



FOGARTY INTERNATIONAL CENTER • NATIONAL INSTITUTES OF HEALTH • DEPARTMENT OF HEALTH AND HUMAN SERVICES

## Fogarty continues to advance African health education

Fogarty is seeking applications for projects in eight African countries in the next phase of its efforts to advance research capacity and strengthen the continent's health workforce. The President's Plan for AIDS Relief (PEPFAR) plans to invest up to \$37 million over the next five years to support the awards.

Through the Health-Professional Education Partnership Initiative (HEPI), new projects will leverage the achievements and lessons learned from the previous Medical Education Partnership Initiative (MEPI), MEPI Junior Faculty Research Training program, and the Nursing Education Partnership Initiative (NEPI). About 10 grants are expected to be awarded, with each providing up to \$600,000 per year. HEPI funding will support creative educational activities with a primary focus on skills development, research experiences, mentoring activities, curriculum or methods development, and outreach. . . . continued on p. 3

Photo by Richard Lord for Fogarty



The new Health-Professional Education Partnership Initiative (HEPI) program will strengthen the research and health care workforce in eight African countries.

## Marking 50 years, Fogarty considers future goals

To commemorate 50 years of its global health research and training programs, Fogarty will convene partners and grantees on May 1 to review accomplishments and lessons learned, as well as consider future directions and goals.

The day-long symposium, "Fogarty at 50: What are the new frontiers in global health research?," will be held at Natcher Auditorium on the NIH campus. Afterward, the Foundation for NIH is sponsoring a networking reception.

The *Lancet* editor Dr. Richard Horton will provide the keynote address, which will be followed by panel discussions of how to advance global health priorities. NIH Director Dr. Francis S. Collins will also present his observations on how NIH Institutes and Centers

can collectively sustain and advance the global health research agenda.

Panelists will present case studies and lead conversations to explore questions such as what is needed to advance infectious disease research and achieve the end of HIV/AIDS; how can existing platforms be leveraged to address noncommunicable diseases; and what can be done to advance the global brain disorders agenda. Finally, senior investigators and their trainees will discuss the long-term impact of the multigenerational capacity building Fogarty supports.

The event is free and open to all but seating is limited, so attendees are encouraged to view the full agenda and register at <http://bit.ly/Fogarty50register>.

### FOCUS



#### Fogarty supports multigenerational research training

- Three generations of Fogarty trainees advance HIV studies in South Africa
- Discoveries in broadly neutralizing antibodies may result in treatment or vaccine
- Haitian scientists receive on-the-job research training, enabling progress on HIV
- Trainees help prove ART works in low-resource settings and other breakthroughs

Read more on pages 6 – 9

# Fogarty continues to advance African health education

. . . continued from p. 1

**HEALTH-PROFESSIONAL EDUCATION PARTNERSHIP INITIATIVE (HEPI)**

**Sample activities to be supported**

**Courses for Skills Development**

- innovative, hands-on community-based training, problem-based learning
- advanced courses in clinical procedures, simulations or new technologies
- training in core capabilities, such as ethical review, and grants and financial management

**Research Experiences**

- research topics should be locally relevant and address the country's health priorities
- provide opportunities for inter-professional and/or multidisciplinary experiences
- a focus on addressing barriers to HIV/AIDS service delivery is a priority

**Mentoring Activities**

- provide high quality supervision in research and clinical education
- give career guidance for health professional students, post-graduates and junior faculty
- training in mentorship and leadership for all career stages

**Curriculum or Methods Development**

- develop novel instructional approaches or computer-based educational tools
- creative approaches to curriculum that consider national goals for the health workforce
- educational experiments to determine effectiveness of new approaches

**Outreach**

- develop electronic platforms and learning models to facilitate interaction and shared teaching
- disseminate research findings through oral presentations/publications
- engage with governmental, civil society and other stakeholders

illnesses across the continent.

Many of HEPI's goals continue in the path established by MEPI/NEPI. Funding is directed at expanding and enhancing medical and nursing education models, developing strategies to reduce brain drain and providing resources to train health professionals in neglected regions where they are needed most. The program also aims to encourage evaluation and dissemination of best educational practices, enhance capacity for locally-relevant research, and address national needs in consultation with health and education ministries and other stakeholders.

HEPI applications must include Principal Investigators who are citizens of an African country and employed by an African institution. Co-Principal Investigators must also be African citizens. Applicants are required to partner with at least one eligible institution outside of their own in the same country, and may collaborate with a consortium of eligible institutions. Some joint activities between nursing and medical students are also required. NIH's National Institute of Nursing Research will provide nursing science expertise.

From 2010 to 2015, MEPI funded 13 African universities—which included a network of 32 participating African institutions and 20 partnering U.S. institutions—to strengthen medical education, build research capacity and improve faculty retention. In parallel, NEPI funded 22 nursing schools in six African countries to enhance nursing education, leverage academic-practice partnerships, and increase the quality and quantity of nurses and midwives. In 2015, NIH began a new program designed to provide career development opportunities for junior faculty at MEPI institutions.

“We are excited to strengthen and expand the growing network of institutions that is transforming medical and health education throughout Africa,” said Fogarty Director Dr. Roger I. Glass. “This is truly an example of the whole being greater than the sum of its parts. By leveraging resources, sharing curricula and increasing interaction between medical and nursing students, the HEPI network will advance discovery and improve health across Africa.”

HEPI and Association applications are due on March 28.

The new program is targeting eight low-resource countries: Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe. Applicants are not required to have previously engaged in MEPI or NEPI but must include a participant as a partner in their proposal.

A related five-year award—called the African Association for Health Professions Education and Research—will establish a body to convene and facilitate institutions across Africa to jointly develop and share best practices, innovations and curricula. The association will be supported with up to \$750,000 per year to provide leadership for activities that will increase the quality, quantity and retention of African health professionals, and address HIV/AIDS and other

## RESOURCES

Website: <http://bit.ly/HEPIfundingop>



Beta-amyloid plaques and tau in the brain

## NIH scientists update Congress on global Alzheimer's epidemic

More than 35 million people globally are living with the devastating symptoms of Alzheimer's disease and other forms of dementia, with that number expected to double almost every 20 years. Those heart-wrenching facts were included in testimony two NIH scientists provided to a recent congressional hearing on the epidemic. Held by the House Foreign Affairs Subcommittee on Africa, Global Health, Global Human Rights and International Organizations, the session was intended to give an update on the worldwide incidence of dementia, scientific advances and research prospects.

"We are in a race like few other diseases because it is proliferating

so fast throughout the globe," noted Rep. Christopher Smith (R-NJ), who chairs the subcommittee. The total estimated global cost of addressing this condition is \$818 billion and rising fast, he said, but the human toll is immeasurable. "It is excruciatingly painful for someone to lose themselves gradually, and I have spoken myself to many individuals, especially those who are early onset who have young families and are dealing with the agony that they know it is progressing."

There is some cause for optimism, with international collaboration and data sharing projects "blossoming" and providing unprecedented scientific opportunities for Alzheimer's

research, said Dr. Marie Bernard, deputy director of the NIH's National Institute on Aging. In addition, studies of genetic risk factors are progressing, including drug trials to see if Alzheimer's can be prevented at its earliest stages, she said. One site in Colombia is testing the intervention in an extended family with a hereditary, early-onset form of the disease.

"We need to find the brightest minds everywhere to assist in this endeavor, as well as to identify populations with unique environmental or genetic risks, because the high-quality research that we do doesn't happen only in the United States. It happens elsewhere," said Fogarty Director Dr. Roger I. Glass, whose father suffered from Alzheimer's. In order to take advantage of these scientific opportunities, it's critical that foreign researchers be trained through programs such as Fogarty's, Glass added.

Subcommittee member Rep. Daniel Donovan (R-NY), who watched his mother succumb to Alzheimer's, expressed hope for a cure and noted the enormous burden the disease takes on families. "If you are successful in finding a treatment, it will pay for itself."

### RESOURCES

Webcast and transcript:  
<http://bit.ly/AlzHearing>

## TDR survey shows effectiveness of training program

A recent publication detailed the effectiveness of TDR's career development efforts targeting scientists in low- and middle-income countries. TDR, the Special Programme for Research and Training in Tropical Diseases, is a global effort to combat diseases of poverty, hosted at the WHO and sponsored by UNICEF, the UNDP, the World Bank and WHO.

Published in *PLOS Neglected Tropical Diseases*, the article examined survey responses provided by 77 former TDR grantees. The vast majority, 89

percent, were still working in research and most of them said TDR support was a very important factor in their career achievements. The brain drain phenomenon towards high-income countries was low, with 96 percent of trainees returning to their region of origin on completion of their degrees.

About 80 percent of respondents reported having participated in multidisciplinary research activities; women engaged in multidisciplinary collaboration to a higher extent than men. However, only a minority

of all have engaged in intersectoral collaboration, an aspect that TDR noted would require further study. Trainee data are being collected on an ongoing basis in TDR Global, the network of global health experts and grantees that was, in part, set up to follow alumni in more detail and provide them with a mechanism for more frequent input into program development.

### RESOURCES

Full report: <http://bit.ly/TDReval>

# PROFILE

## Fogarty Fellow studied health of African migrants to China

Dr. Brian Hall, a clinical psychologist and epidemiologist, was determined to conduct global mental health research in Asia—where there aren't many scientists in the field and he felt his work could have an impact.

During the year he spent in Guangzhou, China, as a Fogarty Fellow, Hall examined the social and health challenges facing African migrants, and in the process sharpened his qualitative research skills and his ability to get stakeholders to agree to a project. At the end of his fellowship, Hall accepted an assistant professorship at the University of Macau and began building a multi-disciplinary global health research group, one of the few in Asia with a mental health focus. In his work at the university in southern China, Hall has embraced the challenge of helping a relatively young institution build its research infrastructure.

“Mental health is a really critical area for all of us in global health to be thinking about,” Hall explained. “If you have mental health comorbidities, you're less likely to take medications on time or adhere to different regimens that could be applied to infectious diseases like HIV or noncommunicable diseases like diabetes.”

Drawing on his Fogarty experience, as well as psychiatric epidemiology training at Johns Hopkins Bloomberg School of Public Health, supported by NIH's National Institute of Mental Health, Hall began developing the research program. He secured outside funding for projects, something he described as novel to the university, and now has a team of over 20 people that includes undergraduate, graduate and postdoctoral researchers, staff and faculty collaborators.

Hall involves undergraduates in the program to give them new experiences and guidance to help them shape the trajectory of their post-graduate training. As a dedicated mentor, he's been able to place all of his students who aspired to advanced training at top-ranked regional and international institutions.

“I'm focused on developing the capacity of future leaders in global health,” Hall said. “I want to instill in



**Brian J. Hall, Ph.D.**

Fogarty Fellow:	2013 – 2014
Fellowship at:	Sun Yat-sen University, Guangzhou, China
U.S. partners:	University of North Carolina and Johns Hopkins University
Research focus:	Social determinants of health for African migrants in China

my trainees the passion for making a real impact on the health of populations.”

The program's projects employ a variety of methods to examine the mental, physical, sexual and social aspects of health to support evidence-based interventions. The research echoes some of Hall's past efforts and explores new areas such as eMental Health—work he is conducting with the World Health Organization as part of a fellowship funded by two psychological associations.

Hall is using his experience as a Fogarty Fellow in mental health research to help another marginalized community. He's collaborating with NGOs on co-funded projects to develop strategies and programs for migrant domestic workers in Macau. Hall's research group conducted the first epidemiological study of depression in the region as part of a larger initiative to assess mental health needs. The study found local Chinese in Macau are twice as likely to become depressed as those on the mainland and in neighboring Hong Kong, which, like Macau, is one of China's special administrative regions.

“Fogarty is the bridge to global health. It got me out into the world, into Asia,” Hall reflected, noting he still benefits from the relationships that he formed during his fellowship. He was part of a working group that included his advisors, Dr. Joseph Tucker, a former Fogarty Fellow who heads a University of North Carolina research program in China, Dr. Carl Latkin of Johns Hopkins and Dr. Li Ling of Sun Yat-sen University, as well another Fogarty Fellow, Dr. Wen Chen.

“I'm excited about what the future holds,” Hall said. “I think Fogarty really helped galvanize my spirit in how things can get done and to focus on the end goal and remain determined until you reach it.”

## ANDREW DYKENS, MD, MPH

*When Dr. Andrew Dykens was awarded a prestigious Fogarty International Research Scientist Development Award (IRSDA) in 2016, he designed a unique research project in collaboration with the U.S. Peace Corps, with which he volunteered in West Africa in the 1990s. An assistant professor at the University of Illinois at Chicago, where he also heads postgraduate global health education, Dykens is using his IRSDA grant to study cervical cancer in Senegal. He is also a member of the CDC's Global Health and Territorial Research Network, and chairs the Capacity Building Subcommittee of the Consortium of Universities for Global Health.*



### How has your IRSDA grant shaped your career?

As a career development award, Fogarty's International Research Scientist Development Award (IRSDA) is providing me with critical research skills. I meet frequently with mentors and get feedback, have taken some courses and attended some conferences, and even in the process of applying for the IRSDA, I learned the importance of thinking through the details of a research project and building it out. You learn to think about how systems can be adapted and strengthened to meet the needs of communities over the long term.

### Why did you collaborate with the Peace Corps?

As a former volunteer, I knew the Peace Corps has extensive experience working with local health services in many low- and middle-income countries and is well-positioned to facilitate research partnerships. This sits well with the focus of my project, which is to improve the quality of health services and strengthen the cervical cancer screening program in a rural region of Senegal. I knew that Peace Corps volunteers are integrated into local communities and work closely with local leaders, so they are able to offer insights into contextual factors. But the Peace Corps does not routinely conduct primary healthcare services implementation research—universities in the U.S. and overseas do that. So I wanted to bring the two together so that they could benefit from each other's strengths. In my observation, the most successful projects in rural areas are those that work with deeply integrated partners that have a strong understanding of the local context.

### How did the Peace Corps enhance your project?

When we first contacted them in Senegal, they put us in contact with health officials in the southeastern region of the country, telling the Senegalese officials that we wanted to work within the system and strengthen health services. It was through that relationship that we developed cervical cancer screening as the project's technical approach. One thing we focused on was how to make the project sustainable, how to adapt and strengthen systems in order to meet the needs of communities over the long

term. At a practical level, we wanted to work within systems that were already in place, including local methods used to educate and inform people. In Senegal, one way they do this is through an activity called "care groups"—where women are provided with educational materials and are essentially trained as trainers. Then they return to their homes and share information in a standardized way, ensuring their community is as informed as possible about various health services.

Care groups were operating in Senegal long before we started our project, and the Peace Corps is tied to them. So because the Peace Corps truly understands how care groups work in Senegal and understands the contextual piece about how to work with women at the community level, we're working very closely with them to develop that intervention piece.

### How can a study in Senegal help Americans?

Recent reports have shown that there are marginalized groups in the U.S. with cervical cancer rates that are on par with low-income countries. It's ridiculous that anywhere in the world today should have elevated cervical cancer rates, but it's troubling to know that, in as wealthy and resource-rich a country as the U.S., there are groups that still have significant challenges accessing screening services and utilizing those services efficiently. What underlies that are the social determinants of health—education, gender disparities, poverty rates, language barriers.

We've found that, although social determinants often materialize in different ways, depending on the country you're in, they are essentially uniform and parallel across nation states, regardless of context. That means what we can learn in a setting such as rural Senegal could very well be applicable to places in the U.S. where there are marginalized populations with similar characteristics, or who are marginalized in a similar way. So I expect that there's a great amount of knowledge we can garner from this type of project, not to mention from many of the other projects Fogarty supports.

## Multigenerational research leads to HIV discoveries

**T**hree generations of Fogarty-trained scientists in South Africa have made notable contributions to an area of research that might yield new ways to prevent HIV. They're studying broadly neutralizing antibodies, which can kill multiple strains of the virus that causes AIDS. Produced by only about 20 percent of people with HIV, these antibodies show up too late to be able to stop disease progression in the people who make them. However, scientists worldwide are exploring their potential to prevent HIV in others—either through a vaccine that would coax the body to generate similar types of antibodies or through passive immunization in which an antibody product would be given directly.

In work that's spanned more than a decade and passed from mentors to mentees, the South African team and U.S. collaborators have helped explain how these unusual antibodies can arise. More significantly, they discovered and isolated an especially potent antibody that was shown to protect monkeys from infection. The antibody is being modified and mass produced for a future trial to determine if it can safely and effectively do the same in people.

"This is a rolling stone that's gathering a lot of moss along the way and generating a whole slew of really exciting young scientists," said Dr. Salim Abdool Karim, director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA), who is planning the trial.

For 25 years, Fogarty support has provided long- and short-term training to hundreds of South African

*Several generations of Fogarty trainees in South Africa have helped advance HIV prevention research on broadly neutralizing antibodies, including Dr. Penny Moore (center) and her mentee Dr. Jinal Bhiman.*

scientists and helped build the capacity required to run successful research labs and conduct clinical trials there. As the trainees become the trainers, Abdool Karim said the multiplier effect is tremendous and cited as a good example the antibody research conducted by Dr. Lynn Morris, her mentee Dr. Penny Moore, and her trainee Dr. Jinal Bhiman.

### The road to discovery

Morris and Moore, CAPRISA research associates, co-direct the antibody program at the National Institute for Communicable Diseases in Johannesburg. Their lab brings together the fields of virology and immunology and conducts studies to understand how and why some people develop broadly neutralizing antibodies. Much of their antibody research centers on samples collected over years from women in a large CAPRISA study who were diagnosed with HIV within weeks of infection. Serum samples, collected years later from these women, were tested against panels of HIV strains, to allow the research team to identify those women who had developed broadly neutralizing antibodies. Then, by going back to stored specimens, the researchers were able to study how those antibodies and the virus changed over time. This unique cohort, which began in 2004, therefore gives the scientists the opportunity to study both the virus and the antibodies from their earliest stages and trace their evolutionary pathways.

These relatively rare antibodies have been discovered in the samples of several women, but one participant, known as CAP256, was found to have especially potent plasma antibodies. For the skills and technologies to isolate the B cells that make these antibodies, Morris turned to Fogarty training for herself and later Bhiman, who finished the

task with the help of collaborators at NIH's Vaccine Research Center.

### The Fogarty factor

Morris said the Fogarty training she received early in her career in 1999 started a trend of collaborations between her lab and international partners, which has created valuable learning opportunities for their students. "It's really had the most significant impact in terms of getting our trainees to another level because they come back with all these new skills and with that comes more confidence."



## Three generations of Fogarty research trainees



Dr. Lynn Morris



Dr. Penny Moore



Dr. Jinal Bhiman

It's also enabled their team to keep up with the latest technologies. Morris went for additional Fogarty-supported training in 2009, spending time at Duke University, to learn how to isolate the individual blood cells that produce broadly neutralizing antibodies—work compared to finding a needle in a haystack. She pulled out antibodies from the blood of two CAPRISA patients, but not CAP 256, because at that time they didn't have the right antigen, or "bait." Morris brought the B cell technology back to South Africa, where it's still used to support NIH-funded vaccine trials in the country.

When Moore joined the lab as a postdoctoral fellow unsure of the direction she wanted her career to take, Morris suggested she spend time with Dr. James Binley at the Torrey Pines Institute in San Diego, who was studying HIV envelope structures and how antibodies bind to them.

"It was a completely transformative experience for me," said Moore, of the two rounds of training she had there. Moore said she came home "addicted" to the work. It's been her research focus ever since, and an interest she cultivated in Bhiman as she completed her master's and Ph.D. Moore included Bhiman in research that resulted in a significant paper in 2012 that was the first to show, in

concept, that viral evolution directs the antibody response. Scientists have long known that antibodies pressure the virus to change; the South African team showed the opposite is also true.

**"I really can't overstate the value of the Fogarty programs for us. It's changed the way we do science, the way we interact with other labs and it's increased the opportunities open to our students."**

— DR. PENNY MOORE

When Bhiman began work on her Ph.D., Moore and Morris decided it was time to make another attempt at isolating the CAP256 antibodies and turned to their collaborators at NIH's Vaccine Research Center. In 2012 and 2014, Bhiman trained there alongside scientists who are pioneers in this area, and learned two different techniques for isolating the B cells that produce these unusual antibodies. Mentored by VRC Director Dr. John Mascola and Drs. Nicole Doria-Rose and Nancy Longo, Bhiman executed the time-consuming work of finding these very rare cells in a vial of blood cells.

They ultimately isolated 33 antibodies from CAP256, including the exceptionally potent one that's heading to trial. Without this step, researchers wouldn't have been able

to clone the antibody and produce it in large enough quantities for animal and human studies.

"I feel very privileged and very lucky to have been given the opportunity to work on the CAP256 project," noted Bhiman, who's now a postdoc at the Scripps Research Institute in San Diego. Her time at the NIH gave her a very different view of science compared to that in the developing world, she said. And her years with Morris and Moore built her confidence as a researcher.

### Mentoring matters

Bhiman was one of nearly a dozen students mentored by Morris and Moore who spent time training in top U.S. labs with Fogarty support. The students were carefully selected once they'd developed some lab skills and had a clearly defined research question. They were then sent to learn from collaborators who were the best match for that specific project. For those reasons, Morris said, they were all very successful.

The Fogarty experience has led to a "cascade of capacity building," spawning an array of new projects, new collaborations and new grants, Moore noted. But, it also created what she described as a nurturing network. "It becomes a much bigger thing than just the scientific techniques that people went off to a lab in the U.S. to learn. It becomes a community." Their lab has become highly collaborative and formed useful networks, according to Morris. "The Fogarty training programs have really been the major mechanism for doing that, which has been really fantastic for building our expertise."

For many of the trainees, it was a seminal experience. "It was career-defining for many of us because it gave us opportunities I don't think we would have had anywhere else," said Moore. "I really can't overstate the value of the Fogarty programs for us. It's changed the way we do science, the way we interact with other labs and it's increased the opportunities open to our students."

### RESOURCES

<http://bit.ly/HIVGenerations>

# Generations of mentorship improve health in Haiti

By Karin Zeitvogel

**A** research group that began as a collaboration between a mentor and his mentee in the early 1980s has harnessed decades of Fogarty and NIH support to spawn collaborations that span generations, and have trained hundreds of scientists and medical professionals. The Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections, which is known by its French acronym, GHESKIO, has grown into one of the world's preeminent research organizations for HIV/AIDS, shaping global health guidelines and, on a local level, helping increase longevity in Haiti by more than a decade. And because of GHESKIO's mentorship-driven research culture, an HIV diagnosis is no longer considered a death sentence in Haiti and HIV prevalence in the country has been dramatically reduced.

GHESKIO is the product of the relationship between a mentor—Dr. Warren Johnson of Weill Cornell Medical College—and his mentee, Dr. Jean “Bill” Pape, who as a student at Weill Cornell in the 1970s sought out Johnson as an adviser. The partnership between the two has endured to this day, helping to grow GHESKIO from what was essentially a two-man endeavor in the early 1980s to a globally respected, innovative research organization that

*Three generations of Fogarty-supported mentors and mentees—from left, Drs. Jean “Bill” Pape, Dan Fitzgerald and Warren Johnson—have transformed research in Haiti.*

has produced multiple generations of scientists whose research has helped change the face of global health.

“Fogarty has been central to GHESKIO's success,” said Pape, who was himself a Fogarty trainee. “We've had continuous NIH funding since 1983, and Fogarty support since 1988, the year the AIDS International Training and Research Program (AITRP) was launched. By piggybacking Fogarty support on existing grants, we've been able to give on-the-job training to several generations of researchers.”

Johnson and Pape have mentored more than 100 Haitian scientists through Fogarty programs in the U.S. or in the Caribbean island nation. Most of their mentees have returned to Haiti to work—or never left in the first place—and published hundreds of papers, some documenting groundbreaking research that has led to changes to global health guidelines and practices. In 1993, for example, GHESKIO researchers were the first to determine that isoniazid prophylaxis was effective in preventing TB in HIV-infected patients, and that it helped to prevent recurrence of TB, said Pape. “Twenty years later, the WHO said primary isoniazid prophylaxis was one of the most cost-effective interventions in people coinfecting with HIV and TB,” he said.

GHESKIO researchers also authored a study that found that infants born with HIV in Port-au-Prince were six times more likely to die in the initial six months of life than babies born with the virus to Haitian mothers in Miami. That study was one of the first to indicate that factors such as malnutrition, poverty and environmental conditions in developing countries played a greater role in early HIV-related mortality than maternal factors, such as ethnicity, or HIV strain.

Fogarty trainees also played a key role in a landmark study conducted by GHESKIO in Haiti in the early 2000s, when international funds for antiretroviral therapy (ART) became available in low- and middle-income countries. GHESKIO researchers provided ART to Haitians, in spite of warnings from some scientists in developed countries who thought that poor adherence and patchy access to the drugs could result in a strain of ART-resistant HIV. The results of the GHESKIO study were stunning: a year after starting on ART, nearly 90 percent of adults and teens and 98 percent of children were still alive, in contrast to 30 percent who survived beyond a year before ART became available. The 10-year survival rates were around 70 percent—comparable to the U.S., even though Haitians presented later with the disease, were much sicker and often severely malnourished.

Photo by Bahare Khodabanda, reproduced with permission from Weill Cornell Medicine





Like many developing countries, Haiti has a heavy disease burden, including the highest prevalence of HIV infection in Latin America and the Caribbean. Having a broader pool of infected people to study than in the U.S. allows researchers in countries like Haiti to produce results more quickly—and those results are just as useful to Americans and Europeans as they are to Haitians. GHESKIO has grown into “one of the largest AIDS centers in the Americas,” said Pape. “We have in our network 33,000 patients on antiretroviral therapy—more than a third of all HIV patients in Haiti—and every year we diagnose and treat about 3,000 patients with TB. So Haiti is an ideal place for young researchers who want to study AIDS, TB and other diseases.”

One such researcher was an American who in the mid-1990s was working as a primary care physician in Haiti’s Central Plateau region. “I was taking care of many people with advanced HIV/AIDS, and when I had questions about best practices for people with AIDS, a colleague suggested that I ask Dr. Jean Pape, who was already globally recognized as an expert in the field,” Dr. Dan Fitzgerald said. “So, several times, I drove from rural Haiti to Port-au-Prince to meet Dr. Pape, ask him questions and run cases by him. In the course of doing that, I learned about his work and decided I wanted to follow in his path.”

Awarded a Cornell infectious diseases fellowship in 1998, Fitzgerald began research training in Haiti, with Pape as his mentor. The following year, Fitzgerald received a prestigious Fogarty International Research Scientist Development Award (IRSDA), which provides U.S. research scientists with support and protected time to conduct research in a low- or middle-income country. With Pape as his mentor in Haiti and Johnson in the U.S., Fitzgerald used his grant to hone his biomedical



*Years of mentorship at GHESKIO and Weill Cornell have helped train scores of Haitian researchers with Fogarty support.*

and clinical research skills and conduct investigations into, among other things, HIV transmission in discordant heterosexual couples and best practices for informed consent in developing countries. According to Pape, Fitzgerald published one research paper every month “at the same time as doing all the work he was doing.” in Haiti.

Like Pape before him, Fitzgerald the mentee eventually became Fitzgerald the mentor. He is the principal investigator on two Fogarty-supported projects that are training the next generation of researchers at GHESKIO. One of the projects, which Fogarty co-funds with the National Cancer Institute, is training a dozen Fogarty scholars, and 21 nurses, lab technicians, data managers, social workers and a pharmacist, in cervical cancer diagnosis and prevention research. The other will provide 10 Haitian clinicians with research training in AIDS-related multidrug resistant tuberculosis, and set up a two-year master’s program in laboratory science for eight Haitian trainees.

Between them, the two projects will allow nearly two dozen Haitian clinicians to earn master of public health degrees in Haiti. Once trained, the researchers will help fill large gaps in Haiti, where only 10 percent of MDR-TB patients receive treatment and cervical cancer is a leading cause of death in HIV-infected women.

“The old axiom in medicine is: ‘See one, do one, teach one.’ You train one and it just keeps going,” said Johnson, who in 2017, passed the mantle of Director of Weill Cornell’s Center for Global Health to his former protégé, Fitzgerald. “With Fogarty support, we’ve been able to mentor and train our own leaders at Cornell-GHESKIO, and they have gone on to train others.”

In the last three decades, Haitians’ life expectancy has risen by about 10 years, according to World Bank data. “The generations of researchers that Fogarty has helped us to bring through the ranks have improved Haitians’ health and allowed them to live to see their grandchildren start school or their children graduate from university,” said Pape.

But Haitians living longer has brought a new problem to the country: chronic illnesses are on the rise. “In the slum across the street from GHESKIO’s downtown Port-au-Prince office, 48 percent of women are obese,” said Pape. “So here’s a country that’s very poor, that is dealing with an epidemic of infectious diseases but also an epidemic of chronic diseases. With support from Fogarty and generations of researchers, we’re armed against both.”

## RESOURCES

<http://bit.ly/MentorsHaiti>

## Making the case for African investment in research



Sometimes we in the global health research community struggle to translate our achievements into economic terms. I was particularly struck by this during a recent meeting in Africa of public and academic leaders, where we discussed how best to make the case for increased investments in scientific

capacity building and research ventures across the continent.

How do you calculate the value of lives that were *not* lost because vaccines or treatments were available? How do you measure workforce productivity gained because fewer days were missed due to malaria or other illnesses because qualified health professionals properly diagnosed and treated the disease? How do you accurately measure the impact of scientific training, as well as research and development (R&D) investment on national economic growth in individual African nations?

These questions are on our minds now, given the African Union nations' pledge to devote 1 percent of its Gross Domestic Product to R&D. Although Africa is home to 15 percent of the world's population and carries one-quarter of the world's disease burden, it accounts for just 1.3 percent of global investment for research. An increased focus on science education and research training could pay enormous dividends that would fuel the continent's economic engine, while also generating discoveries that improve health.

To advance this notion, we've been working with partners to form a new body, called the Coalition for African Research and Innovation (CARI), aimed at accelerating scientific breakthroughs in Africa. We've reached consensus on a three-pronged strategy for CARI—to encourage increased investment in African R&D, catalyze partnerships with common aims and scientific objectives, and gather evidence to build demand for research among African governments. We envision CARI as an African-based organization with a governance structure comprised of diverse African leadership. It's being led by the president of Mauritius, Dr. Ameenah Gurib-Fakim, an accomplished chemist and biodiversity scientist. In addition to NIH, CARI's founding partners include the African Academy of

Sciences (AAS), the Bill and Melinda Gates Foundation, and the Wellcome Trust. Consultations have already been held with representatives from the World Bank, African Development Bank, the African Union and others. The AAS is serving as the Executive Secretariat during the initial incubation period.

Health research has been selected as the initial focus for a scalable pilot, with future endeavors expanding into other scientific domains. One project might focus on establishing a precision medicine initiative that builds on the accomplishments of the Human Heredity and Health in Africa program, supported by the NIH and the Wellcome Trust. It could take advantage of genomics skills developed, samples collected and data sets generated to produce cost-effective custom arrays for pharmacogenomics or other diagnostic tools tailored for African populations. These same tools could be deployed to improve disease surveillance, and outbreak monitoring and response.

Another idea might be to strengthen African capacity in clinical and translational research, to better leverage the existing and predicted private investment in product trials across the continent. Perhaps a network of hubs could be developed, to harmonize standards and best practices, support training through shared curricula and coordinate robust use of informatics. If successful, these efforts could reduce research risks and encourage private industry to invest in Africa.

To help inform planning, CARI has commissioned two scoping studies. The first will generate a descriptive inventory of existing clinical and translational research capabilities across disease areas, phases of research and types of interventions. This will identify investment prospects to close gaps, and opportunities for population-based research and clinical trials. The second is an analysis to identify best practice mechanisms for biomedical R&D, assess their ability to attract investment, and study how well prepared individual African countries are to support research.

With global analysts in agreement that Africa is on the move, the time is ripe to highlight the untapped potential of R&D to produce economic growth and generate advances that could improve human health around the globe.

### RESOURCES

Websites: <http://bit.ly/AfricanResearch>



## Pharma exec is new HHS chief

Former Eli Lilly executive Alex Azar has been sworn in as the new HHS Secretary. Under President George W. Bush, Azar served as general counsel and then as deputy secretary at HHS. A lawyer by training, Azar previously clerked for the late Supreme Court Justice Antonin Scalia.



## Lifetime achievement award for Pape

In recognition of his outstanding contributions to his profession, Dr. Jean (Bill) Pape has received the Lifetime Achievement award from publisher Marquis Who's Who. A longtime Fogarty grantee and professor at Weill Cornell Medical College, Pape founded and directs Haiti's largest provider of HIV and AIDS care, the GHESKIO Centers.



## John joins ASTMH leadership

Fogarty grantee Dr. Chandy John is president-elect of the American Society of Tropical Medicine and Hygiene and will become president in October. Director of the Ryan White Center for Pediatric Infectious Disease and Global Health at Indiana University, John conducts malaria and child health research and training in Uganda and Kenya.



## Former grantee wins top tropical medicine award

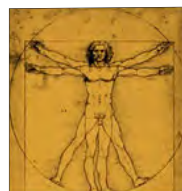
The American Society of Tropical Medicine and Hygiene has recognized Dr. Margaret Kosek for her distinguished work. Kosek, who held a Fogarty grant for early-career scientists, is an associate professor at Johns Hopkins Bloomberg School of Public Health, where her research focuses on enteric infections in children and malaria epidemiology in the Peruvian Amazon.



## NIH-led program, scientists win Prince Mahidol Awards

The Human Genome Project and two NIH scientists who developed a childhood vaccine received 2017 Prince Mahidol Awards.

Recognized in the field of medicine, the Human Genome Project was the international effort to determine the sequence of the human genome and identify the genes it contains. Dr. Francis S. Collins, now NIH director, led the project, which began in 1990 and was completed in 2003.



Drs. John B. Robbins and Rachel Schneerson, who are both retired from NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, received the public health award for development of the Hib vaccine. Used to protect against *Haemophilus influenzae* type b—the bacteria that causes meningitis, pneumonia and other infections primarily in young children—the vaccine is recommended by the WHO and CDC.



The Prince Mahidol Awards are an international honor, named after the prince considered “The Father of Modern Medicine and Public Health of Thailand.”

## Scientists explore ways to combat AMR

To help address the global issue of antimicrobial resistance, the U.S. National Academies recently held a session to consider the issue through the One Health lens. The workshop explored ways to strengthen systems to counter infectious disease threats to human, animal and environmental health. A summary of the proceedings has been published. Full report: <http://bit.ly/NAMamr>

## WHO urges action against fake drugs

About 10 percent of drugs circulating in developing countries are substandard or falsified, according to new research. In two reports, the WHO details results of four years of global surveillance of fake medicines, and forecasts the potential financial and health impact. News release: <http://bit.ly/WHOfakedrugs>

## DCP examines child and adolescent health

The Disease Control Priorities project has announced new findings that show essential and scalable interventions are required beyond the first few years of life to ensure children achieve their full potential. The volume on child and adolescent health and development suggests cost-effective interventions are feasible, even in low-resource countries. Full report: [www.dcp-3.org/CAHD](http://www.dcp-3.org/CAHD)

## G-FINDER marks 10th anniversary

The tenth annual G-FINDER report finds that while global funding for neglected disease R&D is increasing, efforts to develop new tools are at risk because of an overreliance on just two funders: the U.S. government and the Bill & Melinda Gates Foundation. Full report: <http://bit.ly/Gfinder2017>

## NIAID offers research tool

The NIH's National Institute of Allergy and Infectious Diseases has launched a tool to help researchers locate useful NIAID web-based resources to advance their work. Search queries can be filtered by disease, discipline or approach, research stage and resource type. Website: [www.niaid.nih.gov/research/resources](http://www.niaid.nih.gov/research/resources)

## NICHD seeks mothers' input on pregnancy

To discover more about what pregnancy is really like, the NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development has developed a research project called PregSource. Women everywhere are invited to share information about their pregnancy and overall health. Website: [pregsource.nih.gov](http://pregsource.nih.gov)

Funding Opportunity Announcement	Details	Deadline
International Research Scientist Development Award (IRSDA) (K01 Clinical Trial Required) (K01 Clinical Trial Not Allowed)	<a href="http://bit.ly/IRSDA-CT">http://bit.ly/IRSDA-CT</a> <a href="http://bit.ly/IRSDA-NoCT">http://bit.ly/IRSDA-NoCT</a>	Mar 7, 2018 Mar 7, 2018
Planning for Noncommunicable Diseases and Disorders Research Training Programs in LMICs (D71)	<a href="http://bit.ly/NCDlifespan">http://bit.ly/NCDlifespan</a>	Mar 14, 2018
Health-Professional Education Partnership Initiative (HEPI) (R25)	<a href="http://bit.ly/HEPI2018">http://bit.ly/HEPI2018</a>	Mar 28, 2018
African Association for Health Professions Education and Research (R25)	<a href="http://bit.ly/AfricanAssn">http://bit.ly/AfricanAssn</a>	Mar 28, 2018
International Research Ethics Education and Curriculum Development Award (R25)	<a href="http://bit.ly/Ethicsop">http://bit.ly/Ethicsop</a>	May 17, 2018
International Bioethics Research Training Program (D43)	<a href="http://bit.ly/EthicsTrainingop">http://bit.ly/EthicsTrainingop</a>	May 17, 2018
Global Infectious Disease (GID) Research Training Program (D71) (D43)	<a href="http://bit.ly/GIDplan">http://bit.ly/GIDplan</a> <a href="http://bit.ly/GIDtrain">http://bit.ly/GIDtrain</a>	Jul 26, 2018 Jul 26, 2018

For more information, visit [www.fic.nih.gov/funding](http://www.fic.nih.gov/funding)

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## Innovation and global health leadership celebrated

Courtesy of the Global Health Technologies Coalition



Global health research advocates congratulated Rep. Tom Cole (R-OK), who was honored recently by the Global Health Technologies Coalition for his leadership in supporting research and innovation. *From left: Mary Fogarty McAndrew, daughter of Fogarty International Center's namesake, the late Rep. John E. Fogarty; Karen Goraeski, director of the American Society of Tropical Medicine and Hygiene; Rep. Tom Cole, chair of the appropriations subcommittee with responsibility for NIH funding; Tom McAndrew, son-in-law of Rep. John E. Fogarty; and Jamie Bay Nishi, director of the Global Health Technologies Coalition.*

### RESOURCE

<http://bit.ly/GHTCawards>