



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

## US-Africa summit encourages investments in health

Health was on the agenda as leaders from nearly 50 countries gathered in Washington in early August for the first-ever US-Africa Leaders Summit, intended to expand trade and investment, encourage sustainable development and enhance cooperation on peace and security.

NIH Director Dr. Francis S. Collins participated in one of the sessions, titled “Investing in Health: Investing in Africa’s Future.” U.S. Secretary of Health and Human Services Sylvia Burwell opened the program, noting “Africa is on the rise” and that public health is the anchor of economic health and individual well-being, in Africa and elsewhere. During the 90-minute conversation, participants discussed global health security, HIV/AIDS prevention and treatment, and maternal and child health. Collins led the portion devoted to examining how biomedical research can accelerate treatment advances.

African nations should strengthen training opportunities for their scientists and develop stable career paths to lessen the “brain drain” from their countries, Collins urged. He also encouraged leaders to consider their nation’s long-term needs in terms of the scientific expertise required to conduct research on critical health

Photo by Bill Bronson for NIH



NIH Director Dr. Francis Collins (far right), Fogarty Director Dr. Roger Glass (far left) and National Heart, Lung and Blood Institute Director Dr. Gary Gibbons (second left) welcomed Tanzanian President Jakaya Kikwete (center right) and his delegation.

issues to protect their populations from health threats. Before and after the official summit, Collins hosted a number of African leaders and delegations at the NIH campus for discussions with the agency’s top scientists . . . continued on p. 2

## NIH speeds efforts to test vaccine against Ebola

Initial human testing of an investigational vaccine to prevent Ebola virus disease began this month at NIH, led by scientists at the National Institute of Allergy and Infectious Diseases (NIAID). The early stage trial of a vaccine codeveloped by NIAID and GlaxoSmithKline (GSK) will evaluate the experimental vaccine’s safety and ability to generate an immune response in healthy adults. Another candidate Ebola vaccine developed by the Public Health Agency of Canada and licensed to NewLink Genetics Corporation will begin trials in the fall.

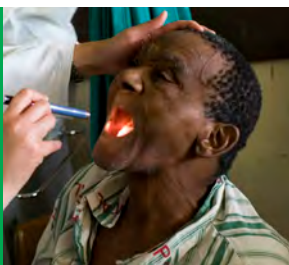
In parallel, NIH has partnered with a British-based

international consortium that includes the Wellcome Trust, Britain’s Medical Research Council and the U.K. Department for International Development to test the NIAID/GSK vaccine among healthy volunteers in the United Kingdom and in West Africa.

Additionally, the CDC has initiated discussions with Ministry of Health officials in Nigeria about the prospects for conducting a phase 1 safety study of the vaccine among healthy adults in that country.

More information is available at <http://bit.ly/Ebolalinks>

## FOCUS



### Scientists detail urgent research agenda on HIV comorbidities

- Many survive HIV/AIDS only to succumb to chronic diseases
- Studies needed to determine long-term effects of HIV treatment
- HIV care delivery platform should be repurposed

Read more on pages 8 – 9

## US-Africa summit encourages investments in health

. . . continued from p. 1

and tours of the Clinical Center. Representatives from the Republic of the Congo, Kenya, Mali, Tanzania and Zambia took part in conversations on how best to collaborate to improve health across Africa.

“Investing in health is not only the right thing to do, to reduce suffering from disease. It also results in economic returns,” Collins told his visitors. The NIH currently supports research and training across the African continent through about 1,500 grants, representing a significant portion of its international activities. Since Africa is home to seven of the world’s 10 most rapidly growing economies, “this seems like a great opportunity to talk about the potential to go even further in making investments in biomedical research,” Collins said.



NIAID director Dr. Anthony Fauci (right) discussed vaccine development and other ongoing infectious disease research with African leaders.

Tanzanian President Jakaya Kikwete agreed investing in medical research is a high priority. “We’re all thinking about the importance of research in my country,” he said. Partnerships that help build capacity, such as with NIH, “are crucial,” he added.

Infectious disease research advances—including an update on Ebola vaccine research—were presented by Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases.

“Obviously, we are concerned about Ebola, and it is a grave situation with malaria and HIV as well,” said Congolese President Denis Sassou Nguesso. “We have a lot of challenges and need partners such as you.”

The group also agreed there is an urgent need to address the most rapidly growing health problems in Africa, including heart disease, diabetes, cancer and other noncommunicable diseases (NCDs).

In Kenya, cancer is now the second biggest killer, according to its Health Secretary, James Macharia. New annual diagnoses number 70,000, and other NCDs are on the rise, “but we don’t have the capacity to treat these diseases,” he said. Kenya has only 12 oncologists and a population of 43 million. Several other leaders reported similar shortcomings in their countries and mentioned the high cost of sending patients to South Africa or India for treatment.

Collins assured the group that NIH is committed to helping them make the shift from a strong focus on infectious diseases to NCDs. Other senior NIH officials suggested promising research and training opportunities. Dr. Gary Gibbons, Director of the National Health, Lung and Blood Institute, said genomics studies in Africa are important not only to local populations but also to African Americans, who can share genetic variations that cause illnesses such as sickle cell disease.

Reducing mother-to-child transmission of HIV and improving newborn care are two ways research is lowering child mortality in Africa, said Dr. Alan Guttmacher, director of the National Institute of Child Health and Human Development. Cancer is another topic that can benefit from research collaborations, said National Cancer Institute Deputy Director Dr. Douglas Lowy. He cited the development of Zambia’s acetic acid screening for cervical cancer as a successful example, but said research is needed to develop earlier screening methods and strengthen data collection. Finally, African scientists can benefit from training and mentorship through the NIH Medical Research Scholars Program, said Clinical Center Director Dr. John Gallin.

Investments must also be made to ensure well-trained investigators are retained in their home countries, observed Fogarty Director Dr. Roger I. Glass. “Young investigators are an important resource that needs to be cultivated so that they grow into scientific leaders who can identify and advance the local research agenda.”



Malian President Ibrahim Boubacar Keita was one of several heads of state who visited NIH during the first-ever US-Africa Leaders Summit.

### RESOURCE

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

# Fogarty funds cutting-edge biodiversity initiatives

In addition to diseases for which there are ineffective or no cures, key pathogens are becoming increasingly drug-resistant. As a result, many of the treatments and medications that the global health community has relied on for decades need to be replaced or supplemented with new medical interventions. To address this problem, Fogarty has awarded three grants totaling about \$15 million over five years for research focused on biodiversity conservation and the discovery of new therapeutic agents derived from plants, animals and microorganisms in low- and middle-income countries. Funding from the International Cooperative Biodiversity Groups (ICBG) program—jointly administered by NIH and the National Science Foundation—will support new and ongoing biodiversity efforts in Brazil, Fiji, the Solomon Islands and the Philippines.

Photo courtesy of Dr. Cameron Currie



*Fungal-farming ants may hold key to new antifungal agents.*

“There is an urgent need to explore untapped natural products to discover cures and treatments that will improve health,” said Fogarty Director Dr. Roger I. Glass. “These awards will encourage an integrated, sustainable model of collaborative international research and training while supporting effective conservation efforts.”

Fungal-farming ants, which possess chemical defenses against pathogenic fungi, will be the subject of a new project being launched in Brazil by Harvard Medical School and the University of São Paulo. The research team will examine symbiotic bacteria that live in specialized anatomical features of the ants called crypts, which harbor symbiotic bacteria.

The bacteria produce small molecules that act as antifungal agents, inhibiting invasive fungal pathogens but not the crop fungus that the ants rely on for nutrition. The researchers intend to identify the antifungal agents to develop treatments for invasive fungal diseases that affect humans and may be active against blood cancers, and protozoal parasite infections like Chagas disease and leishmaniasis.

Through an ongoing research initiative in the Philippines examining mollusks and the interactions with their associated bacteria, a team headed by grantees from the Oregon Health and Science University, in collaboration with the University of the Philippines, is seeking to discover therapies for bacterial infections, as well as parasitic diseases such as toxoplasmosis and cryptosporidiosis, cancer, pain and other neurological

Photo courtesy of U.S. Geological Survey



*Mollusks, such as this shipworm, may be used to produce therapies for infections.*

conditions. Mollusks are one of the most diverse groups of marine animals and their associated bacteria represent an unexplored trove of chemical diversity. The marine biologists carrying out the study will focus on venomous gastropods and wood-inhabiting bivalves known as shipworms. By examining the symbiotic

microbes associated with these two types of invertebrates, they hope to discover the most biologically active molecules in the interaction process that might also act as drugs. Additionally, the project aims to foster training, conservation and the development of drug discovery in the Philippines.

Finally, grantees from the Georgia Institute of Technology will continue a collaborative effort with the University of the South Pacific’s Center for Drug Discovery and Conservation to discover new drug leads—chemical compounds that have pharmacological or biological qualities that are likely to be therapeutically useful—from cultured marine microbes and diverse coral reef organisms collected from Fiji and the Solomon Islands. Researchers

Photo courtesy of Dr. Mark Hoy



*Studies of algae and seaweed may lead to drug discoveries.*

will examine overlooked species—including coralline algae and slow-growing seaweeds—in dark, cryptic habitats, where organisms often employ chemical defenses to protect tissues that are difficult to replace.

The team’s drug discovery efforts will focus on four major disease areas: infectious diseases such

as tuberculosis and other drug-resistant pathogens, neglected tropical diseases, including hookworms and roundworms, cancer, and neurodegenerative and central nervous system disorders. The researchers will also work with marine ecologists to develop more effective strategies for reef conservation.

Fogarty’s funding partners for the awards include the National Science Foundation, National Cancer Institute, National Center for Complementary and Alternative Medicine, National Institute of General Medical Sciences, and National Institute of Neurological Disorders and Stroke. The Foundation for Research Support of the State of São Paulo is also providing parallel funding and in-kind support for the Brazil-based project.

# PROFILE

## Fogarty Fellow researches women's health in Malawi

By Cathy Kristiansen

Dr. Jennifer Tang remembers a 19-year-old patient arriving at the hospital in Malawi desperately ill, her uterus ruptured and severely infected, and her baby dead. Although Tang's surgical team rushed into action, the patient died a few hours later. Tang said what compounded the tragedy was how the woman's family had taken her to two other health centers, only to be turned away due to lack of specialists and equipment for a Cesarean section. "She had done the right thing, seeking help, but faced multiple barriers and ended up dying," Tang said. "Those kinds of stories stay with me."

Malawi has a very high maternal death rate—one in 34, according to the World Bank—and the reasons are not fully understood. Many factors might contribute, aside from the lack of medical specialists, including a high total fertility rate of 5.7 live births per woman, low modern contraceptive use and a high HIV prevalence—11 percent of adults.

Tang aims to help improve the health prospects of women in Malawi as a researcher as well as an obstetrician-gynecologist. Receiving a Fogarty fellowship enabled her to explore making research part of her career. "The fellowship made me a better physician-scientist," she said. "It gave me protected time and research funding so that I could focus on learning how to develop and implement clinical research projects in this resource-limited setting."

For her fellowship project, she assessed family planning knowledge, attitudes and practices among 634 postpartum women. Although more than 80 percent of the women were planning to use one of two long-term, reversible contraceptives to avoid another pregnancy, three months later very few women had followed through. Only 14 percent used a hormonal implant and 1 percent had an intrauterine device (IUD).

Tang also found the largest influence driving whether women were on a contraceptive was having correct knowledge about their safety. She hopes to design an educational intervention for antenatal and postpartum women on the safety of IUDs and implants.



Jennifer Tang, M.D., M.S.C.R.

Fogarty Fellow:	2012 - 2013
Fellowship at:	UNC Project-Malawi
U.S. partner:	University of North Carolina
Research focus:	Family planning, global women's health

Now, Tang has secured funding to expand her research in Malawi through 2017, including a Fogarty career development award and grants through the University of North Carolina Center for AIDS Research, World Bank, CDC, and the Bill and Melinda Gates Foundation. "The Fogarty fellowship gave me the on-the-ground experience I needed to successfully continue and expand my research work, as well as mentor other Fogarty Fellows," she said, adding that in time, she hopes to apply for a multiyear NIH award.

Tang's newest project is investigating whether the common progestin-only injectable contraceptive, depot medroxyprogesterone acetate (DMPA), might raise the risk of HIV infection—unlike contraceptives using different forms of progestin—as some studies suggest. "The biological reason for this potential association is not well understood, although it may be related to changes in genital tract immunology and microbiology caused by DMPA," Tang said. She will evaluate inflammation indicators and other changes in women at risk for HIV after they embark on either DMPA or another progestin contraceptive.

During her fellowship and subsequently, Tang has helped build Malawi's medical capacity. She staffs and conducts training in a cervical cancer screening clinic and instructs residents in Malawi's first obstetrics-gynecology residency program, which she helped to found in September 2013. She mentors students and has participated in additional research projects, including a cross-sectional study evaluating the characteristics of women with obstetric fistula.

As she develops her career and contributes to capacity building in Malawi, she hopes that in the future, people like the young woman in labor will receive lifesaving care that they need and deserve.

## MICHAEL M. GOTTESMAN, M.D.

*As NIH Deputy Director for Intramural Research, Dr. Michael M. Gottesman leads the office responsible for overseeing and coordinating NIH's internal research, recruiting skilled scientists from around the world and training the next generation of biomedical and behavioral investigators. He also heads the National Cancer Institute's Laboratory of Cell Biology and has contributed to key discoveries, including how cancer cells resist destruction by several widely used chemotherapy drugs. He obtained his M.D. from Harvard Medical School and came to NIH in 1971 for postdoctoral research training in molecular genetics.*



### What is the Office of Intramural Research's role?

The office oversees all NIH's intramural research, training and technology transfer activities and additionally develops and implements NIH-wide projects, policies, standards and reviews for this research. By funding its own research, NIH facilitates long-term, high-impact science that few other institutes are in a position to support. From this research, we've had discoveries important to domestic and global health, such as fluoride's role in protecting teeth, the use of lithium for bipolar disorder, treatments for multiple sclerosis and development of important vaccines for hepatitis, rotavirus, typhoid and the human papilloma virus.

### What are foreign scientists important to NIH?

We welcome scientists from other countries as an important part of building research capacity globally, whether the scientists remain in the U.S. or return home. Look to your right and your left in the labs or clinics at NIH and you are likely to spot a scientist who was born outside the country and received their primary training elsewhere. About 40 percent of our approximately 7,000 scientists and trainees are foreign nationals from more than 100 countries. In fact, over 60 percent of NIH's 4,000 postdocs come from abroad, especially China, India, Japan, Korea and European nations. And many of our 1,100 principal investigators were also born outside of the U.S.

### What attracts them to NIH?

The desire of these foreign scientists for an outstanding research experience is matched by our open and inclusive attitude towards our international colleagues in providing opportunities, including salary and research support, to pursue important investigations. The NIH intramural research program is perceived as being one of the top facilities in the world. For many foreign researchers, a successful postdoctoral experience at NIH is often a ticket to future success in a scientific career either back home or in the U.S.

### How are they supported on campus?

NIH has a Visiting Fellows Committee that helps foreign scientists transition to life at NIH and enjoy a worthwhile

experience. It also works to create opportunities for visiting fellows to maintain continuity in their research on returning to their home countries and encourages strong links between the fellows' home institutions and NIH.

### How do the exchanges spur science globally?

NIH has a long history of celebrating our international colleagues by learning more about their cultures and by forming lifelong friendships and collaborations. We all benefit from what an international cadre of scientists has to offer—a kaleidoscope of cultures, religions, abilities and disabilities, worldviews and perceptions that can be harnessed to solve almost every problem that nature has thrown our way. At NIH, our international community brings many different points of view to bear on important problems in basic biology, public health and clinical practice. Some examples include the teams of NIH's U.S. and foreign scientists who cracked the genetic code, developed cancer chemotherapy, or responded to the HIV epidemic. We are fortunate to have a wonderful tapestry of culture and intellect in our scientific community.

### How do these partnerships work?

One of the strong indications of the value to the global research effort of a research experience at NIH is the fact that more and more countries are developing programs to send their postdocs here for advanced training. For nearly 20 years, we have partnered with the Japan Society for the Promotion of Science and we also have a long-standing agreement to train Canadian fellows who can later earn independent positions in Quebec. Newer programs with Russia, Brazil and Korea provide varying levels of support to allow their fellows to work in NIH laboratories. There are many examples of successes by foreign scientists, including discoveries about the molecular mechanism of Parkinson's disease by Japanese scientists, development of a bi-transgenic mouse model for cancer by a Brazilian postdoctoral fellow, and neurocircuitry behind itching studied by a research fellow from India. The strength of this institution reflects the importance of the global community of scientists at NIH.

### RESOURCE

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

# Pakistan builds trauma and injury research capacity

People in Pakistan face a high risk of injury, whether from a traffic accident, terrorist bomb, cooking fire, or countless other causes. Until recently, the country had little research evidence to inspire and guide efforts to reduce this health burden, but that began changing with a Fogarty grant to a team of driven scientists.

“Injuries are now recognized as an important public health issue, and injury prevention is a research priority in Pakistan,” said Fogarty investigator Dr. Adnan Hyder, of Johns Hopkins Bloomberg School of Public Health (JHSPH). “Fogarty funding was instrumental in helping transform research on emergency care and injury and trauma from an uncommon activity in Pakistan to a productive, recognized field.”

The inspiration for change came from a group of researchers at JHSPH and Aga Khan University (AKU) in Karachi, who decided to produce evidence to focus academic and policy attention on the health problem. They sought funding from Fogarty’s trauma and injury program, which they have now received continuously since 2004. As their project has evolved, other funders also contributed support, including academic institutions, the WHO and several foundations.

At the outset, the team needed a clearer picture of the types, quantities and impact of injuries. Hyder, his co-investigator Dr. Ellen Mackenzie at JHSPH and Dr. Junaid Razzak at AKU spearheaded projects to create software for comprehensive emergency care data collection at district

*Traffic accidents, terrorist bombs and earthquakes contribute to a high rate of injury and trauma in Pakistan. Fogarty-funded researchers are studying how to reduce risks, improve care, and limit death and disability.*

hospitals, methodology to accurately assess trauma and emergency care capacity, and a surveillance system to measure traffic injuries—the largest contributor to this health burden—as well as the impact of violence, including self-harm.

Along with data on injury and trauma, Pakistan needed researchers with relevant expertise, so Fogarty supported human capacity building efforts. To date, the initiative has produced more than half a dozen long-term trainees who have completed injury research. Initially, courses were offered at Johns Hopkins or online. Now they are trained at AKU through its own master’s degrees in epidemiology and biostatistics, and in health policy and management. The university also inaugurated an emergency department, the first such unit in Pakistan, with Razzak as founding chair.

Research projects led by trainees and faculty have flourished. The first graduate of AKU’s own long-term training program, for instance, completed a thesis tying the survival of patients with cardiac arrest to how quickly they were delivered to the hospital. Another researcher organized the country’s first national seminar on suicide prevention, and a third is investigating whether intimate partner violence during pregnancy raises the rate of stillbirths.

Fogarty-supported trainees have published more than 20 papers in peer-reviewed scientific journals, on topics such as home injuries, child abuse, trauma registries and injury prevention. “These papers are not only testament to the productivity of our program,” Hyder said. “They’re also critical in generating new knowledge in the field for Pakistan and the region.” Other low-resource countries with multiple injury risks can benefit from Pakistan’s research showing how best to reduce injuries.

To extend research expertise outside Karachi, the team partnered with Khyber Medical University in Peshawar—an impoverished area near Afghanistan that suffers many types of natural disasters, such as earthquakes, and terrorist activity. Eleven fellows there are pursuing master’s degrees in public health. “That has been an incredible opportunity to expand beyond the main city of the country into an area that is extremely troubled,” Hyder said. “No one was doing this outreach in research capacity before.”

Fogarty supports capacity building for long-



Photos courtesy of Dr. Junaid Razzak, Aga Khan University

term gains, which typically involves developing a core group of experts who can instill their knowledge to the next generation of trainees, and this is happening in Pakistan. Six graduates with master's degrees supported by Fogarty are now on the Aga Khan University faculty, where they are designing curricula, teaching trainees and conducting and mentoring research.



*Fogarty support has enabled Pakistan to address injury—to build research capacity from scratch, leverage additional funds and focus policymaker attention on reducing this health burden.*

A key success of the program has also been to alert Pakistan's policymaking community to the health and economic cost of injury and trauma, and options for curtailing the harm.

With Fogarty support, the team has offered short-term courses, workshops, seminars and conferences on relevant topics, such as bioethics, cost-effectiveness in the health care system and disaster management. These sessions have been attended by hundreds of trainees and health care workers and officials. One international research symposium attracted more than 350 attendees.

Furthermore, Razzak founded a professional emergency



*Pakistani scientists have studied ways to reduce the impact of trauma and injury in Pakistan.*

care society that was recognized by the country's College of Physicians and Surgeons, underscoring the status of emergency care as a distinct specialty in the national health system.

The ministry of health for the first time specified injuries as one of its focus areas and the government tasked national, provincial and city authorities to develop plans for handling mass casualties. This increased awareness by policymakers has also attracted international recognition—the WHO selected AKU as a collaborating center for the Eastern Mediterranean Region and sought its leadership in producing an area-wide report on road traffic injuries.

“Injuries continue to contribute to large numbers of deaths and disabilities in Pakistan,” Razzak said. “But focused support from Fogarty has sensitized people and raised the agenda for emergency care and injury and trauma to a higher policy arena.”

## RESOURCE

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

## Researchers aim to cut child injury in Pakistani homes

Studies in Pakistan have shown that young children face a high burden of lifelong disability or death due to accidental injury in their homes, where they spend most of their time. Much harm could be avoided if adults were aware of the danger inherent in hazards such as uncovered water vats, unattended knives, open fires and accessible toxins.

A team of scientists investigated whether disseminating risk information to caregivers of a child aged 1-5 years reduced hazards around the home. It was led by former Fogarty trainee Dr. Uzma Rahim Khan, now an Aga Khan University senior instructor and project coordinator for Fogarty's injury and trauma program there. For the community-based pilot study, the team visited homes to assess hazards and also deliver education to caretakers on how to lower injury risk. The education was given via a pamphlet or verbally in a tutorial during the home assessment.

Photo courtesy of PAMMAN via Photofest



The team found that tutorials were more effective than pamphlets in mitigating the numbers of hazards. A follow-up study will analyze whether injury rates likewise decline. The study's assessment and education tools are tailored to a low-income

community, and this has inspired similar research projects in Malaysia and Nepal.

Khan is also researching injury prevention in adults, for instance, by investigating the role of loose-fitting clothing in motorcycle passenger accidents and by identifying ways to prevent such threats, such as education about suitable clothing and bike chain covers.

## Chronic diseases threaten progress against HIV/AIDS: *Scientists propose urgent research agenda on noncommunicable diseases*

**T**he global success in bringing antiretroviral treatment to HIV-infected patients in the developing world has brought a new set of health challenges. Many patients once condemned to death by AIDS now suffer from noncommunicable diseases (NCDs) related to the infection itself, the drugs used to treat it, or the simple process of aging, an international group of researchers write in a special issue of *JAIDS: Journal of Acquired Immune Deficiency Syndromes*.

Estimates indicate that chronic illnesses have already overtaken infectious diseases as the main killers in the developing world. Increasing rates of NCDs among people with HIV, if unaddressed, “may set back or even reverse the impressive health gains achieved over the last decade,” according to the authors.

In a series of eight articles and two commentaries, the scientists lay out a research agenda to determine the scope of the chronic illnesses and study the most efficient and cost-effective ways to tackle them. They suggest leveraging the existing HIV treatment infrastructure to study and treat problems such as tuberculosis, cancer, heart and lung disease, kidney disease, diabetes, mental illness and

*Scientists say the chronic, noncommunicable disease (NCD) research agenda requires urgent attention, as more Africans survive HIV only to be struck by an NCD.*

gastrointestinal disorders. All of these conditions can be comorbidities associated with HIV-related illness, whether the virus is treated or not, the authors write.

The publication grew out of a 2013 conference of international experts held at the Center for Global Health Studies at NIH. While the bulk of the supplement concerns circumstances in sub-Saharan Africa, two essays describe similar challenges in low-resource settings in Asia, and in Latin America and the Caribbean.

**“Just as the advent of widespread antiretroviral treatment demanded a seismic shift in global human capacity and health systems for the emergency response to HIV, emerging NCD comorbidities . . . will demand no less.”**

— DR. VENKAT NARAYAN AND COLLEAGUES

Studies in high-income countries indicate that a variety of NCDs are more common in HIV-infected populations. While the same is likely true in poorer countries, data that compare prevalence of these conditions among HIV-infected and non-infected populations are seldom available. In developing countries, co-infections that weaken immune systems and complicate treatment, as well as delays in diagnosis and treatment, may lead to different, sometimes larger distributions of these disorders, the authors suggest. About 8 million Africans currently receive antiretroviral therapy (ART), yet little is known about the impact of these drugs, many of which are harsher than comparable medications used in wealthy countries. In addition, there are few studies that compare the burden of chronic illness between people who are HIV-positive and those who are not infected.

Research will play a “critical role” in providing the evidence, strategies and tools required to deal with this emerging challenge, said the authors, who call for visionary scientific leadership, increased



Photo by David Rockkind for Fogarty/NIH



Photo courtesy of Dr. Marc Mitchell



Africa's HIV care delivery platform should be leveraged to diagnose and treat the rising tide of chronic diseases, such as cervical cancer, scientists suggest.

research capacity and the breakdown of disciplinary silos. They also recommend existing HIV clinical databases be expanded to include measurements of risk factors for chronic illness, such as body mass index and protein in the urine. Screening for depression and cervical cancer could also be integrated into HIV care, the authors said, since both take a huge toll in sub-Saharan Africa.

The authors suggest a number of complex health and implementation science topics in developing countries that merit further study, including:

- The lessons learned from the integration of tuberculosis care into HIV treatment should be examined to develop optimal strategies to combat NCDs.
- Virally triggered cancers associated with weakened immune systems are common—among them anal cancer, liver cancer and Hodgkin disease—but the epidemiology of HIV-associated cancers is not well studied.
- ART is known to increase the risk of heart failure and other cardiopulmonary conditions in high-income countries but little is known about the impact in low-resource settings, where individuals may face additional risk factors such as air pollution.
- Depression, alcohol abuse and cognitive disorders are prevalent in people living with HIV but the diagnostic tools in LMICs are inadequate and require further research.
- Kidney disease—whether caused by treatment toxicities or opportunistic infections—is on the rise and registries should be established to study occurrence and severity of side effects of ART.

The NIH meeting on HIV comorbidities was jointly chaired by Dr. Sten Vermund of Vanderbilt University School of Medicine and Dr. K. M. Venkat Narayan of Emory University's Rollins School of Public Health. Attendees included representatives of nine NIH Institutes and Centers, as well as the WHO, USAID, CDC, the World Bank and the Office of the Global AIDS Coordinator at the U.S. Department of State. The session was hosted by the NIH Office of AIDS Research and Fogarty.

Conference participants agreed the impressive resources and dedication used to battle HIV in recent decades must now be enhanced to also diagnose and treat NCDs in HIV-infected populations.

“Just as the advent of widespread antiretroviral treatment demanded a seismic shift in global human capacity and

“The papers in this supplement articulate an agenda to address the spectrum of research, training, effective implementation and evidence-based policy needed to confront this devastating new challenge of chronic illness among those living with HIV in developing countries.”

— FOGARTY DIRECTOR DR. ROGER I. GLASS

health systems for the emergency response to HIV, emerging NCD comorbidities among those with HIV in lower- and middle-income countries will demand no less,” note Narayan and colleagues.

There is also consensus that sustained investment and attention would be required to overcome the complicated problems involved. Priority research areas include defining the burden of NCDs today and in decades to come, understanding the prevalence and importance of modifiable risk factors, evaluating effective and efficient treatment and care strategies at the individual and health systems levels, and determining cost-effective preventive interventions.

“The papers in this supplement articulate an agenda from which we can begin to address the spectrum of research, training, effective implementation and evidence-based policy needed to confront this devastating new challenge of chronic illness among those living with HIV in developing countries,” according to Fogarty Director Dr. Roger I. Glass.

RESOURCE

Journal supplement: <http://bit.ly/NCDcomorbid>

## Research is essential to improving health in Africa



Research is a key driver of innovation in the health sciences, and it can spur global collaborations, build substantial financial support, empower scientific leadership and promote economic development. It was wonderful to have the opportunity to discuss these issues during the first-ever US-Africa summit held this summer in Washington.

I'm encouraged by the attention many of the African leaders devote to growing the biomedical research enterprise in their countries and by the generous support some provide to strengthen medical education and research training. It was gratifying to hear more about the wonderful progress being made at the recent annual network meeting of the Medical Education Partnership Initiative (MEPI).

I was also delighted to read about MEPI accomplishments in a series of articles published in a supplement to *Academic Medicine*. More than 250 MEPI participants contributed papers detailing the educational innovations that have generated new thinking, energy and optimism for the field.

MEPI was envisioned by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) to address the terribly inadequate supply of health and medical personnel required to support health programs in sub-Saharan Africa, particularly around HIV/AIDS but extending to other medical needs as well. By investing in education in medicine and the allied health sciences, MEPI intends to build human capacity for health in Africa by strengthening the medical education system in an environment that values and nurtures research. Why do we see research as integral to this endeavor?

The answer is that in the 21st century, education and research in leading academic institutions in Africa, as in the United States, must go hand in hand. In the past few decades, the epidemic of HIV/AIDS in sub-Saharan Africa has overwhelmed the capacity of the medical community and called out for innovations in treatment and prevention. For more than 25 years, the NIH has invested in training African researchers to address this epidemic. Research

discoveries have informed care and treatment so that a diagnosis of HIV/AIDS has been transformed from a death sentence to a manageable chronic illness.

Much of this research has been conducted by African investigators working in African academic institutions at African field sites with African populations, often but not always in collaboration with academic colleagues in the U.S. This research has been truly game changing and could not have been conducted as quickly, carefully, or effectively without outstanding local scientific leadership and implementation of solutions. The results have included the development of rapid diagnostics for detecting and monitoring HIV infections, new drugs for treatment, and new strategies for prevention, such as avoiding mother-to-child transmission, voluntary medical male circumcision, and treatment as prevention.

Research, along with health care and training, are key missions of academic health centers today. Students need to be able to access new advances in medicine, evaluate published literature, ask critical questions, and consider ways to better implement interventions that we think will work but remain to be tested. Engaging in research helps academic leadership remain competitive, funded, and knowledgeable of the advances of science, and research grants can help support an institution's growth. At a time when many African economies are expanding rapidly, innovations in the health care sector can be important drivers of this economic boom.

MEPI has been built on the idea that outstanding academic institutions in the health sciences must be excellent in education, service and research. Research can play a key role in producing effective and sustainable leadership in health, the development of knowledge and practice for the delivery of care, and for building academic centers in sub-Saharan Africa. The research perspective provided to students and faculty, the ability to raise and answer questions, and the idea that medical knowledge and practice are continually changing are being supported by MEPI sites and will hopefully endure long after the program ends.

*This is a condensed version of an article published by the journal *Academic Medicine*, part of a supplement detailing MEPI progress: <http://bit.ly/MEPInews>*



## Fogarty grantee Susser leaves legacy in HIV/AIDS

Dr. Mervyn Susser, renowned in the HIV/AIDS research field, has died. A physician, epidemiologist, professor and AIDS researcher, Susser's career spanned South Africa, the U.K. and U.S. He helped South Africa win its first Fogarty HIV/AIDS grant in 1993—a collaboration that continues to this day. In later years, he founded and led Columbia University's Sergievsky Center.



## NIH's Katz wins Austrian organization's top award

The Austrian Society of Dermatology and Venereology has awarded its top honor to Dr. Stephen Katz, director of NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases. Katz received the society's Gold Medal for his scientific contributions to the field and his guidance to the younger generation.



## Lasker Foundation honors NIH grantees

Dr. Mary-Claire King, of the University of Washington, was selected for the 2014 Lasker-Koshland Award for Special Achievement in Medical Science. King, who has been supported by Fogarty as well as other NIH agencies, was named for her bold, imaginative and diverse contributions to medical science and human rights.



Dr. Mahlon DeLong, of Emory University, was one of the two scientists to receive a Lasker-DeBakey Clinical Medical Research Award for pioneering deep brain stimulation to treat late-stage Parkinson's disease symptoms. For more than 40 years, DeLong has researched the basal ganglia structures and how they influence movement and movement disorders.



## Fogarty collaborator Grenfell joins Wellcome board

Fogarty Senior Fellow, Dr. Bryan T. Grenfell, has joined the Wellcome Trust's board of governors. A professor at Princeton University, Grenfell has more than 30 years of experience researching the population dynamics of infectious diseases. He has been a longtime partner in Fogarty's Research and Policy for Infectious Disease Dynamics (RAPIDD) program.



## WHO hails Fogarty grantee Hu for tobacco control

The WHO has recognized Fogarty grantee Dr. Teh-wei Hu for his contributions to tobacco control, honoring him with its 2014 World No Tobacco Day Award for the Western Pacific Region. Hu, a professor emeritus at the University of California, Berkeley, is an expert in tobacco tax policy research.



## Fogarty tobacco grantee is chosen for cancer post

Fogarty tobacco program grantee Dr. Isabel C. Scarinci has been promoted to a new position, associate director for globalization and cancer, at the University of Alabama at Birmingham's Comprehensive Cancer Center. She was also recently appointed honorary consul for Brazil, helping with the country's outreach to Brazilian citizens in Alabama.

## Wellcome announces new Africa funding

The Wellcome Trust has launched a £40 million (\$66m) initiative to develop a new generation of outstanding African health researchers equipped to combat emerging and endemic infections as well as the growing challenge of noncommunicable diseases. In addition, the Trust announced two programs to support Ebola-related studies.

Press release: <http://bit.ly/WTrustAfrica>

## WHO issues first report on global suicide

More than 800,000 people die by suicide each year, according to the WHO's first global report on suicide prevention. Some 75 percent of suicides occur in low- and middle-income countries, the study said. It also detailed evidence-based strategies that can prevent suicide and urged health officials to develop national strategies to implement them.

Press release: <http://bit.ly/WHOsuicide>

## Book focuses on research ethics in Africa

Former Fogarty trainees and other scholars have published a free, downloadable e-book that provides guidance on how scientists can ensure protection of Africans who participate in scientific studies and other related bioethics issues.

Book: <http://bit.ly/AfrEthics>

## WHO calls for indoor ban e-cigarettes

The WHO has called for a ban on indoor use of e-cigarettes and a restriction on advertising and promotion, due to health concerns. The report, titled "Electronic nicotine delivery systems," will be considered at the upcoming WHO Framework on Tobacco Control meeting in October.

Report: <http://bit.ly/WHOregs>

## NIH assesses genomic studies in Africa

Boosting genomic research in Africa requires many sustained approaches, especially to develop African expertise and facilities, as described in a recently published assessment by the NIH's Human Heredity and Health in Africa Initiative.

Full paper: <http://bit.ly/H3AfricaPlan>

## International clinical regs tool released

The NIH has released a new interactive tool containing in-depth information about international clinical research regulations. Called ClinRegs, the site was developed by the National Institute of Allergy and Infectious Diseases.

Website: [clinregs.niaid.nih.gov](http://clinregs.niaid.nih.gov)

## Funding Opportunities

Funding Opportunity Announcement	Details	Deadline
Hubs of Interdisciplinary Research and Training in Global Environmental and Occupational Health (GEOHealth) Research (U01) Research Training (U2R)	<a href="http://bit.ly/GEO2014">http://bit.ly/GEO2014</a> <a href="http://bit.ly/GEO2014rt">http://bit.ly/GEO2014rt</a>	Nov 19, 2014 Nov 19, 2014
NIH-NSF Ecology and Evolution of Infectious Diseases (EEID) Program	<a href="http://bit.ly/EEID14">http://bit.ly/EEID14</a>	Nov 19, 2014
Global Brain and Nervous System Disorders Research Across the Lifespan (R21) (R01)	<a href="http://bit.ly/BrainR21">http://bit.ly/BrainR21</a> <a href="http://bit.ly/BrainR01">http://bit.ly/BrainR01</a>	Jan 5, 2015 Jan 5, 2015
Mobile Health (mHealth): Technology and Outcomes in LMICs (R21)	<a href="http://1.usa.gov/1lwXFY3">http://1.usa.gov/1lwXFY3</a>	Feb 19, 2015
International Research Scientist Development Award (IRSDA) (K01)	<a href="http://bit.ly/IRSDA15">http://bit.ly/IRSDA15</a>	Mar 4, 2015
International Research Ethics Education and Curriculum Development Award (Bioethics) (R25)	<a href="http://bit.ly/Fogbio">http://bit.ly/Fogbio</a>	May 22, 2015

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

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Managing editor: Ann Puderbaugh  
[Ann.Puderbaugh@nih.gov](mailto:Ann.Puderbaugh@nih.gov)

Editor/writer: Cathy Kristiansen  
[Catherine.Kristiansen@nih.gov](mailto:Catherine.Kristiansen@nih.gov)

Photo editor/writer: Jeff Gray  
[Jeffrey.Gray@nih.gov](mailto:Jeffrey.Gray@nih.gov)

Writer: Arthur Allen

Web manager: Anna Pruett Ellis  
[Anna.Ellis@nih.gov](mailto:Anna.Ellis@nih.gov)

Designer: Carla Conway

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## NIH prepares for new MEPI research support in Africa

The NIH has announced it is committed to continuing to foster the next generation of researchers in sub-Saharan Africa and is planning to issue a second round of grants through the Medical Education Partnership Initiative (MEPI). A concept document published on the Fogarty website includes details of the next phase of MEPI, currently in the planning stage.

The NIH Common Fund and a number of other NIH Institutes and Centers have pledged support for the funding proposal, intended

to build on MEPI's accomplishments by increasing the capacity of faculty to pursue careers that include research. Research training and mentored research opportunities will be provided for entry-level to mid-level faculty in MEPI-supported institutions. The scientific focus for research training will be broad and encompass the breadth of knowledge needed to enhance health, lengthen life, and reduce illness and disability based on the priority needs of the country or region.

MEPI was launched five years ago to build human capacity for health by strengthening medical education across sub-Saharan Africa. The program is funded by the President's Emergency Plan for AIDS Relief (PEPFAR) and NIH and is jointly administered by Fogarty and the Health Resources and Services Administration. The Office of the Global AIDS Coordinator has also expressed interest in continuing to support the program and is currently considering how best to structure a second phase. The NIH funding opportunity to support the research and research training component of MEPI is expected to be released soon.

Photo by Richard Land for Fogarty



*The NIH is planning the next phase of the Medical Education Partnership Initiative, designed to help faculty strengthen their research careers.*

RESOURCE Website: <http://bit.ly/NIH2MEPI>