

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

## Global health community pays tribute to Dr. Francis Collins

Many scientists were surprised when Dr. Francis S. Collins declared global health research would be among his top five priorities as NIH director. The grateful community gathered on Oct. 14 to pay tribute to him for his many accomplishments and review some of the significant global health advances NIH supported during his tenure.

Collins has been a stalwart advocate, said Fogarty director Dr. Roger I. Glass, as he opened the event, which was hosted by the NIH Global Health Research Working Group.

“You’ve really graced us over the last eight years and provided support beyond anything we could have imagined, extending the reach of global health to all the NIH Institutes and Centers, supporting young investigators to consider global health careers and building exciting new partnerships,” added Glass, who also serves as Associate Director for Global Health Research at NIH.

Photo by Bill Branson/NIH



The global health community celebrated Dr. Francis S. Collins for his many contributions as NIH director.

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## Fogarty provides support to Ebola-affected countries

To help the countries most affected by the recent Ebola epidemic, Fogarty has launched a new program to strengthen research training in Guinea, Liberia and Sierra Leone. In the first round of funding, four U.S. institutions received grants to partner with academic centers in two of the West African countries. The support will enable them to design training programs to increase expertise in Ebola, Lassa fever and other emerging viral diseases.

The collaborations will strengthen the skills needed to evaluate vaccines, develop new diagnostic tests and treatments, and identify the most effective intervention strategies for disease outbreaks.

The planning grants, totaling \$200,000, are intended to help institutions prepare to compete for larger, longer-

term Fogarty support to implement research training programs.

“We hope these small awards will catalyze efforts to identify existing resources and plan to address development of sustainable research capacity in the countries that suffered so horribly from Ebola,” said Fogarty Director Dr. Roger I. Glass. “By training local researchers in epidemiology and lab skills, and helping them form networks with U.S. scientists, we believe future disease outbreaks can be better contained.”

Fogarty has issued a second call for applications to support further awards, with a deadline of Feb. 22, 2017.

List of awards: <http://bit.ly/EbolaResearchTraining>

## FOCUS



### National Institute of Neurological Disorders and Stroke (NINDS)

- Building neurological research capacity in developing countries
- Using Chagas disease research results to inform Zika studies in Brazil
- Fostering a research network to reduce stroke in sub-Saharan Africa

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## Global health community pays tribute to Collins . . . *continued from p. 1*

Collins' accomplishments will have lasting impact, Glass said, noting they included helping launch the Consortium of Universities for Global Health, forging an NIH collaboration with the Bill & Melinda Gates Foundation and establishing two cross-cutting programs—the Medical Education Partnership Initiative (MEPI) and Human Heredity and Health in Africa (H3Africa) project. Collins also devoted considerable time to forging international relationships, hosting numerous visitors including African presidents, the Queen of Spain and the first high-level Cuban delegation in 54 years. He also met with scientists around the world to monitor scientific progress and encourage the next generation of global health leaders.



Fogarty Director Dr. Roger I. Glass and NIH Director Dr. Francis S. Collins reminisced about their many foreign trips.

“Wherever we’ve travelled,” Glass said, “he’s gone out to sit down with students and encourage young researchers by telling them that the career choices they’re engaged in are really worthy of being supported.”

Collins has had a positive influence on research, both foreign and domestic, said Dr. Doug Lowy, acting

director of the National Cancer Institute. “Francis has been an amazing force. But what we are celebrating today represents probably one-fiftieth of the impact that he has had since becoming NIH director,” Lowy said. “We owe him a tremendous debt of gratitude for his energy, vision and dedication.”

Collins noted that his commitment to global health only deepened during his tenure. “This is a noble enterprise,” he said. “It’s not just something that we do, not just an academic search for knowledge, it’s also about this compelling feeling that we’re in this to help others and that doesn’t stop at the boundaries of our country.”

During the session, NIH global health leaders and their foreign grantees presented outcomes from varied projects including breast cancer research in diverse populations; investigations of the molecular and genetic basis of hearing and vision impairment in Pakistan; research collaborations in Haiti; studies to improve pregnancy outcomes in low-income countries; the increasing emphasis on global mental health; the growing burden of stroke; and genomics research in sub-Saharan Africa.

International collaborations are particularly important for scientists studying genomics, Collins observed. “We are all Africans,” he said. “If you want to study genetic variation and you really want to get the full picture, you have to go to Africa because that’s where it all started, that’s where the founder population is, that’s where the richness of human genetic variation is to be found.”

Photos by Bill Benson/NIH



Well-wishers snapped photos of Dr. Collins following the tribute event.

Collins described as “electrifying” the progress he saw during visits to Africa to meet with grantees of the H3Africa and MEPI programs. “There’s something happening there,” he said, “a sense of excitement among the young investigators and a growing recognition by African governments that this is something they should invest in. We should try to push that.”

Collins plans to continue his efforts to catalyze development of Africa’s science and technology enterprise, empower local researchers and spur discoveries to improve health among the world’s poorest populations.

“What a great outcome it would be, to see all the members of our human family given the opportunity to flourish in a new way,” Collins said.



NIH Director Dr. Collins (center) celebrated the accomplishments of grantees including Dr. Clement Adebamowo of Nigeria (left) and Dr. Bill Pape of Haiti (right).

# NIH-funded trial to assess benefits of clean cookstoves

Household air pollution created by using wood, coal and other solid fuels for cooking and heating homes is a leading cause of respiratory and cardiovascular diseases worldwide, and causes more than 4 million premature deaths each year, according to the World Health Organization. To tackle this global health problem, the NIH is funding a multi-country study to determine if a widely available, clean, alternative cooking fuel significantly reduces deaths and illnesses, especially in women and children who suffer the greatest exposure. This is the first large-scale trial to investigate whether use of cookstoves that run on liquefied petroleum gas (LPG) improve air quality sufficiently to provide measurable health benefits and can be effectively adopted in real world situations.

The NIH, with support from the Bill & Melinda Gates Foundation, is investing up to \$30.5 million in the 5-year study. The research is NIH's contribution to a broader international effort totaling more than \$50 million to conduct research in 30 countries aimed at discovering how to prevent and manage chronic lung diseases. That initiative is being coordinated by the Global Alliance for Chronic Diseases (GACD), a coalition of the world's largest public funders of health research.

"Indoor air pollution caused by cookstoves is one of the top health risks in developing countries, causing deaths from low birth weight among babies, pneumonia in young children, and heart and lung problems in adults," said NIH Director Dr. Francis S. Collins. "By working with our global partners on alternative fuel solutions, we have an opportunity to reduce that risk significantly for millions of people."

Three billion people worldwide—most of them in low- and middle-income countries (LMICs)—rely on solid fuels for cooking and heating, according to the WHO. The resulting indoor pollution, which includes small particles that can lodge deep in the lungs, causes pneumonia, chronic lung disease, cardiovascular and heart disease, stroke, cancer and other conditions.

NIH-supported researchers will conduct a randomized control trial of LPG cookstoves and fuel in four LMICs: India, Rwanda, Guatemala and Peru. U.S. investigators and collaborators in the trial sites will follow pregnant women, their offspring and older women to provide evidence of the



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A woman cooks supper in Rajasthan, India.

impact the alternative fuel has on household air pollution, child health and development, and adult chronic diseases. Emory University in Atlanta is leading the study.

Investigators plan to recruit 800 pregnant women at each site and will randomly assign half to receive LPG stoves and a supply of gas. Mothers and infants will be followed until the children are 2 years old. Mothers will be evaluated to see if they suffer hypertension during pregnancy, while children will be examined to determine birth weight, growth and development progress, incidence of pneumonia and other health measures. In addition, several hundred older women will be enrolled at each site and monitored to assess cardiopulmonary, metabolic and cancer outcomes. Blood and urine samples will be collected for biomarker analysis. Homes in the control group will receive LPG stoves and fuel at the end of the trial.

The household air pollution trial is one of 13 research projects in the GACD program to address environmental lung diseases. The effort focuses on implementation and intervention research in LMICs, vulnerable populations in high-income countries and aboriginal communities.

"By working together on pressing global health issues such as indoor air pollution, we can share ideas, leverage resources, accelerate discovery and build international networks of scientists and communities that together are better able to produce solutions that benefit us all," noted Fogarty Director Dr. Roger I. Glass, who is also the NIH representative to the GACD and helped found the organization.

Since 2010, the GACD has coordinated international research partnerships on hypertension and diabetes research. A call for proposals focused on global mental health research is underway.

## RESOURCES

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

# PROFILE

## Fogarty Fellow studies lupus in South African children

By Karin Zeitvogel

When Dr. Laura Lewandowski told her U.S. peers that she had been awarded a Fogarty Global Health Fellowship to study pediatric lupus in South Africa, she says they were perplexed. “There’s so little literature on systemic lupus erythematosus, or SLE, in Africa that colleagues assumed it happened less frequently there than in the U.S., if at all,” Lewandowski explained.

But doctors in South Africa said they were overwhelmed with young lupus patients who, Lewandowski knew, are at greater risk than adults for severe forms of the disease. Studies have found that lupus, which causes the body’s immune system to attack healthy cells and tissues, is also more common and severe in people of African descent.

So, armed with her Fogarty fellowship and an award from Duke University, where she earned a master’s degree and completed a fellowship in pediatric rheumatology and global health, Lewandowski set off for South Africa, home to five of the seven pediatric rheumatologists in all of Africa. Working with Dr. Chris Scott, a professor at the University of Cape Town and head of the rheumatology department at Africa’s only children’s hospital, Lewandowski analyzed the medical records of 72 children—mostly of African ancestry—who had sought treatment for lupus.

When she compared data on disease presentation, severity and outcomes in the South African cohort with a registry of 900 lupus patients in North America, Lewandowski found that South African children tended to develop the condition at a younger age than their U.S. counterparts, and were likely to have “severe active SLE at diagnosis,” Lewandowski says in a report of the study published in the journal *Lupus*. Interviews with the South African patients’ families found that barriers to diagnosis and care likely influenced the severity of disease at diagnosis, the report says.

Undiagnosed lupus can cause kidney failure, anemia, arthritis, cardiovascular conditions and neuropathy, among other ailments. Standard treatment in the U.S. involves the use of anti-inflammatories, including steroids. Many of the South African children in the study had suffered strokes and sudden onset blindness in spite of numerous visits to



**Laura Lewandowski, M.D., M.Sc.-G.H.**

Fogarty Fellow:	2014 – 2015
Fellowship at:	University of Cape Town
U.S. partner:	Duke University
Research focus:	Pediatric lupus in South Africa

medical professionals, who gave the patients no reason for their illness, Lewandowski said.

“We need to think about early diagnosis and easier access to care for this high-risk population because if you go into end-stage renal disease because your lupus was missed for a long time, South Africa’s lack of resources means that may be a death sentence,” Lewandowski said.

Lewandowski is continuing her pediatric SLE research at NIH’s National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), which she joined in 2015 as a Lawrence Shulman Scholar in Translational Medicine. Mentored by Dr. Mariana Kaplan, Lewandowski is focusing her NIAMS research on the inflammation that drives lupus, and whether genetic variants may cause some children to develop the autoimmune illness very early in life.

She is also studying what causes people of African descent to suffer such a severe form of lupus. The Fogarty fellowship gave Lewandowski unique skills and experiences that she says helped her get a position at NIAMS and allowed her to take “the first step toward filling the large research gap in pediatric lupus in Africa.” Dr. Scott hails Lewandowski’s Fogarty-supported research as indispensable in “highlighting the silent suffering of children with lupus in Africa.”

“I’ve always had an interest in underserved populations, and doing research in South Africa that seemed to have a big impact on people was very rewarding,” Lewandowski said. Her research has been expanded into Mexico, and she hopes one day to compile an international comparison of lupus patients of different ethnicities.

## FRANCIS S. COLLINS, M.D., PH.D.

*Dr. Francis S. Collins has been NIH Director since August 2009. A physician-geneticist, he is noted for his landmark discoveries of disease genes and his leadership of the international Human Genome Project. Previously, he served as director of the National Human Genome Research Institute at NIH from 1993-2008. When he began his tenure as NIH Director, he announced global health research as one of his top five priorities. Collins was recently interviewed by Fogarty Director Dr. Roger Glass at the Center's advisory board meeting. His comments below were edited for space.*



### What progress has been achieved in global health?

I think the Medical Education Partnership Initiative, or MEPI, is one of the major developments over the last six years, in terms of building research network capabilities in Africa. This is a wonderful partnership that has pooled resources to build educational opportunities in multiple medical institutions across Africa that previously had not been linked up together, to learn from each other, to figure out best practices. They had never had the chance to do that. Many of them had more north-south relationships but building south-south connections was new. So, that has been pretty amazing.

While visiting Uganda recently, we were able to tour the facility that is supported by another program called H3Africa, Human Heredity and Health in Africa. The biobank was impressive, but what was really astounding were the dozens of very visionary, smart, young East Africans, men and women, who have great ideas about research that they want to pursue and were beginning to feel like there was a critical mass of capabilities to do that. And so maybe they could, in fact, imagine for themselves a career in their own country and not feel the need to fly away to some other place, avoiding brain drain.

### How important is human capacity building?

I think the most important resource in global health research is not actually dollars. It is not actually buildings. It is not technologies. It is the people. And the Fogarty fellows have made an amazing contribution for a modest investment. The impact that program has had has been stunning.

My sense is, when I go out and visit universities, increasingly I meet students who say "I am interested in global health. I want to see what I can contribute to this area." Are we doing everything we can to capture this interest? Because if we aren't, we should. As we prepare for Fogarty's 50th anniversary, if we are going to pick an area where Fogarty has already made a huge contribution in terms of training and sending out all this talent across the globe, and many of them now have critical leadership

positions, maybe we could advance that by recognizing A) there is a lot of interest and a lot of demand; and B) every institute at NIH has a reason to think about this and maybe a reason, therefore, to work together.

### How do you envision the future of global health?

We can see that many of the world's most rapidly growing economies are in Africa. That means governments have an opportunity to start making investments themselves that previously they could not afford. And I think it is time also to figure out how to encourage more of that, given it is a good way for them to build economies, to wrap their arms around the importance of medical research and health care in general, and to help these countries really advance. It also seems like a great moment to build on what we have learned from MEPI and H3Africa about networking across country boundaries and building on IT to make advances happen more quickly. I do think we are in an exceptional time. There are so many opportunities for research and so much talent that is ready to be brought in to these kinds of studies.

### What has resonated most with you?

I will never forget meeting three young women in Uganda who told their stories about how research made it possible for them to be alive, all of them having participated in clinical trials. One had become HIV-infected early on when there was no treatment available except in trials. Another was able to prevent her baby from becoming infected as part of a PMTCT study. And a third, who was participating in a trial of a female vaginal ring approach to HIV prevention, putting women more in charge of their own destiny, instead of having to depend on men.

With tears in their eyes and sincerity in their voices, the women said "Thank you, America, you saved us." And they meant it. People need to be reminded that the human consequences of what we do are really quite profound.

### RESOURCE

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

## National Institute of Neurological Disorders and Stroke: Developing neurological research capacity in LMICs

**H**undreds of millions of people around the world each year are afflicted with a neurological disorder—anything from epilepsy to stroke, Alzheimer’s to Parkinson’s disease and nearly 600 other conditions.

Called “one of the greatest threats to public health” by the WHO, neurological disorders exact a heavy toll on individuals of all ages, as well as the countries in which they reside. Diseases like stroke often leave sufferers disabled and cost national health care systems millions. An epileptic in Africa risks being ostracized from the community, and the medicines to treat sufferers of neurological disorders are often unaffordable in developing countries.

At the same time, it is in low- and middle-income countries (LMICs) that the incidence and prevalence of neurological disorders and diseases, particularly stroke, are growing fastest. Deaths from infectious diseases are falling as prevention and treatment improves. While people are living longer, many are adopting new dietary and activity patterns that put them at greater risk for noncommunicable diseases (NCDs), including stroke.

At the NIH, the National Institute of Neurological Disorders and Stroke (NINDS) was established in 1950 to seek fundamental knowledge about the brain and nervous

system, and to use that knowledge to reduce the burden of neurological disease. With an overall budget of nearly \$1.7 billion, NINDS is Fogarty’s most active NIH partner, helping support dozens of research and training awards on diverse topics such as epilepsy in Zambia, sickle cell disease in Nigeria and severe traumatic brain injury in Latin America.

NINDS recognizes that many of the countries with the largest neurological disease burdens have the fewest resources to devote to them.

“Working with global partners may help us identify innovative ways to treat and prevent neurological diseases, such as stroke,” said Dr. Claudia Moy, NINDS program director. “We look for solutions that take into account each country’s unique cultural and economic setting, and support efforts to advance local research infrastructure.”

**“ We look for solutions that take into account each country’s unique cultural and economic setting, and support efforts to advance local research infrastructure. ”**

— DR. CLAUDIA MOY, NINDS PROGRAM DIRECTOR

As in many research fields, there are few neurological disease experts in developing countries. While the WHO recommends there be at least one neurologist for every 50,000 people, at least six African countries have none, according to a report published in *World Neurology*. NINDS has joined with Fogarty to support programs such as the Medical Education Partnership Initiative (MEPI), which helps African institutions strengthen medical education, build health research capacity and advance the careers of junior faculty.

NINDS has also participated in Fogarty’s brain disorders research program, which funds research collaborations in developing countries, as well as the NIH Human Heredity and Health in Africa (H3Africa) Initiative, which aims to advance genomic studies across the continent.

*A Nigerian family in Karu village, on the outskirts of Nigeria’s capital, Abuja.*



## Chagas disease studies inform Zika research in Brazil

For more than 100 years before it was hit by the Zika virus, Brazil was battling Chagas disease, a vector-borne illness that is usually asymptomatic in the acute stage, but has deadly or debilitating health impacts long after infection—not unlike Zika. Funding for Chagas research from the National Institute of Neurological Disorders and Stroke (NINDS), through Fogarty’s Global Brain Disorders Research program, has allowed Brazil to make strides against the disease by training scientists in field epidemiology, neuroimaging techniques and other research skills. So when, in 2015, doctors raised the alarm about the devastating impacts of the Zika virus on infants’ brains, Brazilian researchers were able to adapt the models they’d been applying to Chagas research and apply them to help understand Zika.

“One project leads to another, everything is intertwined,” said Dr. Jamary Oliveira-Filho of the Federal University of Bahia, one of the lead researchers on NIH-supported clinical trials and studies investigating the links between Chagas and stroke. “We’re using similar tools to investigate brain involvement in Chagas and children suffering from microcephaly caused by the Zika virus.”

Chagas and Zika share many common characteristics, including that they both cause inflammation, which can result in brain atrophy, said Oliveira. In Zika, this manifests as microcephaly in infants, and in Chagas, it occurs over decades in adults. Most infants are infected with Zika *in utero*, often after their mother is bitten by a mosquito with the virus. Chagas is caused by a parasite that is carried by mosquitoes and other insects. But because the illness is mild in the acute stages, those infected are often unaware that they have Chagas and do not seek treatment or diagnosis. Twenty to 30 years later, around a third of infected patients develop cardiomyopathy, the most common manifestation of Chagas in humans. Lesser numbers develop intestinal disease or a neurological disorder.

Brain involvement in Chagas was long believed to be related to the illness’ signature condition, cardiac disease. But Oliveira began looking for other explanations for Chagas-associated neurological disorders when he noticed that a considerable proportion of patients who have the disease without cardiac involvement still have a history of stroke. “In our cohort, it was 15 percent of patients—not insignificant,” noted Oliveira, who observed in his research



A doctor in Brazil measures the circumference of the head of a baby whose mother was infected with the Zika virus during pregnancy.

that some Chagas patients develop cognitive impairment and brain atrophy, but do not have a stroke.

Oliveira and his team in Brazil, working with researchers at Harvard and Brown Universities in the U.S., have shown in NIH-funded studies that stroke occurs in Chagas patients independently of cardiomyopathy—an important finding because a Chagas serologic test is usually only ordered for stroke patients who are from endemic areas and have evidence of cardiac disease. They are continuing their studies to see if Chagas is an independent risk factor for cognitive impairment, and whether aspirin provides primary protection against stroke in high-risk Chagas patients.

**“We’re using similar tools to investigate brain involvement in Chagas and children suffering from microcephaly caused by the Zika virus.”**

— DR. JAMARY OLIVEIRA-FILHO, FEDERAL UNIVERSITY OF BAHIA

Oliveira is also trying to identify a biomarker for Chagas-associated cardiomyopathy, which would allow children to be tested for the illness. “Chagas can be treated successfully in the early phase, but there is no treatment in the chronic phase,” he said. “If we can identify a biomarker for Chagas inflammation that we can block or change, we could decrease or eliminate the chances that people who get Chagas as children will have strokes, heart disease or intestinal problems later in life, and the financial and moral burdens that come with caring for someone with a long-term illness.”

Around 8 million people worldwide have Chagas disease, mostly in Latin America, and 11,000 people die of the disease each year, according to the WHO.

# NIH funds research network to reduce stroke in Africa

Whether treating patients in his native Nigeria, caring for poor Hispanic and African-American residents of Los Angeles or serving disadvantaged populations in South Carolina, neurologist Dr. Bruce Ovbiagele finds they share a common problem—a growing risk for stroke.

The second highest cause of death globally, the disease is particularly devastating in developing countries where 86 percent of stroke deaths occur, according to the WHO. Sub-Saharan Africa bears the greatest burden of stroke, and is least equipped in terms of knowledge, infrastructure, skills and medical personnel needed to prevent and treat the disease.

“I’ve always had a passion for improving neurological care in sub-Saharan Africa,” says Ovbiagele, a professor and neurology chair at the Medical University of South Carolina in Charleston. “Initially, I planned to go back to Nigeria after completing my training in the U.S. But I discovered I had great research partners in Africa, and collaborating with them has allowed me to continue my work here in the U.S., while helping to build human capital and research capacity in Africa.”

Since 2012, Ovbiagele has used NIH support to weave a tapestry of programs to examine how to prevent and treat stroke in sub-Saharan Africa, and develop a network of U.S. and African scientists to study their populations’ shared genetic risks for the disease.

## Reducing subsequent strokes

In one project, Ovbiagele is collaborating with colleagues in four Nigerian hospitals to formulate and test a multi-pronged approach to reduce the likelihood that stroke patients will have a repeat event. Funded by the NIH’s National Institute of Neurologic Disorders and Stroke (NINDS), the effort focuses on reducing high blood pressure—a significant risk factor for stroke and the easiest one to address.

Ovbiagele and his team consulted with caregivers and patients to devise effective, culturally adapted health care delivery programs to reduce the incidence and consequences of stroke. The interventions include an instructional video that is played in clinic waiting rooms to increase stroke awareness, as well as a patient “report card” to track information such as blood pressure, cholesterol, weight, diet, exercise and other factors. To help ensure patients keep appointments, take medication and continue healthy behavior, they are sent regular text messages in English or the local Yoruba language. Finally, patients are tracked in an electronic registry.



An NIH-funded study is providing participants with blood pressure monitoring tools and other low-cost interventions to see if they reduce stroke in sub-Saharan Africa.

Photo by Nathaniel Adusei

The combination intervention will lower blood pressure readings and reduce stroke risk for the more than 300 participants in the 12-month study, Ovbiagele predicts. Such results would demonstrate the program is an economical and effective method of providing post-stroke care, and a scalable model that could be implemented in other low-resource settings.

## Studying task shifting

Across sub-Saharan Africa there is a shortage of professionals with expertise in stroke, with an average of only .04 neurologists per 100,000 people. That means task-shifting responsibilities to health care workers with lower levels of education is essential, Ovbiagele says.

With support from NINDS and Fogarty, he’s overseeing a project to train nurses and other health workers in Ghana to see how mobile health technology can help prevent a second stroke. This is critical, Ovbiagele notes, because having had one stroke is the greatest predictor another one will occur.

In an initial study, Ghanaians who recently suffered a stroke were taught to use a portable wireless device to take blood pressure readings at home, and then send them by smartphone to U.S. researchers in Charleston. The scientists checked the readings and conveyed advice back to nurses in Ghana, specifying follow-up instructions for each patient. The nurses then transmitted culturally



appropriate text messages to patients, reminding them to take their hypertension medication or encouraging them if they were effectively managing their blood pressure. Sixty patients in the feasibility study were randomly assigned to the mobile option or standard clinical care.

Over a 6-month period, participants using remote monitoring showed nearly a 90 percent reduction in blood pressure compared to a 20 percent dip in those receiving standard care. The results will inform refinements that will be tested in a second phase.

In addition to providing evidence regarding treatment outcomes, the project also intends to produce a cadre of Ghanaian investigators knowledgeable about clinical research methodology and experienced in executing innovative stroke research that is tailored for the local culture and setting.

### Determining genetic and environmental factors

Strokes occur as a result of several complex and interacting biological processes caused by various genetic and environmental factors, making it difficult to determine if the underlying causes in Africa—where little stroke research has been done—are the same as on other continents.

To try to shed light on this issue, Ovbiagele is helping to lead the largest epidemiological study ever undertaken about stroke in Africa. Part of the NIH’s Human Heredity and Health in Africa (H3Africa) initiative, researchers on both sides of the Atlantic are working together to identify unique environmental and genetic risk factors for stroke among populations of African descent. Studies will take place at eight sites in three countries: Nigeria, Ghana and South Africa.

One project is comparing Nigerian and Ghanaian stroke patients with a large cohort of African Americans to try to determine why, in spite of their similar genetic profiles, the two groups have very different risks for stroke.

“We want to determine if the risk is so much lower among Africans, compared to African Americans, because of environmental factors or if Africans’ stroke risk will rise as the continent goes through an epidemiological transition—where lifestyles change and many infectious diseases are being brought under control, which means more sub-Saharan Africans are living longer and are getting to the point where they suffer noncommunicable diseases like stroke,” says Ovbiagele.

Outcomes from research conducted in Nigeria—the most populous black nation on earth—are readily generalizable to people of African descent everywhere, who as a group are more likely than other populations to experience hypertension and its complications, he adds. An earlier comparison of black and white stroke patients in the U.S.,

Canada and Scotland showed blacks are 60 percent more likely to experience another stroke, Ovbiagele reported in a recent journal article. Risk factors—such as hypertension, diabetes and smoking—were more prevalent in the black patients, he found.

The H3Africa project will also support the collection and banking of genomic material and data, as well as enable Ovbiagele and his colleagues to plan for future large population studies. As in all his efforts, training plays a critical role and includes building scientific capacity in genomics, biobanking, biostatistics and other related topics.

The research network is funded by the National Human Genome Research Institute and NINDS through an award to the University of Ibadan, with research partners located in other Nigerian universities, Ghana and South Carolina.



Photo courtesy of Dr. Bruce Ovbiagele

Scientists are studying mobile health solutions to determine if text messages and remote blood pressure monitoring can reduce stroke in Africa, where there are few neurologists.

### Determining the role of HIV in stroke

Two out of three individuals living with HIV worldwide reside in sub-Saharan Africa. While antiretroviral therapy (ART) has helped many of them stay alive, they are at greater risk of cardiovascular disease, scientists have discovered. With a newly funded Fogarty grant, Ovbiagele will conduct a study comparing several hundred Ghanaians receiving ART with a similar number of those who are not infected. He says he hopes to learn more about medical and lifestyle risk factors, as well as those related to HIV.

The results of this and other studies led by Ovbiagele could play an important role in reducing the human and financial impact of stroke throughout Africa,

“The high cost of caring for a stroke patient can inflict serious economic damage on the individual and country in Africa, where incomes are low,” Ovbiagele says. “Ultimately, we think our research outcomes will help us convince decision-makers that it’s worth investing in these programs for the long term.”

### RESOURCES

Journal articles, websites: <http://bit.ly/AfricaStroke>

# OPINION

By Dr. Roger I. Glass, Director, Fogarty International Center

## Paying tribute to Francis Collins, a global health hero



All of us in the global health research community owe a huge debt of gratitude to Francis Collins for his stellar leadership of the NIH over the last eight years. He has been incredibly generous with his support and his time, which allowed us to advance the cause of global health in ways I'm not sure we can yet measure.

Through his energetic and enthusiastic direction, he has stimulated interest in global health science across the 27 Institutes and Center that comprise NIH. He made the cause one of his top priorities and used the NIH Common Fund to establish two critical programs—the Medical Education Partnership Initiative (MEPI) and the Human Heredity and Health in Africa (H3Africa) program.

Working with the Office of the Global AIDS Coordinator at the State Department, Francis helped stand up MEPI, which has been a tremendously successful effort to transform medical education in Africa by strengthening curricula, decentralizing training to produce health care workers in rural areas, implementing technology and establishing a regional network to leverage resources. It's also producing researchers capable of generating evidence to increase efficiency and effectiveness of U.S.-funded programs, such as the President's Emergency Plan for AIDS Relief.

Francis has also reached out to engage with private partners, forging a close relationship with the Bill & Melinda Gates Foundation that includes regular meetings of working groups engaged in nearly a dozen topics. In addition, he collaborated with the Wellcome Trust to advance genomics in Africa, through the H3Africa program. By providing genomics training for African scientists and supporting a biobank on the continent, Francis is laying the foundation to produce groundbreaking discoveries that will benefit us all.

He also helped nurture a number of new organizations that are having an enormous impact on global health and has reached out to other U.S. government agencies—including Homeland Security and the Pentagon—to enhance collaboration on topics of shared interest. He has shown an appreciation for “soft power” and the notion that America can make a difference not only as the world's soldier but also with an outstretched hand, as its doctor.



*Francis and I visited Uganda's Zika Forest on our many travels together.*

He has seen first-hand in his travels that Americans don't have a monopoly on good ideas and that we have much to learn from others. It is only by staying abreast of scientific progress globally that we may remain competitive leaders in biomedical research. By improving health in poor countries, we may also nurture political stability and advance economic development.

A talented ambassador for global science, Francis traveled widely during his tenure, meeting with heads of state, ministers of health and education, queens and princes—but always making time to visit with medical students and postdocs. Using music as his calling card, Francis bridged cultural divides by strumming his guitar or tinkling the ivories of a grand piano. He is an expert at building effective relationships, which after all, is what global health is all about.

I'm delighted that, despite the coming change in leadership, Francis plans to continue to oversee his lab at NIH, carrying on important work in diabetes and aging research. Through his wise stewardship and effective outreach to Congress, Francis has strengthened bipartisan support for biomedical research. No doubt, he will persist in making the case that NIH funding brings some of the greatest returns on investment across our government. As Francis prepares to step down and we look ahead to the new administration, we at NIH remain more committed than ever in our mission to advance scientific discoveries that improve health for all the world's people.



## Fogarty disease modeler McKenzie is mourned

Dr. Ellis McKenzie, Fogarty senior scientist who was internationally recognized for his work in infectious disease modeling, has died. McKenzie joined Fogarty in 2001 and co-founded the Center's modeling program, Research and Policy for Infectious Disease Dynamics (RAPIDD). The program has been credited with enhancing the understanding of global pathogen transmission.



## Richards-Kortum is 2016 MacArthur Fellow

Dr. Rebecca Richards-Kortum, a Fogarty grantee and advisory board member, has received a prestigious MacArthur Fellowship. A bioengineering professor at Rice University in Houston, Texas, Richards-Kortum directs the Rice 360° Institute for Global Health and conducts research to develop point-of-care technologies to improve health in low-resource settings.



## China honors grantee Detels for HIV/AIDS efforts

For his commitment to controlling HIV/AIDS in China, longtime Fogarty grantee Dr. Roger Detels received a 2016 Chinese Government Friendship Award, the highest honor for foreigners. Detels has led the UCLA/Fogarty AIDS training program for nearly 30 years, mentoring numerous Chinese scientists.



## Center for Global Development selects new leader

The Center for Global Development, a nonprofit think tank that works to reduce global poverty and inequality, has named Masood Ahmed as its new president, effective in early 2017. Ahmed, who serves on the organization's advisory board, is Director of the Middle East and Central Asia Department at the International Monetary Fund.



## Fauci recognized as champion for research

Dr. Anthony S. Fauci, director of NIH's National Institute of Allergy and Infectious Diseases, will receive the 2017 Legacy Award from Research!America. The public education and advocacy alliance calls Fauci an "outspoken champion for research" who transformed HIV/AIDS science and many other disease areas, saving countless lives.



## Grantee Binka assumes new role at WHO

Dr. Fred Binka has joined the WHO as coordinator of the Emergency Response to Artemisinin Resistance hub in Phnom Penh, Cambodia. Binka was previously with the University of Health and Allied Sciences in Ghana, where he was a collaborator on a Fogarty training grant.

## Global life expectancy rises by 10 years

Improvements in sanitation, immunizations, indoor air quality and nutrition have enabled people in poor countries to live longer, helping to boost global life expectancy to 72 years, according to a new analysis that is part of the Global Burden of Diseases (GBD) study. However, data suggest progress is threatened by obesity, high blood sugar and substance abuse. News release: <http://bit.ly/GBDlifeexp>

## WHO releases air pollution data

A new WHO air quality model confirms that 92 percent of the world's population lives in places where air pollution levels exceed WHO limits. Information is presented via interactive maps and is based on data derived from satellite measurements, air transport models and ground station monitors. News release: <http://bit.ly/WHOairpoll>

## Malaria map shows progress in Africa

The burden of malaria in sub-Saharan Africa dropped by 57 percent in 25 years, a detailed analysis shows. Researchers made the finding by mapping malaria deaths between 1990 and 2015, using data from the Global Burden of Diseases (GBD) study and the Malaria Atlas Project. The results of the analysis are published in the *New England Journal of Medicine*. News release: <http://bit.ly/GBDmalaria>

## Scientists plan human cell atlas

A global initiative has been launched to create an open-access Human Cell Atlas, which would chart the types and properties of all human cells, across all tissues and organs, to build a reference map of the healthy human body. The atlas could revolutionize how doctors and researchers understand, diagnose and treat disease.

Website: [www.humancellatlas.org](http://www.humancellatlas.org)

## HHS expands clinical trials website

HHS has announced it is expanding the information to be included on the Clinicaltrials.gov website. A new rule increases reporting requirements of trial results, expands the number of data elements and requires additional adverse event information.

News release: <http://bit.ly/NIHclintrials>

## NIH releases plan for nursing science

The NIH's National Institute of Nursing Research has issued a strategic plan detailing priorities for nursing science in four areas—symptom science, wellness, self-management, and end-of-life and palliative care. Website: [www.ninr.nih.gov/strategicplan](http://www.ninr.nih.gov/strategicplan)

Funding Opportunity Announcement	Details	Deadline
Emerging Global Leader Award - Career Development (K43)	<a href="http://bit.ly/K43-2016">http://bit.ly/K43-2016</a>	Dec 14, 2016
Global Brain and Nervous System Disorders Research R21 R01	<a href="http://bit.ly/Brain-R21">http://bit.ly/Brain-R21</a> <a href="http://bit.ly/Brain-R01">http://bit.ly/Brain-R01</a>	Jan 5, 2017 Jan 5, 2017
Global Noncommunicable Diseases and Injury Research (R21)	<a href="http://bit.ly/NCD-injury">http://bit.ly/NCD-injury</a>	Feb 22, 2017
Planning Grant for Emerging Epidemic Virus Research Training for West African Countries w/ Widespread Ebola Transmission (D71)	<a href="http://bit.ly/EbolaOp">http://bit.ly/EbolaOp</a>	Feb 22, 2017
International Research Scientist Development Award (IRSDA) (K01)	<a href="http://bit.ly/IRSDA2017">http://bit.ly/IRSDA2017</a>	Mar 2, 2017
International Research Ethics Education and Curriculum Development Award (R25) (D43)	<a href="http://bit.ly/Ethicsop">http://bit.ly/Ethicsop</a> <a href="http://bit.ly/EthicsTrainingop">http://bit.ly/EthicsTrainingop</a>	May 18, 2017 May 18, 2017

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

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## Global research funders launch tool to aid funding analysis

Global research funders have launched an online database and mapping tool of research projects funded around the world. The interactive, open-access site depicts investments and partnerships from some of the largest biomedical research funders. Known as World Report, the website provides information by continent, country, funding organization, research organization and year. It includes funding data from 2012 to 2015, with annual updates planned.

Research projects can be searched by keywords in their titles and abstracts, filtered by location (continent, country, or city), funding organization, research organization, principal investigator (PI) name, or any combination.

The project is intended to provide a public means to track international research activities and partnered investments, increase awareness of funding opportunities and share results with the broader research and funding community. In addition to providing information about direct awards, World Report also tracks indirect research activity, which often occurs in collaborations between the domestic research organizations and foreign institutions. The goal is to improve understanding of the research landscape, identify gaps in funding and areas where there might be a duplication of effort, and enable funders to more effectively synergize investments.

The site includes funding data from the Bill & Melinda Gates Foundation (BMFG), Canadian Institutes of Health Research (CIHR), European Commission (EC), European & Developing Countries Clinical Trials Partnership, INSERM, Institut Pasteur, Max Planck Society, Medical Research Council (MRC), NIH, Swedish International Development Cooperation Agency, Swedish Research Council and the Wellcome Trust (WT). It is hosted by NIH and managed by a steering committee of participants. It is supported by the BMFG, CIHR, EC, MRC, NIH and WT.

### RESOURCE

Website: <https://worldreport.nih.gov>

