disease-specific care, women's health services, and humanitarian emergency response to the world's most vulnerable patients.

African Women's Health Practice

The African Women's Health Practice aims to improve holistically the health of refugee and immigrant women who have undergone female genital cutting. Founded in 1999, the BWH-based center cares for patients from many countries, predominantly Somalia, Sudan, Ethiopia and Nigeria; and it is the first and only African health practice in the U.S. that focuses on this issue. The center provides access to clinical care and support for women who have long-term complications and who seek reproductive healthcare.

Operation Walk Boston in the Dominican Republic

An annual mission led by BWH, Operation Walk Boston brings much-needed treatment to patients in the Dominican Republic with hip and knee problems, helping them to regain their physical independence. During their most recent trip, surgery teams performed 61 hip and knee joint replacements at Hospital General de la Plaza de la Salud in Santo Domingo. Since Operation Walk Boston's launch six years ago, hundreds of patients have benefited from surgeries they otherwise would not have been able to access or afford. In addition to helping patients, Operation Walk surgeons, nurses, nurse practitioners, and physical therapists train Dominican nursing staff on best practices in orthopedics.

Program in Native American Health

The BWH Program in Native American Health addresses health disparities among American Indian/Alaska Native communities across the United States. Our Community Outreach and Patient Empowerment program seeks to improve health outcomes among individuals with prevalent chronic diseases by collaborating with existing community health representatives to strengthen care and service directly for those in need.

Strengthening Essential Surgery Across Rwanda

Last year, BWH sent more surgeons than any other U.S. medical partner to Rwanda and assumed the coordinating role for the Rwanda Human Resources for Health Program. Our work has led to safer C-sections, decreased maternal mortality, an increase in complex orthopedic and reconstructive surgery, and cancer surgery in conjunction with Dana-Farber Cancer

Institute. We also train local aspiring surgeons in the most rigorous health service research methodologies, mindful of local conditions and challenges in Rwanda's resource-constrained environment. BWH's surgical leadership in Rwanda has led to increased participation in the country by other specialties at BWH and Harvard Medical School, including internal medicine, OB/GYN, pediatrics, anesthesia, pathology, radiology, and psychiatry.

BWH's key global health partners include:

- Harvard Medical School
- Harvard School of Public Health
- Interdisciplinary global health programs at Harvard University
- Partners In Health

RESEARCH AND INNOVATION

We conduct groundbreaking research and devise simple, effective, low-cost medical solutions that are scalable and inform care globally.

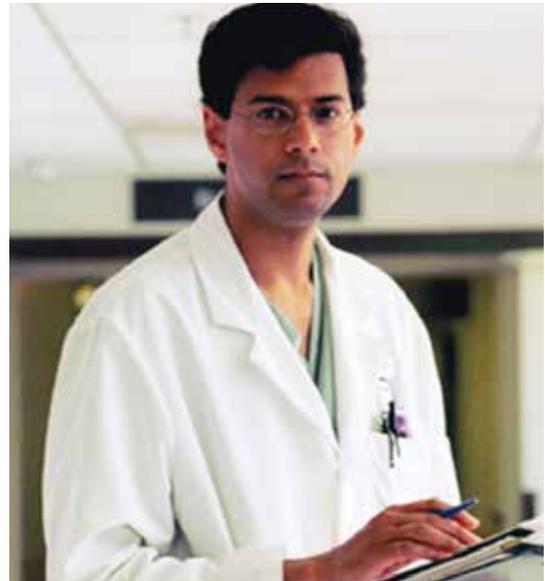
A Promising Tuberculosis (TB) Vaccine

BWH's Division of Global Health Equity is conducting research in collaboration with several South African partners to test a long-established TB vaccine. Until now, all animal models used in vaccine research have been infected so as to ensure uniform infection and progression of disease. In humans, however, not all TB exposures lead to infection or disease. BWH faculty have been working for some time with a unique, natural, human-to-guinea pig TB exposure model in South Africa that more closely resembles TB in humans, and that shows great promise of being more productive than existing models. A pilot study is now underway in Mpumalanga Province, South Africa.

Safe Surgery and Safe Childbirth Checklists

Initiated in 2007 by BWH in collaboration with the World Health Organization and Harvard School of Public Health, the Surgical Safety Checklist is a two-minute, 19-item checklist used by surgical teams to improve the safety of surgical care. At eight pilot sites around the globe, this simple tool has reduced surgery-related deaths and complications by more than a third. It has become recognized as the global standard of care and is now being used in more than 4,000 hospitals internationally.

Similarly, the Safe Childbirth Checklist, part of the BetterBirth Project, is a list of 29 action items whose implementation reduces deaths and improves outcomes of mothers and infants in low-income countries. Initial usability testing has occurred in 10 countries and a major randomized trial of more than 170,000 childbirths in India is now testing large-scale impact to address the major causes of death of mothers and babies worldwide.



Atul Gawande, MD, MPH, General and Endocrine Surgeon at BWH and Director of Ariadne Labs

Wound Care Technology: Low Cost, High Impact

A "doing more with less" ethos drives health innovations in resource-poor settings. Chronic wounds cause patients severe emotional and physical stress, and create a significant financial burden on patients and healthcare systems around the world. To speed wound healing, BWH has developed a prototype of a simplified wound therapy device called a negative pressure wound pump, in collaboration with engineers from Massachusetts Institute of Technology. It costs less than \$5 to manufacture and runs without electricity. Tested in the aftermath of the Haiti earthquake and currently used in Rwanda, this innovative technology will alleviate the worldwide burden of chronic wounds.

OUR EFFORTS SAVE LIVES AND IMPROVE THE HEALTH OF THOSE MOST IN NEED

BWH's commitment to global health training, care, and research directly impacts thousands of patients each year and brings about lasting change in the quality and availability of local health services around the world. The doctors and nurses we educate and deploy are equipped for the distinct challenges of medicine in resource-poor settings. Our research findings translate into sustainable healthcare systems and solutions and our innovations lead to increased access and more cost-efficient care. We recognize that better health also paves the way for people to realize their full potential, as they regain the ability to work, to engage more with their loved ones, and to participate more in their communities.



Nancy Lange, MD, MPH, one of the first graduates of the Hiatt Residency in Global Health Equity

CORNERSTONES OF BWH GLOBAL HEALTH

Although global health training, care, and research extend across the entire BWH community, six major areas of the hospital frame these efforts:

- **Ariadne Labs** is a new joint center for health systems innovation at BWH and Harvard School of Public Health that produces simple and scalable solutions—such as the Safe Surgery Checklist and the Safe Childbirth Checklist—to radically improve healthcare delivery, value, and outcomes across the globe.
- **The Biomedical Research Institute** is an international leader in research on human diseases and provides a key platform for BWH's global health research initiatives.
- **The Center for Surgery and Public Health** works to bridge the alarming gap that divides public health and surgical quality, safety, and access, both in the U.S. and abroad, and to transform surgical care in resource-poor settings. No comparable center exists anywhere. The center's programs include the Global Health Equity Surgery Residency and Fellowships, as well as many initiatives focused on improving the quality, safety, and outcomes of surgical procedures throughout Rwanda, including the Rwanda Human Resources for Health Program.
- **The Connors Center for Women's Health and Gender Biology** is committed to improving the health of women, transforming their medical care everywhere, and building leadership in women's health around the world. One of the many ways in which the center advances this mission is through the Global Women's Health Fellowship.
- **The Division of Global Health Equity** uses insights from anthropology, history, sociology, epidemiology, statistics, economics, and other social sciences to improve medical care through training, research, and service delivery in the world's poorest areas, with a major focus on Rwanda and Haiti. The division's initiatives include the Doris and Howard Hiatt Residency in Global Health Equity and Internal Medicine, the Program in Native American Health, the Global Health Delivery Project, and leadership roles in two transformative hospitals in Rwanda and Haiti. Along with the Center for Surgery and Public Health, the division also plays a key role in BWH's efforts to train healthcare professionals in Rwanda through the Rwanda Human Resources for Health Program.
- **The Division of International Health and Humanitarian Programs**, based in BWH's Department of Emergency Medicine, seeks to define and promote the science, practice, and professional development of global humanitarian emergency medical response.

A LEGACY OF CARING AND CURING GLOBALLY

For more than 25 years, Brigham and Women's Hospital (BWH) has worked alongside our key partners to create real and lasting change in people's health internationally—focusing particularly on the world's most disenfranchised. Rwanda and Haiti are at the heart of our global health enterprise. Here, we offer a brief description of these countries' medical challenges and the outcomes that we, in collaboration with our partners, have realized.

RWANDA: BUILDING NATIONAL HEALTHCARE TO SAVE AND STRENGTHEN LIVES

After the 1994 genocide, Rwanda experienced some of the world's highest mortality rates. With its health system decimated and the shortage of medical personnel acute, the government made a commitment to building a national health system. In 2005, BWH physicians and Partners In Health (PIH) collaborated with the Rwandan Ministry of Health and others to scale up HIV treatment and care in rural Rwanda; provide a range of other health and support services; strengthen the country's national training and evaluation programs; and develop, document, and disseminate a rural care model that could be adapted and replicated throughout Rwanda and other African countries.

As part of these efforts, BWH faculty and PIH have opened three district hospitals, most recently the 150-bed Butaro Hospital and the Butaro Center for Excellence, the first site in Rwanda to focus on cancer care. A flagship for the country and all of East Africa, Butaro Hospital features three operating theaters, innovative measures for infection control and patient flow, and comprehensive hospital care alongside specialty services. BWH physicians and PIH also support 40 community health centers accessible to 800,000 people. New programs to manage chronic diseases are now in place at each site, and work continues with the government to strengthen community-based primary healthcare services in rural Rwanda. And in collaboration with PIH and others, we have helped to build improved on-site accommodations for faculty and fellows—addressing a serious housing shortage—as well as new homes for patients and their families.

The work of BWH and our partners has led to life-saving results in Rwanda. In the past decade:

- Life expectancy has doubled.
- The country has experienced the steepest decline in mortality ever recorded.
- Universal access to antiretroviral therapy for AIDS has been realized, completely reversing the absence of any publicly supported programs to treat the disease properly.

HAITI: THE BEST CARE FOR THE WORLD'S MOST DESTITUTE

Haiti is the poorest country in the Western hemisphere and one of the poorest in the world. More than 25 years ago, BWH Division of Global Health Equity Chief Paul Farmer, MD, PhD, and colleagues at PIH began work to increase access to health services and to improve the health and overall standard of living for residents of the country's rural Central Plateau. Today, BWH faculty members work in leadership roles with PIH, now the main provider of healthcare for central Haiti and the only provider of comprehensive primary care, regardless of ability to pay.

BWH and our global health partners have significantly improved healthcare and quality of life for Haitians. For example, we:

- Provided emergency medical treatment and coordinated recovery efforts following the earthquake in January 2010, one of the worst disasters in modern history.
- Responded to the widespread cholera outbreak that began in October 2010. BWH physicians and Hiatt Global Health residents have provided urgent care, ongoing community outreach, advocacy for oral vaccination campaigns, and attention to the structural causes of cholera, such as improved water and sanitation.
- BWH faculty helped lead PIH's efforts to construct a 320-bed hospital in Mirebalais that will serve as Haiti's national teaching hospital following the near-destruction of the central teaching hospital in Port-au-Prince. The hospital, which opened in 2013, is a national referral facility and is at the vanguard of efforts to help rebuild Haiti's health sector, providing comprehensive, community-based primary and prenatal care as well as treatment for TB, HIV, malaria, and malnutrition.



Your support makes our work possible

We are inspired by our patients' courage, our caregivers' compassion, our scientists' curiosity, and our donors' generosity. Philanthropic investments in BWH's global health programs will deliver life-giving breakthroughs with the power to transform medicine, regardless of a person's country, creed, or economic status. Imagine how much more we can do together.

TO LEARN MORE about Global Health
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