



CHIEF> **PAUL FARMER, M.D., PH.D.** (2003–2005, 2009–PRESENT)

Division of

GLOBAL HEALTH EQUITY

The Division of Global Health Equity (DGHE) was established in 2001 to address health disparities through training, education, research, and service. The division works in close collaboration with Partners In Health (PIH), a nonprofit, and the Department of Global Health and Social Medicine (DGHSM) at Harvard Medical School, using insights from anthropology, history, sociology, epidemiology, statistics, economics, and other social sciences. DGHE's mission is to foster the support and coordination of training, research, and service to reduce disparities in disease burden and to improve treatment outcomes both at home and abroad. The division focuses on infectious diseases (e.g., HIV and tuberculosis) as well as non-infectious diseases (e.g., coronary artery disease, diabetes) and other health problems of major importance to society.

CLINICAL

DGHE faculty members are spearheading many projects both at home and abroad in the delivery of clinical care to underserved populations. These are outlined below.

Navajo Nation

The Community Outreach and Patient Empowerment (COPE) project, with funding from the Rx Foundation, began in 2009 in the Gallup and Shiprock Service Units of Navajo Nation, in the Four Corners Region of the Southwest. COPE is a formal collaboration between the Division of Global Health Equity, the Navajo Nation Community Health Representative (CHR) Outreach Program, and the Navajo Area Indian Health Services. The COPE project supports the Navajo CHR Program by providing standardized training, developing culturally relevant health-promotion teaching materials, and strengthening the integration of community health workers into the healthcare delivery system. Navajo Nation CHRs, in turn, deliver intensive outreach to promote healthy behavior changes among individuals with uncontrolled chronic health problems, such as diabetes, hypertension, and heart disease. Given promising data on clinical improvements among participants in Gallup and Shiprock, COPE has now expanded to all eight regions of Navajo Nation. COPE is also exploring new programs, including prevention efforts to reduce cardiovascular disease and cancer risk, an online training platform to offer training to CHRs in other tribes, and projects to increase access to healthy and fresh foods in Navajo Nation.

Haiti

Haiti ranks as one of the poorest countries in the world and by all conventional criteria, the poorest in the Western hemisphere. For over 25 years, DGHE has had a longstanding collaboration with Zanmi Lasante (ZL), one of the main healthcare providers in the country. The number of patient visits to ZL's 12 sites has grown to 2.8 million annually.

The center of our collaborative efforts is the Hôpital Universitaire de Mirebalais (HUM). In partnership

with Haiti's Ministry of Health and service partners including Harvard Medical School, DGHE faculty at BWH are working with Partners In Health and ZL to provide care at Haiti's newest hospital in Mirebalais, which serves as a national referral facility and teaching hospital following the near-destruction of Haiti's main teaching hospital in Port-au-Prince. The hospital began offering an initial package of services to the public in March 2013, and opened three residency training programs in general surgery, internal medicine, and pediatrics in October 2013. When fully operational, the 300-bed hospital will offer services never before available at a public hospital in Haiti, including CT scans, advanced surgical care, and endoscopy.

In 2013, Partners In Health continued to provide urgent care and ongoing community outreach in response to the widespread cholera outbreak that began in October 2010, including administration of a pilot oral cholera vaccination campaign, and national and international advocacy efforts to draw continued attention to the structural causes of cholera. Dr. Louise Ivers currently works with a team from Partners HealthCare and Harvard Medical School to conduct and analyze several NIH-funded studies, including a case control study to evaluate the field effectiveness of the vaccine, as well as several immunological studies.

Peru

DGHE faculty, with Partner In Health's sister organization, Socios En Salud (SES), has been treating multidrug-resistant tuberculosis (MDRTB) among the poor in Peru since its inception in 1996 and was instrumental in facilitating the change of the World Health Organization's standards for treatment of MDRTB using second- and third-line drugs. With SES support, the Peruvian Ministry of Health expanded MDRTB treatment and care to hundreds of patients throughout the country, and currently concentrates

its efforts on the control and management of MDRTB patients. *Socios En Salud* has also expanded its projects to include community-based services of mental health, child development, and socioeconomic services in a number of poor communities in Lima and Pisco/Chincha. It is also supporting NIH-funded and other agencies' research related to TB, HIV, infection control, maternal health and early child development in partnership with DGHE and Harvard Medical School's Department of Global Health and Social Medicine.

In 2009, DGHE faculty began collaborating with SES and the Harvard School of Public Health on an NIH-funded research project to evaluate the risk of infection in people exposed to different strains of TB. The study seeks to improve understanding of the development and transmission of MDRTB with the hope of applying new strategies to reduce the spread of the disease. Enrollment was completed in August of 2012 with approximately 4,500 patients and 14,044 of their household contacts from 93 health establishments in Lima enrolled in the study. Currently, the project is in the final year of follow-up and has already published some papers.

Since 2012, DGHE and SES have been working on a NIH-Fogarty-funded study seeking innovative interdisciplinary approaches for infection control and TB risk reduction in hospitals in Lima.

DGHE and SES are exploring the use of the DOTS framework for HIV patients living in extreme poverty in the outlying communities of Lima. With funding from the NIH, 356 patients are receiving community-based accompaniment and support to gain independence of the management of their disease and improve their long-term antiretroviral drug adherence and well-being. Health promoters, health professionals, and treatment supports are being interviewed to understand the benefits of DOT-HAART and expected findings include improved HIV outcomes, increased drug adherence, and psychosocial and socioeconomic stability among the cohort.

In 2013 DGHE researchers received a grant from Grand Challenges Canada to implement a screening and intervention "package" for children 6-24 months

with risk of developmental delay in the impoverished community of Carabayllo, Lima. Research suggests that key neurological pathways that are used for intellectual and social abilities throughout the lifespan are created most actively during the first two years of life. These pathways are reinforced through constant, active "serve and return" interaction between the child and caregiver. Data from clinics in Carabayllo, Lima, suggest that about 70% of children under two are at risk of developmental delay based on "healthy child" checkups. This may be because, according to recent group interviews at SES, caregivers do not recognize delay, do not know how to stimulate their child, or lack the confidence that they could stimulate their child at home. Specialized therapy services are prohibitively expensive, and most children living in poverty in Lima receive no stimulation until school age, which may be too late to develop the crucial skills that will help them and their families navigate out of poverty. Recognizing the profound consequences of neurodevelopmental delays in child development, SES will partner with government leadership to implement programs designed to decrease the incidence of developmental delays in young children. Based on their prior success in using community health workers (CHWs) to manage complex health problems such as MDRTB and HIV, SES will train Ministry of Health CHWs to identify children with developmental delays within the community and deliver a structured early intervention in the homes. In two additional provinces, SES will work with the Health and Education sectors to deliver an integrated approach to child development, including screening and developmental stimulation at "Early Stimulation Centers." Through strong public partnerships, SES will explore both models and work with the public sector to implement a strategy that is both effective and scalable.

Russia

From a base in Tomsk Oblast, Siberia, DGHE faculty and Partners In Health have been working since 1998, in collaboration with the Russian Ministry of Health, to combat one of the world's most severe epidemics of drug-resistant tuberculosis, including in penitentiaries. The project has focused on improving clinical services for MDRTB patients in Tomsk, while

undertaking training and research to catalyze change in the treatment of MDRTB across the entire Russian Federation. Key components of the clinical effort include improving diagnostics in order to detect cases earlier, developing a comprehensive strategy to strengthen the adherence to treatment among patients, enhancing infection control in hospitals and penitentiaries, and decreasing transmission of TB to HIV-positive patients.

Starting in 2000, the project's program activities accelerated significantly, and to date—with support from the Eli Lilly Foundation and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM)—Partners In Health and DGHE together with Tomsk TB Services have enrolled over 2,500 MDRTB patients for treatment with quality-assured second-line drugs and have offered social support services to nearly 4,000 patients. In November 2013, the Tomsk Project and Partners In Health were awarded the Karel Styblo Public Health Prize at the 44th annual International Union Against Tuberculosis and Lung Diseases meeting.

The Eli Lilly Foundation has supported the majority of training and research initiatives organized by Partners In Health and the Tomsk TB Program. The project, with support from Partners In Health, created a Center of Excellence to provide training on MDRTB with the goal of disseminating its success in combating MDRTB beyond Tomsk. To date, nearly 500 TB doctors from Russia and neighboring countries have gained knowledge and practical, research experience on program and clinical management of TB and MDRTB at the Center. In 2011, with the support of the Eli Lilly Foundation, a new Fellowship Training Program (FTP) was launched targeting clinicians dealing with TB and MDRTB. A four-week-long fellowship includes clinical rotation at hospital and ambulatory settings, daily clinical case discussions on various aspects of MDRTB management, and other program-related activities.

As a part of its training initiatives, DGHE faculty with Partners In Health have continued to conduct courses on evidence-based medicine (EBM), with more than 60 physicians and clinical residents trained in 2012 on basics of clinical epidemiology and statistics, quantitative research methods, and clinical protocol design.

In 2013, DGHE and PIH successfully started the implementation of Phase III of the Lilly Foundation grant, which resulted in the launch of a new initiative aimed at strengthening infection control in TB hospitals through research and intervention in two Russian regions: Voronezh and Karelia. The new initiative, FAST, is focused on Finding cases, Actively identifying patients with MDRTB, Separating patients safely to reduce exposure to DRTB strains, and Treating effectively with appropriate regimens. Preliminary results of the new project were presented at the Annual Russian TB Congress in St. Petersburg in October 2013. In addition, the patient-centered accompaniment (PCA) program was introduced in Voronezh and Karelia to strengthen the impact on the burden of TB and MDRTB.

Rwanda

In 2005, DGHE faculty and Partners In Health launched their first project in Africa through an innovative partnership with the Rwandan Ministry of Health: the Global Fund to Fight AIDS, Tuberculosis and Malaria and the Clinton Health Access Initiative (CHAI). Together with PIH's Rwandan sister organization, Inshuti Mu Buzima (IMB), the project has brought high-quality health care to three rural districts that previously had some of the country's worst health outcomes. Working closely with the Ministry of Health, the project provides direct services to a population of 865,000 at three hospitals and 40 health centers, with the help of some 5,000 community health workers. With funding from the Jeff Gordon Children's Foundation and technical assistance from the Dana-Farber/Brigham and Women's Cancer Center, the Rwandan Ministry of Health and IMB opened the Cancer Center of Excellence at Butaro Hospital in 2012. Building on IMB's previous work treating cancer, the center offers preventive care, pathology-based diagnosis, chemotherapy, surgery, referral for radiotherapy, follow-up, and palliative care, as well as social and economic support. The center is a national referral facility, and IMB has contributed to national policy and implementation planning on cancer care. In 2014, the center's services will expand through the Butaro Ambulatory Cancer Center, a facility newly built through support from the Cummings Family Foundation.

IMB has also made gains in the quality of care delivered by nurses, who deliver the majority of primary care in rural clinics throughout Rwanda. Initiated in 2010, the Mentorship, Enhanced Supervision, and Quality Improvement Program aims to improve quality of care through intensive training, mentoring, and supervision of health center nurses across many types of care. The Rwandan government, with the support of IMB mentors, has begun scaling up the program across the country for HIV/AIDS.

In a training initiative made possible through the DGHE partnership, IMB's Center for Training and Operational Research in Rwinkwavu hosted a second session of the Harvard Medical School course in Global Health Effectiveness in June 2013. Global health leaders from across Rwanda and the U.S. gathered to learn from each other and leading academics from Harvard and the Rwandan Ministry of Health.

DGHE faculty helped to conceptualize and implement the Human Resources for Health (HRH) Program, launched by the Government of Rwanda in 2012. BWH and Harvard Medical School joined a consortium of 23 U.S. universities and academic medical centers participating in the program, which aims to support Rwanda's growing medical and educational capacity

and help establish a world-class, self-sustaining national healthcare system. DGHE and other U.S. faculty members have begun to work with local institutions, colleagues, and trainees to train the next generation of doctors, clinicians, medical educators, nurses, and midwives across the main specialty and subspecialty areas over the course of seven years.

Lesotho

In 2006, building on extensive experience in Haiti and Rwanda, DGHE faculty and PIH launched their second project in Africa, in the nation of Lesotho, in partnership with Lesotho's Ministry of Health and Social Welfare (MOHSW). Lesotho is one of the poorest countries in the world, with over 40% of the population living on less than \$1.25/day. Lesotho has also faced a remarkably high burden of disease; more than one in four adults in Lesotho is HIV-positive, the rate of TB infection is one of the highest in the world, maternal mortality is 1,155 per 100,000, and life expectancy has declined since 1995 from close to 60 years to just over 40 years in 2010. HIV/AIDS continues to be the leading cause of death among men and women in Lesotho, responsible for more than 20% of all adult mortality in 2011.

The project in Lesotho focuses on bringing HIV/AIDS care and treatment and other health and support services to poor, rural communities in remote mountain villages that are difficult to reach and have been largely neglected. Since 2009, the project has worked in seven mountain clinics across four districts of Lesotho, serving an estimated 120,000 people. In the early years, efforts focused primarily on testing and treatment for HIV and TB, and training community health workers to link distant and isolated villages to the health facility. In six years the project has administered more than 80,000 HIV tests and made anti-retroviral drugs accessible for all HIV patients who need them.

In recent years, the project has focused increased attention on reducing the high rates of maternal and child mortality observed in these remote mountain communities through community-based and fully integrated health services. In 2009, PIH, with support of DGHE faculty, began a project to increase services to pregnant women. In consultation with the villages, PIH has since selected and trained more than 600 women—many of whom are former traditional birth attendants—as clinic-affiliated maternal health workers, responsible for accompanying women in their villages to the health center for antenatal care, delivery services, postnatal care, and family planning services provided by a skilled nurse-midwife. In 2011, the project began active outreach to all villages in the catchment area to identify and enroll in services all children under age five. To date, more than 11,000 children have received immunizations as well as screening, testing, and treatment for malnutrition, HIV, and TB.

Malawi

In January 2007, DGHE faculty and Partners In Health launched a third African treatment project, in Neno, Malawi, the world's fifth poorest country, which endures the shortest life expectancy on Earth. Malawi has one of the world's highest prevalence rates of HIV/AIDS (11%) and incidences of TB and malaria. Malawians have one of the highest rates of maternal mortality anywhere—only women in Afghanistan and the Central African Republic know a greater risk of death during pregnancy.

The Malawi project, called Abwenzi Pa Za Umoyo (APZU), has already made vast strides since its

launch in 2007. Improvements to date include the construction of two hospitals with services provided there and at 11 area health centers. Furthermore, recent completion of operating theatres at both hospitals has allowed an expansion of the complement of services offered. In addition, a 70-bed maternity ward is slated for completion at Neno District Hospital in the first quarter of 2014. Over 226,000 patient visits were registered across the district's 13 health facilities from January to September 2013. With the help of DGHE faculty, APZU now runs 13 HIV clinics, with over 5,500 HIV-positive patients currently active and alive on anti-retroviral therapy (ART). As of July 2013, 820 full-time community health workers (CHWs) have also been trained and deployed to provide accompaniment to HIV-positive patients. APZU's two-year ART outcomes are the best in the country. As part of a maternal mortality reduction program, there are ongoing plans to train CHWs to identify pregnant women in the community and accompany them to health facilities for antenatal and obstetric care. In December 2011, Neno District Hospital became the country's first public facility to use the revolutionary GeneXpert for the diagnosis of tuberculosis. With the help of DGHE and the DFCI, APZU established Malawi's first integrated Kaposi Sarcoma/Palliative Care clinic in a rural district. APZU launched a new palliative care program in January 2012 that consists of an inpatient consult service, a weekly outpatient clinic, and weekly home visits. Its success has captured the national ministry of health's attention and now has become a national palliative care training site. With the help and guidance of DGHE residents, APZU has also overhauled and expanded its Non-Communicable Disease Program within the district. Finally, APZU is implementing a model rural cervical cancer screening program providing "test and treat" services with direct visualization (VIA) and cryotherapy at two hospitals and six clinics.

Mexico

In 2011, DGHE faculty helped launch Compañeros En Salud (PIH/CES), a sister organization of Partners In Health that supports rural government clinics in the Sierra Madre de Chiapas—one of the most marginalized regions in the state—to transform clinic performance and clinician education.

Mexico's health system has been celebrated for reaching near "universal coverage" by expanding government health insurance. However, accessing high-quality care, or "effective coverage," remains elusive, especially for the rural poor. In partnership with local health jurisdictions, PIH/CES revitalizes underperforming rural clinics. These CES-supported clinics provide high-quality health care to vulnerable people who previously had no reliable health services, though eligible on paper for government health insurance. The program currently operates in six rural clinics and plans to expand to ten by 2015. By focusing on primary care, PIH/CES strives both to improve health outcomes, as well as to decrease the impoverishing costs of seeking healthcare outside the community.

CES is also a platform for Mexican and international medical trainees to learn about global health delivery and to conduct high-impact implementation research.

CES provides Mexican social service physicians a career-defining training experience so that they may be the "agents of change" in creating a more equitable health system. In addition to receiving a monthly didactic certificate course in global health equity and bedside accompaniment with patient care, they are also encouraged to envision new innovations or projects that will improve the quality of care delivered. This has resulted in a number of exciting new "home-grown" initiatives such as an innovative electronic medical record system and enhanced community-outreach programs. The majority of the social service physicians who have graduated from this program to date have gone on to work in global health, either with CES as a supervisor or with some other related group. CES also offers elective rotations and in-depth collaborations for international medical residents and attending physicians.

EDUCATION

Increasing numbers of young physicians aspire to dedicate their careers to the health of impoverished people in the U.S. and abroad. In 2004, DGHE, the Department of Medicine, and BWH created a unique residency program to address this growing interest. The Doris and Howard Hiatt Residency in Global Health Equity and Internal Medicine is a comprehensive four-year program that includes training in internal medicine; coursework in research methods, public policy and global health advocacy; and research and patient care experiences in impoverished settings at Partners In Health sites around the world. The residency program honors DGHE co-founder Howard Hiatt, M.D., and his late wife, Doris.

Despite a demanding schedule in Boston, residents in the program are already engaged in lifesaving efforts around the world. Their projects target the deadliest treatable diseases—AIDS, tuberculosis, and malaria—in some of the world's poorest countries.

Accomplishments of recent residents include:

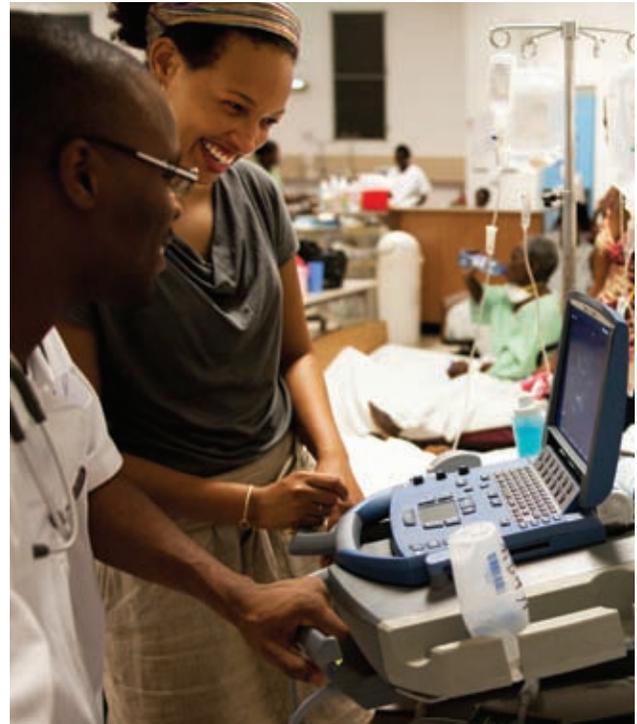
- Improving district-level health services in a rural district of Malawi.
- Improving healthcare delivery in a district hospital in rural Nepal.
- Delivering MDRTB treatment at a referral hospital in Lesotho.
- Training community health workers in Chiapas, Mexico.
- Delivering health care to homeless women in Boston.
- Improving malaria control in Thailand.
- Developing and implementing oncology treatment protocols in rural Rwanda.

- Documenting successful efforts in Haiti and Rwanda to prevent the transmission of HIV from mother to child.
- Building a graduate medical education program in Haiti in collaboration with the Haiti Ministry of Health.
- Strengthening a community health worker program in the Navajo Nation.
- Building a critical lab response system in a hospital in Tanzania.

Response to the residency has been enthusiastic, attracting attention from universities and teaching hospitals throughout the country. Interest among young physicians is strong, and program enrollment has grown from two residents in 2004 to 16 in 2013.

DGHE faculty members are also taking a leadership role in developing and disseminating public goods in global healthcare delivery. Based at BWH and Harvard, the Global Health Delivery Project (GHD) is generating new knowledge and professional networks in healthcare delivery through research, education, and virtual collaboration. DGHE faculty play a key role, with specific involvement including analysis of care delivery systems for key conditions including HIV/AIDS, TB, and malaria; identifying and overseeing the development of a body of teaching cases; teaching; mentoring; and connecting healthcare implementers through professional virtual communities on GHDonline.org. GHD's library of 30 teaching cases and companion teaching notes used in curricula explore how leaders implement value-based principles. GHD's most recent investigates how in health infrastructure leads to economic development. GHD has also developed an in-depth curriculum guide for instructors and several concept notes that explain important concepts in global health delivery.

In 2013, the fifth annual Global Health Delivery Summer Intensive (GHDI) Program took place, a three-week session with classes in epidemiology, management science, and health care delivery. 2013's session welcomed 33 students from 11 countries, with over 170 professionals trained to date.



GHD's Web-based platform, GHDonline, comprises Professional Virtual Communities designed specifically for global health professionals worldwide. GHDonline now hosts over 11,000 members representing over 2,500 organizations from 170 countries, engaging across 11 public and 85 private communities of practice, each of which is focused on a common challenge in healthcare delivery and guided by one of 30 expert moderators. Over 300 clinical cases have been discussed to date in the Clinical Exchange private community—a tele-mentorship platform for physicians and nurses at Partners In Health hospitals in Rwanda, Malawi, Haiti, and Lesotho to discuss difficult clinical cases with specialists in Boston. GHDonline continues to partner with UpToDate, Inc.®, a leading peer-reviewed clinical-information resource, at no cost. To date, the UpToDate International Grant Subscription program on GHDonline has provided 290 UpToDate subscriptions to 186 institutions in 60 countries, or an estimated 9,000 clinicians caring for more than three million patients. In 2013, the team began a three-year grant awarded by the Agency for Healthcare Research and Quality (AHRQ) at the NIH to build additional Professional Virtual Communities for providers caring for vulnerable communities in the U.S.

RESEARCH

Tuberculosis

The division has an active tuberculosis research program focused on optimizing treatment outcomes in patients with multidrug-resistant tuberculosis (MDRTB). This ongoing work is a collaboration with Partners In Health and the Department of Global Health and Social Medicine at Harvard Medical School. DGHE faculty Drs. Salmaan Keshavjee, Mercedes Becerra, Carole Mitnick, Michael Rich, KJ Seung, Joia Mukherjee, Serena Koenig, Sonya Shin, Dylan Tierney, and Ed Nardell are conducting retrospective studies that apply novel analytic methods to clinical data from Peru, Russia, and Haiti. This group has produced multiple peer-reviewed publications that provide evidence that patients with MDRTB who receive at least five likely effective drugs have significantly lower risks of death and recurrence, and significantly speedier response to therapy, compared to patients who receive fewer than five likely effective drugs. This group of investigators is also engaged in translating these results into practice through active participation in numerous global technical, policy, and program advisory boards.

Dr. Megan Murray is leading an NIH-supported project that links three different studies focused on drug-resistant tuberculosis and one on the epidemiology and transmission dynamics of MDR/XDR tuberculosis. To date, this project has recruited and followed over 4,000 TB patients and 12,000 household contacts.

Dr. Ted Cohen is leading an NIH-funded study to investigate the prevalence and consequences of mixed-TB-strain infection in South Africa. He also works on surveillance strategies for monitoring the prevalence of MDRTB in Moldova and South Africa. He serves on the steering committee for the TB Modeling and Analysis Consortium and is a member of the WHO's Global Task Force on TB Impact Measurement.

Dr. Carole Mitnick is conducting an NIH-funded clinical trial of high-dose rifampin for drug-sensitive TB in Lima, Peru.

In Russia, studies focus on treatment outcomes, risk factors for treatment failures, and community-based care delivery models. Recent publications describe the role of alcohol use in patients with MDR and hepatotoxicity related to treatment.

In South Africa, Dr. Edward Nardell is conducting studies using an innovative approach to measure the transmissibility of *M. tuberculosis*. An experimental ward has been constructed that exhausts the air from patient rooms to chambers where hundreds of guinea pigs are exposed to airborne bacteria, and Dr. Nardell is using this facility to study interventions to protect healthcare workers from airborne infections as well as to study TB pathogenesis and screen vaccine candidates.

His current study, funded by the Bill and Melinda Gates Foundation, uses the natural transmission model to test the hypothesis that such a model will more accurately predict effectiveness of candidate vaccines in humans. A portion of guinea pigs has been vaccinated with BCG as a prototype vaccine, and a portion not. The ability of vaccines to prevent or limit natural transmission is being tested. Following Dr. Nardell's model, the Foundation is building its own human to guinea pig transmission facility to test vaccine candidates in the Cape Town area.

HIV

DGHE's HIV research agenda also spans multiple sites.

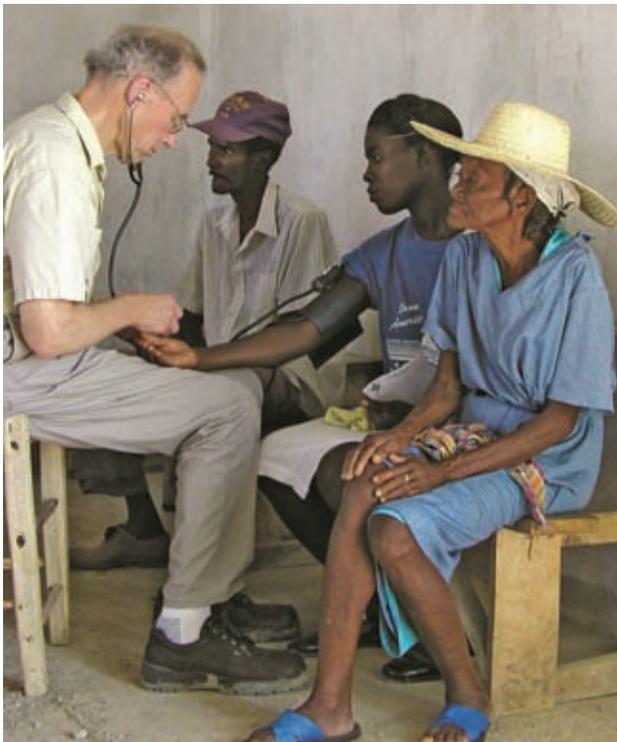
In Haiti, Dr. Louise Ivers is completing an NIH-funded study that assessed the impact of a pilot nutritional intervention on HIV-positive individuals, and Dr. Serena Koenig is the primary investigator for an NIH-funded randomized trial evaluating the effectiveness of same-day HIV testing and treatment, compared to standard care, in Haiti. Dr. Koenig is also co-investigator for a proposal to improve the management of depression among HIV-infected patients. Dr. Koenig, along with other DGHE colleagues, has also done studies finding improvements in HIV treatment outcomes and lower

costs over time, evaluating the impact of gender on HIV treatment outcomes, and evaluating the rates and risk factors of patients who become lost to care at every step from HIV testing to antiretroviral therapy initiation.

In Peru, Dr. Sonya Shin and SES are conducting a study on the impact of social support on medication adherence among HIV/AIDS patients with expected findings to include improved HIV outcomes, increased drug adherence, and psychosocial and socioeconomic stability among the cohort.

In Lesotho, Dr. Hind Satti is studying the diagnosis and outcomes of patients co-infected with HIV and multi-drug-resistant TB.

In Rwanda, Dr. Michael Rich and several DGHE colleagues have studied HIV treatment programs and their outcomes including clinical outcomes and high retention in care among adults in a community-based HIV treatment program in rural Rwanda; clinical



Dr. Howard Hiatt with patients in Haiti.

outcomes of a comprehensive, integrated program for HIV-exposed infants; a three-year experience promoting HIV-free survival in rural Rwanda; and improved retention associated with community-based accompaniment for antiretroviral therapy delivery in rural Rwanda. In 2013, Dr. Rich, in collaboration with Doctors without Borders, published a 300-page book, part of a clinical guideline series, that addresses drug susceptible TB, MDRTB, TB/HIV and TB of all forms in children.

Cholera

Dr. Louise Ivers is working with a team from Partners HealthCare and Harvard Medical School to conduct and analyze several NIH-funded studies, including a case control study to evaluate the field effectiveness of the vaccine, as well as several immunological studies.

DGHE faculty are implementing and evaluating health systems strengthening programs in rural southeastern Rwanda. This multi-year project, the Rwanda Population Health Implementation and Training (PHIT) Partnership, was established in 2009 with support from the Doris Duke Charitable Foundation's African Health Initiative. The Partnership endeavors to improve the capacity and performance of the health system in two rural districts with targeted financial and technical investments focused on health centers, coupled with quality-improvement initiatives designed to improve both service delivery and strengthen monitoring and evaluation systems. Aspiring to create a replicable, evidence-based road map for district-level primary healthcare delivery, the Partnership has developed an integrated model of implementation, operational research, and impact evaluation to facilitate refinement and rigorous evaluation of the intervention.

School-based Interventions for Child Health

DGHE faculty are leading the health component of a large randomized community trial of school-based interventions in impoverished urban neighborhoods in Santiago, Chile. Investigators are examining the impact of intensified case management within schools on outcomes including asthma frequency and school absenteeism.

Future Directions

DGHE and its faculty will undertake the following new and expanded initiatives in 2014:

- In Haiti, DGHE faculty will continue to play a critical role in the planning and implementation of a long-term strategy for rebuilding devastated healthcare infrastructure, and provide healthcare and support services to those patients most in need.
- As the national teaching hospital (HUM) in Haiti becomes fully operational, DGHE will work towards providing primary care services to a catchment area of 185,000 people in Mirebalais and two nearby communities serving 500-700 outpatients per day.
- DGHE will continue to implement Human Resources for Health Rwanda medical education initiative with the government of Rwanda, PIH, and Harvard Medical School to dramatically increase the clinical training of Rwanda healthcare providers and specialists.
- DGHE will further develop a clinical trial of BCG with an NIH planning grant to prevent TB transmission to the U.S. and other low-risk students, researchers, and humanitarians who travel to high-burden settings such as Africa, Asia, and Eastern Europe.
- In 2014, the GHD Project will launch new U.S.-based communities with AHRQ funding, offer the 6th annual GHD Summer Intensive, develop new cases to build out the GHD curriculum, and identify and formalize skills and training pathways for global health delivery professionals.
- In partnership with PIH and HMS, DGHE will nurture and strengthen local residency programs in Rwanda and Haiti.
- The Community Outreach and Patient Empowerment Program (COPE) will pilot a childhood obesity prevention curriculum (Happy Homes) in the Eastern Navajo area with preschool children and their parents. COPE will work to start a project funded by Con Alma to set up a community garden to promote inter-generational and cross-cultural teachings of food traditions. 

1917
 Christmas on the front in World War I, Base Hospital #5.



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Michelle Morse, M.D. (Assistant Clinical Instructor)
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Michael Rich, M.D., M.P.H.
Peter Rohloff, M.D.*
Sara Selig, M.D.
Kwonjune Justin Seung, M.D.
Sara Stulac, M.D., M.P.H.
Neo Tapela, M.D., M.P.H.
Ralph Ternier, M.D.
Dylan Tierney, M.D.
David Walton, M.D., M.P.H.
Rebecca Weintraub, M.D.

Lecturer

Jaime Bayona, M.D., M.P.H.*

*Connotes secondary appointment in the DGHE

SELECT MAJOR FACULTY ACCOMPLISHMENTS

Mercedes Becerra, Sc.D.

- Clifford Barger Excellence in Mentoring Award

Andrew Ellner, M.D., M.Sc.

- Awarded “Excellence in Primary Care” designation by 2013 HMS graduation class
- Overseas Expert in Primary Care, National Health Group, Singapore, 2013
- Co-developed and co-directed LM600, “The Physician as Leader,” a one-month elective in leadership, management, and system re-design for advanced medical students
- Co-directs the Innovation Fellows Program, monthly four-hour teaching sessions designed to cultivate clinician innovators skilled at implementing new programs in primary care and mentoring students

Paul Farmer, M.D., Ph.D.

- Honorary Doctor of Science, American University, Washington, D.C.
- Honorary Doctor of Science, University of Delaware, Newark, DE
- Honorary Master’s of Philosophy in Human Ecology, College of the Atlantic, Bar Harbor, ME
- Received Sword of Loyola, Loyola University Chicago Stritch School of Medicine, Chicago, IL
- Delivered lecture titled, “Infections and Inequality,” in the Continuing Medical Education in Infectious Diseases: Infectious Diseases in Primary Care course at Brigham and Women’s Hospital

- Delivered grand rounds titled, “Surgery and Global Health: Ten Rules of the Road,” at Temple University
- Delivered grand rounds titled, “The Role of the Teaching Hospital in Building Health Systems for Health Equity,” at Hôpital Universitaire de Mirebalais, Haiti
- Visiting Professor, Temple University School of Medicine, Philadelphia, PA, and delivered “Evidence, Equity, and the Coming Transformation in Global Health,” Annual Alpha Omega Alpha lecture
- Visiting Professor, University of Texas at Austin, Austin, TX, and delivered “Haiti After the Earthquake: Health Care as a Human Right”
- Developed Global Health Equity Option in Scholarship Abroad (GHEO Scholars) Program — a new study-abroad program at Harvard College that integrates a global health internship and research project at *Compañeros En Salud* (CES), Partners In Health’s sister organization in Chiapas, Mexico, with a full semester of Harvard undergraduate courses, taught by Harvard faculty through small-group videoconferencing. In 2014, the GHEO Scholars Program will allow two undergraduate students to study the delivery of healthcare in resource-poor settings by combining experiential learning with innovative pedagogy. By integrating interdisciplinary Harvard College coursework with a field-based internship and research project, the program will provide a unique opportunity to advance students’ intellectual and practical engagement with the emerging field of global health.

SELECT MAJOR FACULTY ACCOMPLISHMENTS *(continued)***Lisa Hirschhorn, M.D., M.P.H.**

- Continued ongoing refinement of the Advanced Quality Improvement Syllabus used for trainings in Tanzania, Haiti, Rwanda, and Vietnam, as well as similar work in development of a Coaching in QI syllabus (with Dr Lisa Cosimi and others) in use in Vietnam, Rwanda, Tanzania, and Haiti

Dan Palazuelos, M.D., M.P.H.

- Discussant, Harvard Academy Cross-Cultural Symposium
- Lecturer on Urinary Tract Infections, Harvard Update in Hospital Medicine CME Event
- Conceived and implementing an innovative faculty lecture series for the Global Health Equity Residency, facilitated discussions held over dinner with notable members of the larger global health community in Boston. There are many elements that make this lecture series different than others: 1) preparation for the lectures is tailored towards the busy resident, and may entail listening to radio shows, watching television shows, reading high-yield non-academic readings; 2) the topics are from a list of questions we are calling "Global Health 801 - the deep questions." These are questions that don't have easy answers; it's the process of exploring the possible answers together as a GHE residency that we hope will prepare the residents for tackling such questions in the future.
- Conducts, with others, in-depth interviews with every GHE residency graduate to learn about their post-residency experience in building a career in global health, in the hopes of improving the residency and helping to build a knowledge base on how best to educate the next generation of global health professionals

- Published the flagship chapter on Mexico in a book for global health students planning to work in Latin America called "Building Partnership in the Americas: a guide for global health workers," published by University Press of New England

Raj Panjabi, M.D., M.P.H.

- Teaching Assistant, Harvard Extension School
- Track Advisor, Global Health Track, Clinton Global Health Initiative's 2014 Commitments

Joseph Rhatigan, M.D.

- George W. Thorn Award, BWH



