



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

## NIH launches \$58M Africa data science program

The NIH has unveiled a \$58 million initiative to advance data science, catalyze innovation and spur health discoveries across Africa. The new program, Harnessing Data Science for Health Discovery and Innovation in Africa (DS-I Africa), will leverage data and technologies to develop solutions for the continent's most pressing clinical and public health problems.

"Data science drives scientific discovery and data sets are the currency of the future," said NIH Director Dr. Francis S. Collins. "Many years of investment in research infrastructure by NIH and other organizations in Africa have produced an opportunity for substantial technical innovation. By forming a robust network of public and private partners, we believe this initiative can transform the field and pay huge dividends—such as deploying low-cost technologies to improve health care in remote areas, and developing skilled scientists who can mine vast data collections to make discoveries that improve health for us all."

In four funding announcements, NIH is calling for applications to establish an open data science platform and coordinating center; research hubs; research training programs; and ethical, legal and social implications (ELSI) research. The open data science platform will develop and maintain a data-sharing gateway for existing resources and new data generated by the DS-I Africa research hubs. The coordinating center will provide the organizational framework for the direction and management of the initiative's common activities. The research hubs are intended to become recognized centers of excellence in data science fields and will advance population-relevant, affordable, acceptable and scalable data science solutions that will improve health in Africa. Research training programs will include a strong foundation in rigorous research design, methods and analytic techniques, provide

interdisciplinary research experience and enhance trainees' ability to develop novel data science solutions. Finally, the program will support research into key ELSI issues such as data privacy and ownership, cybersecurity and sensitivities concerning the use of geospatial information for research or public health surveillance.

DS-I Africa is intended to encourage partnerships across sectors and engage private, government, nongovernmental organizations and other stakeholders in applications. In addition, interdisciplinary collaborations will bring together data specialists, computer scientists and engineers with biomedical researchers, clinicians and other health experts. The program aims to foster a culture of innovation and entrepreneurship that will result in new software solutions and technologies, produce start-ups and spinoff companies, and partner with governments and businesses to reach scale and impact.

"Our colleagues in Africa have identified data science expertise as a key priority for capacity building support,"

### Data Science in Africa virtual symposium platform

Keynote presentation videos

Interactive panel discussions

Virtual networking forum

Technical advice on grant applications

Visit: <https://commonfund.nih.gov/africadatasymposium>

## FOCUS



### Fogarty community engaged in combatting COVID-19

- Researchers study new syndemic on US-Mexico border
- Grantees examine intersection of COVID-19 and HIV
- Fogarty fellow captures 'lived experiences' of pandemic

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## NIH launches \$58M Africa data science program

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said Fogarty Director Dr. Roger I. Glass. “Through this initiative we hope to create a cadre of African scientists and nurture multidisciplinary, multisector partnerships to advance discoveries that will improve health.”

Potential research topics could include development of artificial intelligence tools to advance decision support for mobile and other point of care technologies, establishment and use of shared platforms to leverage large health datasets to reveal disease patterns and risks, and computational approaches and data sharing to accelerate discovery of new diagnostics, treatments and vaccines.

The program is targeting African academic and other non-profit organizations to apply in partnership with private sector, government and other research partners. Applications are due in late 2020 with projects slated to begin in September 2021.

NIH is hosting a virtual symposium platform with networking tools and online events continuing through November. These opportunities will communicate the program’s key priorities and engage participants in robust scientific discussions on the state of data science in Africa. The platform is designed to encourage networking across disciplines, sectors and geographies to foster collaborations that will produce high quality applications.

“We believe this initiative can transform the field and pay huge dividends—such as deploying low-cost technologies to improve health care in remote areas, and developing skilled scientists who can mine vast data collections to make discoveries that improve health for us all.”

– NIH DIRECTOR DR. FRANCIS S. COLLINS

The African-led initiative is intended to build on previous large-scale NIH collaborations on the continent including the Human Heredity and Health in Africa (H3Africa) consortium, the Medical Education Partnership Initiative (MEPI) and the Health-Professional Education Partnership Initiative (HEPI). H3Africa advanced genomics capacity and research partnerships, while MEPI and HEPI strengthened and expanded training for doctors and health care professionals.

DS-I Africa is an NIH Common Fund program guided by a working group led by the Office of the Director, the Fogarty International Center, the National Institute of Biomedical Imaging and Bioengineering, the National Institute of Mental Health and the National Library of Medicine.

For more information, please visit <https://commonfund.nih.gov/AfricaData>.

## Essence establishes funding coordination mechanism

A framework for reviewing and coordinating capacity building in low- and middle-income countries (LMICs) has been established by the Essence Health Research initiative, a collaboration of 40 funding agencies.

The review mechanism is intended to increase efficiency and equity in health research capacity strengthening activities, and decrease duplication of efforts, according to a recent article by Essence partners published in the *Annals of Global Health*.



data to monitor current activities, and periodic meetings of global funders and stakeholders to review investments, identify gaps, and enhance coordination and collaboration on grantmaking.

The overall goals are to increase support of research on national health priorities, improve pandemic preparedness in LMICs and reduce the number of countries operating with very limited research capacity, the authors stated.

The mechanism includes three independent workstreams, including WHO-developed standardized metrics to characterize the status of health research capacity, use of NIH World Report global funding

Fogarty is an Essence partner and several of its staff contributed to the publication.

### RESOURCES

<http://bit.ly/EssenceMech>

# NIEHS explores environmental change and health

By Susan Scutti

The Diama Dam is just 18 meters high, yet its 1986 construction changed the local Senegal River ecology into a fresh-water habitat for snails. Proliferation of the gastropods led to an unanticipated outbreak of schistosomiasis, a parasitic worm disease. Fogarty-supported research suggested a simple solution of stocking the river with prawns, a natural snail predator. The result? Reduced incidence of schistosomiasis and improved health within the community, which not only gained a dietary protein source but also a new cash crop. “A key lesson in planetary health thinking is that hazards are often accompanied by opportunities,” said Dr. Howard Frumkin in his keynote address for the fourth annual Global Environmental Health Day, hosted by the NIH’s National Institute of Environmental Health Sciences (NIEHS).

In setting the agenda for global environmental health research, Frumkin says scientists need to address overarching challenges—climate change, biodiversity loss and others—not just in terms of characterizing the issues but also in seeking multiple solutions for each. “We need to do this work urgently because these problems are very pressing,” Frumkin observed, “and the time we have to solve problems is limited.” He also encouraged researchers to collaborate across multiple sectors including health, energy, agriculture and transportation, and to stay focused on the world’s most vulnerable populations.

Each of the United Nations’ sustainable development goals either directly or indirectly impact human health, Frumkin noted. The goal of “affordable and clean energy,” for example, may be satisfied by hydroelectric power today, yet policymakers must consider whether tomorrow’s droughts and reduced snowmelt caused by climate change will decrease water flow and render this energy source unsustainable, said the University of Washington Professor Emeritus. Dams typically alter river hydrology, which may increase risks of schistosomiasis, malaria and vector-borne illnesses. “Energy policy is health policy,” stated the former Fogarty grantee.

Weaving a related theme into her presentation, Dr. Michelle Bell discussed smoke waves caused by wildfires. “Under climate change, wildfires are anticipated to occur more frequently and burn more intensely,” explained the Yale University professor. Her NIEHS-funded research estimated a 7.2% higher risk of respiratory hospital admission among Western U.S. residents exposed to smoke waves between 2004 and 2009. Interactions of weather and health are complex and depend on many factors, including geography,



Environmental changes can have unintended health consequences. In Senegal, researchers introduced prawns to prey on disease-carrying snails, which proliferated after a dam was built.

Images courtesy of Upstream Alliance

building structures and demographics, explained Bell. As climates alter, Alaska can anticipate an increase in wildfire smoke, yet exposure and health effects will not be distributed uniformly. Some indigenous populations will likely suffer the most, she said, based on research supported by the National Institute on Minority Health and Health Disparities. A current project, funded by Wellcome Trust, will study air pollution exposure in Brazil and estimate how it will change over time. “We can’t understand how climate change will impact health in the future until we understand how those exposures affect health in the present day,” said Bell.



Snails can cause a parasitic worm disease.

This year’s Global Environmental Health Day, a virtual forum due to the pandemic, provided opportunities for attendees to explore areas of common interest, discuss new ideas and partner for future collaborations. To mark the occasion, the NIEHS updated its climate change and human health literature database, said the Institute’s new director, Dr. Rick Woychik. “The portal, which curates more than 10,000 unique publications, is our effort at NIEHS to help many of you get answers to questions you have about climate change and its effects on human health.”

The NIEHS enjoys a longstanding partnership with Fogarty, which includes the Global Environmental and Occupational Health program and joint efforts to combat indoor air pollution.

Woychik concluded his remarks with a simple wish: “I hope everyone signs off with an increased motivation to do all they can to address the challenges posed by climate and other global environmental dangers.”

## RESOURCES

<http://bit.ly/GEHday2020>

# PROFILE

## Fogarty fellow's TB training useful in combatting COVID

By January W. Payne

When COVID-19 reached the U.S., former Fogarty Fellow Dr. Mark Brady was called up by the Navy reserve to help with the pandemic response at the now-infamous Elmhurst hospital in New York. His Fogarty experience studying tuberculosis (TB) in a biosafety level-3 lab in Peru had given him a foundation in infectious disease research and how to teach others safety procedures to avoid infection.

"The fellowship was excellent preparation for my career. I can't think of anything better," said Brady. He investigated a liquid-based culture for TB diagnosis as a participant in Fogarty's Fellows and Scholars program, which provides a year-long mentored clinical research training experience in a low-resource setting. It gave him the opportunity to conduct a variety of research projects with numerous collaborators, gaining field experience, learning project management and going through the publication process.

While working at Lima's Cayetano Heredia University, Brady watched residents perform manual ventilation on patients when ventilators were in short supply. More recently, he has been studying the effectiveness of a simple, inexpensive device to help regulate correct airflow during manual ventilation, which could be helpful in the U.S. or wherever ventilators are in short supply or unavailable. "It costs next to nothing, has a stable shelf life for years and helps fill a critical need when there aren't enough mechanical ventilators," he said. Brady previously helped test an electricity-free incubator with a team from MIT during his fellowship. "I like helping people and I like solving problems—that's just how I'm wired," he observed.

His early work in the developing world gave him valuable exposure to pathogens encountered in his later military experience. Brady's infectious disease expertise was also called on during his previous military deployments when he was confronted with cholera in Iraq and a vaccine-derived polio outbreak in Syria.

His fellowship training has made him "kind of the de facto content expert on airborne disease transmission," he explained.

It's no surprise then that Brady was selected as the chief



**Mark Brady, MD, MPH**

Fogarty Fellow:	2007
US Institution:	Warren Alpert Medical School at Brown University
Foreign Institution:	University of Cayetano Heredia, Lima, Peru
Research area:	Diagnosis and detection of tuberculosis

operating officer for a 400-bed COVID-19 field hospital in Memphis, where he helped start the region's first emergency medicine (EM) residency program and is EM research director at the University of Tennessee. "I just happened to have the right training at the right time," he said. "During an airborne pandemic, being able to say, we've got a physician who did a research fellowship on an airborne infectious disease" makes him a good asset in Memphis.

As everywhere, the pandemic has forced hard choices on Brady. His ability to squeeze every cent and every bit of efficiency from the available resources is grounded in his Fogarty experience. "When you have novel situations, what you need most are problem solvers," Brady suggested. "That's something that Fogarty really shines in, with a focus on translational research."

All of these experiences have allowed Brady to continue doing what led him to do a Fogarty fellowship years ago: his desire to help underserved populations at home and abroad. "That's ultimately how I ended up in emergency medicine. I thought about infectious diseases, but I just like the very, very fast pace in the emergency department where you see very, very sick people," he said. "You see really underserved populations in the emergency department, especially when you're in an urban area."

For Brady, the Fogarty fellowship is what started his path toward being ready to take a leadership role in addressing the pandemic in both Memphis and New York. "I'm just grateful for the experience," he said. "The fellowship punches above its weight class in terms of impact."

### RESOURCES

<http://bit.ly/BradyPeru>

## WILLIAM DUKE, MD, MPH

*Dr. William Duke, a physician and epidemiologist, is dean of health sciences and epidemiology at the Universidad Nacional Pedro Henriquez Urena (UNPHU) in the Dominican Republic. Early in his career, he received infectious disease research training through a Fogarty grant to the University of California, Berkeley. Since then, Duke has served as a scientific advisor to the Dominican Government's Ministry of Public Health and provided leadership for PEPFAR-supported HIV/AIDS projects. He earned his black belt in Jujitsu and is a certified chief medical officer for Paralympic Sport. Recently, Duke was named a member and advisor to his country's COVID-19 Prevention and Control National Commission.*



### What Fogarty-funded training did you receive?

While a Fogarty trainee in 1990, I was able to improve my research skills—including use of biostatistics—and learned to critically analyze epidemiological data and publish the findings. I also designed and conducted serosurveillance research among the general population and high-risk groups. I received this training at UC Berkeley through Fogarty's AIDS International Training and Research Program (AITRP) under the mentorship of its principal investigator, Dr. Art Reingold, who spearheaded their Center for AIDS Prevention Studies (CAPS) program there. I was representing the Dominican Republic as part of a consortium of Latin-American health ministries with the goal of improving my nation's HIV/AIDS National Program.

### How did that experience impact your career?

My mentor Dr. Reingold influenced me in my decision to continue with an academic focus on HIV, in addition to tuberculosis. I recognize now, after nearly three decades in this field, that without Fogarty I would never have achieved my current professional life and career successes.

For these reasons, I must express my deepest gratitude to Dr. Reingold. The San Francisco HIV/AIDS Program and the UC Berkeley program were also instrumental during my Fogarty fellowship because they provided unique opportunities. I gained a great deal by collaborating with other trainees, conducting community epidemiology surveys, updating interventions for the San Francisco region, working with NGOs on HIV/AIDS prevention and control, and even treating patients. Each of these experiences shaped my future. Since 2009, I have served as the Coinfection TB/HIV national advisor in the Dominican Republic's Ministry of Health.

### How were you able to apply what you learned?

After my training I used my expertise to improve the research interventions in my country's national program for HIV/AIDS/STDs, including establishing

a new methodology and best practices for both the general population and high-risk populations. Having influenced the National Health Plan and the health system in this way, I spent the next 30 or so years working to save lives and mitigate risk among LGBTQ populations, pregnant women with HIV, children living with HIV, Haitian immigrants and inmates to prevent, control and treat HIV/AIDS.

### How did Fogarty training prepare you for this?

Fogarty's most significant message was the need to cooperate and influence all levels of the health system as well as all stakeholders, both national and international. Because of Fogarty, I understood I would need to integrate all existing professionals and systems if I wanted to create a new and effective model of intervention for people living with HIV. Collaboration, then, is what led to the opening of new treatment sites that provided antiretroviral therapy and follow-up medical care throughout the Dominican Republic.

### How are you involved in the COVID response?

In February 2020, the Ministry of Health selected me to act as National Epidemiology Advisor and member of the COVID-19 Prevention and Control National Commission. In March, the National Health Science and Dominican School of Medicine Association asked me to provide a COVID-19 epidemiology data analysis and intervention plan and protocol for medical students during their training. The goal is to improve the control and prevention of the pandemic disease using contact tracing with COVID patients and people they have interacted with in poor provinces. Specifically, we use the "triple T" method—tracing, testing and treatment—when patients test positive for the coronavirus. During the quarantine period, we not only re-test patients and their contacts, we also provide training in physical distancing and psychological support for a population of 500,000 people.

### RESOURCES

<http://bit.ly/DR-covid-response>

## COVID-19 creates new syndemic on US-Mexico border

**B**order regions tend to be a “no man’s land,” where countries don’t pay the same level of attention and infectious diseases—including coronavirus—can run rampant, says NIH grantee Dr. Steffanie Strathdee. She recently received funding to study SARS-CoV-2 along the US-Mexico border, where the University of California, San Diego professor has been conducting research since 2004. If you were to conceptualize this area as a state, “it would be the poorest in every indicator of poverty and socioeconomic status,” said Strathdee. Not surprisingly the region experiences elevated rates of HIV, sexually transmitted infections and latent tuberculosis. With California a COVID-19 hotspot, pandemic monitoring along the border is critical.

Strathdee and her interdisciplinary team will collect pilot data to inform future research on pandemic transmission in the border zone, with a two-year grant supplement from the National Institute on Drug Abuse (NIDA). A study of viral shedding that involves testing nasal swabs and fecal smears for SARS-CoV-2 will be led by Dr. Jack Gilbert. This work will inform whether wastewater can be used for COVID-19 surveillance and whether harmful bacteria are hitching a ride with the pandemic virus. Meanwhile, Dr. Antoine Chaillon, a molecular virologist on the team, will sequence SARS-CoV-2 isolates to establish a molecular clock. “By comparing sequences, you can establish timing and that will tell us the directionality of the infection—whether it’s going from north to south or south to north,” explained Strathdee. Understanding directionality would provide needed context for immigration, drug and health policies, she said. In addition, by comparing the genetic sequencing

*Former Fogarty grantee Dr. Steffanie Strathdee plans to use a binational network built over years of conducting research along the US-Mexico border to study COVID-19 transmission in the area.*

of the samples collected on the border with those in global databases, her team will be able to tell if different strains are circulating, which is important for the vaccine effort.

Fogarty funding for her earlier research training projects helped her build a binational network with longtime Mexican partners Drs. Gudelia Rangel and Carlos Magis-Rodriguez. This laid the foundation for her new research, said Strathdee, who is currently a member of Fogarty’s advisory board. By watching successful Fogarty grantees, she learned that establishing trust meant her Mexican collaborators inform decisions about which research questions will most effectively influence policies and programs south of the border.

Her NIDA parent grant is funding an investigation of how drug policies influence behavior and health, particularly HIV transmission. The team includes Rangel and Dr. Annick Borquez, a Mexican researcher who recently received NIDA’s Avenir award. In recent years, Mexico has become more permissive with drug possession laws, while the U.S. has become more stringent. As a result, San Diego users travel to Tijuana to buy and use drugs where drugs are cheaper and used more openly. “And, when you have a border closure like we’re experiencing now, there’s a backup of drugs in Tijuana and that also changes the drug market,” said Strathdee.

Such macrolevel political and economic factors often influence individual behavior, which in turn affects disease transmission, she explained. And so it’s an “open question” whether addiction predisposes people who inject drugs (PWID) to COVID-19. For example, they may not practice social distancing when seeking a fix. PWID who earn their living through sex work may be more willing to accept higher pay for unprotected sex because they have fewer clients with the decline in tourists to Mexico. Other behaviors documented when drugs are in short supply include non-injecting users turning to cost-effective injection or pooling money to purchase and then sharing needles. It’s possible the PWID border community may be a sentinel population for COVID-19 risk, noted Strathdee.

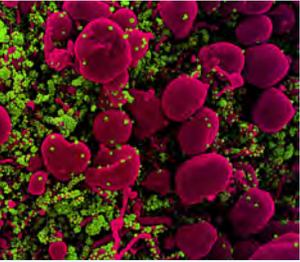
Uncovering social, political and economic drivers of infectious disease has long been a hallmark of Strathdee’s research. “We’ve been misplacing HIV prevention efforts by blaming individuals for their behavior—not using condoms or sharing needles, for example—when it’s really

Photo by Bob Ross, courtesy of UCSD



*Stories on these pages by Susan Scutti  
Resources: <http://bit.ly/FogartyCOVID19-research>*

# Researcher collaborates to solve pandemic inequities at home and abroad



SARS-CoV-2

Some people find opportunity within adversity. Professor Gene Morse of University at Buffalo, State University of New York, is among them. When the March 2020 lockdown suspended his HIV-related work, Morse pivoted his team toward COVID-19 research and looked to Fogarty for inspiration to remedy a stateside problem.

In the earliest days of the pandemic, regional hospitals in Western New York were not equipped to conduct clinical studies and so lacked access to investigational coronavirus treatments for their patients. “To address this, I collaborated with my colleagues at UB and Roswell Park Comprehensive Cancer Center to complete a needs assessment, which is how you start a Fogarty project,” said Morse. Following the appraisal, the team established the Western New York COVID-19 Research Collaborative, which included some care-based hospitals, so they could participate in studies funded by pharmaceutical companies and offer experimental COVID-19 drugs to their patients.

“All of the foundation-building approaches that I learned for

developing countries I used right here at home,” said Morse. Because the pandemic shines a spotlight on virology, it has increased innovation and capacity building, observed Morse. “Previous UB Fogarty trainees have focused on developing research questions to address complex health issues related to virology.” Today these former fellows and Morse’s current team—funded by Fogarty’s global infectious diseases and HIV research training programs—are continuing to collaborate, applying lessons learned to COVID-19. For example, Morse’s group, which includes scientists at University of the West Indies in Jamaica and University of Zimbabwe, had planned a biorepository to examine biomarkers related to disease outcomes resulting from arbovirus infections in Jamaica and HIV in Zimbabwe.

“When COVID-19 occurred, we adapted these projects to focus on genomics, proteomics and meta-omics to identify biomarkers that might predict patients that would progress to more severe disease from SARS-CoV-2,” said Morse. He also is investigating a new approach to point-of-care antibody testing for use in low-resource countries and, in collaboration with the University of Maryland’s Institute of Human Virology project, he is exploring the possibility of activating the immune system with oral polio vaccine to protect against COVID-19 illness.

Even after it subsides, the pandemic will change how scientists collaborate and innovate, Morse believes. “It has created new expectations of what can be planned and implemented in a short period of time, while pointing out inefficiencies in our old system. We have learned how to move things along more quickly.”

## COVID-19 creates new syndemic on US-Mexico border

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the underlying societal drivers that we create that put people at risk,” she said. Disrupting macrolevel factors could reduce rates of HIV, COVID-19 and multiple other diseases with similar root causes, she said. “It’s really about considering these infectious diseases as syndemics.”

Conducting research amid a pandemic poses challenges, including an indefinitely closed border, and the need for additional safety protocols and supplies. Also, ethics committees on both sides of the border must review and ensure appropriate reporting compliance, adding “a layer of complexity in the midst of an epidemic,” said Strathdee. Still, her team is on track to begin collecting data in August 2020.

Personal as well as professional experience guide Strathdee on this new project. In 2015, her husband,

Dr. Tom Patterson, a psychiatry professor at UCSD, was dying from a multidrug-resistant bacterial infection. After numerous treatment failures, a desperate Strathdee pored over the scientific literature and discovered a forgotten cure, 100-year old bacteriophage therapy. With the help of a global village of researchers who donated phage, Patterson’s doctors transformed this into an experimental treatment and saved his life.

“Sometimes when your back is against the wall and you think you’ve run out of solutions, that is when your best creative moments arise,” said Strathdee. The silver lining of COVID-19 is that the challenge has driven researchers from different disciplines and multiple countries to work together. “When you do that, it’s an incubator for innovation,” said Strathdee. “And that gives us all hope we’ll end this pandemic.”

# Scientists study intersection of COVID-19 and HIV

Although studies in high-income countries don't indicate greater health risks for people with HIV who develop COVID-19, there is not enough information to know whether that holds true in low- and middle-income countries. In Kenya—where coronavirus transmission has been light—hypertension and diabetes are much more frequently associated with COVID deaths than HIV/AIDS, according to health ministry reports. Meanwhile, early data from one region in South Africa where COVID is more common suggests people with HIV (PWH) may have double the risk of dying from coronavirus. Additionally, current and previous tuberculosis (TB) infection also seems to increase COVID mortality.

“What's new from our data is that we've been able to quantify the effect of HIV and tuberculosis, which until now we haven't known,” said University of Cape Town researcher Dr. Mary-Ann Davies, during a recent webinar. “We might've expected that effect to really be very large, but in fact what we are seeing is very modest—around a 2.5 times increased risk of COVID death—with these conditions.” In Davies' NIH-supported analysis of COVID deaths, published as a preprint by medRxiv, she also noted “that risk might be overestimated if we haven't fully disentangled all of the comorbidities and risks that drive COVID death.” For instance, diabetes was a factor in 52% of COVID deaths in the study.

“The small contribution of HIV and TB to COVID-19 mortality is mainly due to these deaths occurring in older people, in whom HIV and active TB are not common,” observed Fogarty grantees Drs. Quarraisha Abdool Karim and Salim S. Abdool Karim in a *Science* article. Integrated medical care for these three conditions will be important as COVID patients with comorbidities begin seeking health care services in greater numbers, they added.

Another interesting finding from Davies' South Africa study

is that one type of antiretroviral seems to offer more protection against COVID death than others. Coronavirus patients with HIV who were taking tenofovir disoproxil fumarate (TDF) fared better than those on different versions of ART, concurring with similar findings from a study in Spain.

## Learning from people with HIV

As the research community plans its response to COVID-19 in sub-Saharan Africa, it should begin by listening to PWH, according to a recent *AIDS and Behavior* paper by several NIH-supported authors. “COVID-19 is new; but the fear, stigma and poverty that determine health for much of the world, are not,” they noted. PWH have likely faced similar challenges before and “have solutions that are more likely to be successful in their context than global mandates designed for different settings, cultures and resources.”

Photo courtesy of CAPRISA



Rapid testing for COVID-19 is available at the CAPRISA clinic in South Africa, where patients testing positive often have comorbidities, such as diabetes, HIV and TB.

COVID-19 generates anxiety and fatalism in many people, but especially among PWH. “The lack of understanding of coronavirus and its effects on HIV leads people living with HIV to be more fearful, given what they know about their condition. This stress and sense of impending doom can lead to a fatalism that is reminiscent of the advent of the HIV epidemic,” said

co-author Dr. Robert N. Peck, a Fogarty grantee at Weill Cornell Medical College. “‘If God wills it, I will die from the coronavirus,’ we were told by more than one person living with HIV.”

Stigma is another concern that has arisen anew during COVID, with many people afraid of being tested. “They're fearful that if they are infected, or known to be infected publicly, they'll be stigmatized or ostracized because we have made it sound like a death sentence. We've made it sound like a cause of quarantine and isolation, and not like a manageable disease,” said co-author Dr. Mark J. Siedner, an NIH grantee at Harvard Medical School. “We need to focus on communicating about this disease in a way that's not terrifying and does not stigmatize the people who are infected.”

# Fogarty fellow captures 'lived experiences' of pandemic in South Africa

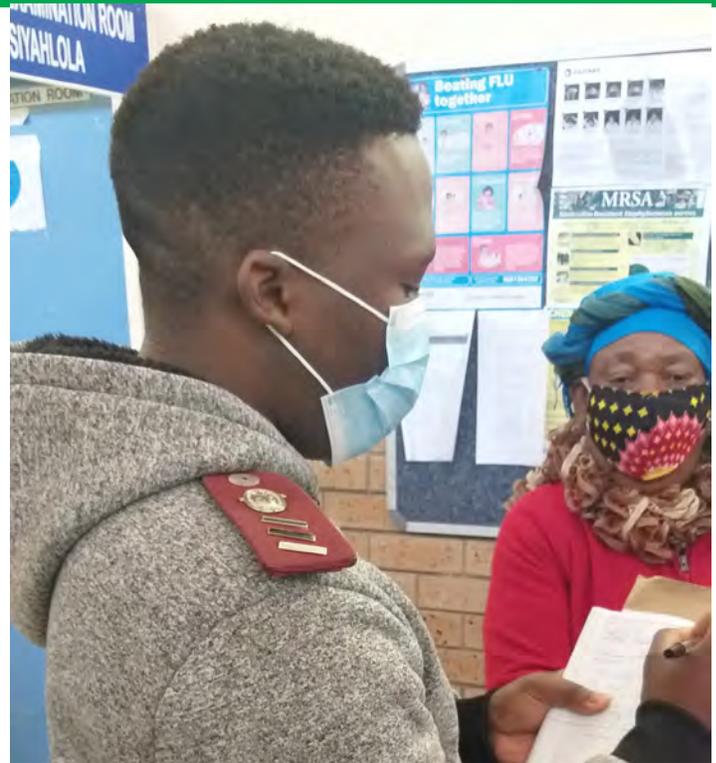
Health care workers are the heroes of COVID-19, but little attention has been paid to their perceptions of serving on the frontlines in Africa. A Fogarty fellow is launching a study to capture their 'lived experiences'—and those of their patients—to better understand their observations of the outbreak, innovative approaches taken to address it, gaps observed in the health system, and the mental and psychological effects they are feeling.

Gathering this evidence quickly is important, according to Themba Nxumalo, a nurse at a rural community health center in South Africa who is conducting the research. "How health care workers are responding right now is shaped by how the virus is spreading at the moment," he said. "My findings could have public health implications for the quality of patient care provided, as well as for training, preparation and care of health care workers during this outbreak and those that may occur in the future."

A Ph.D. candidate in nursing at the University of KwaZulu-Natal (UKZN), Nxumalo is a fellow in the Medical Education Partnership Initiative (MEPI) junior faculty research training program. The UKZN grant to strengthen the research culture in South Africa is funded by the NIH Office of the Director and the NIH's National Institute of Mental Health.

Nxumalo is interviewing about 20 primary care health workers—including nurses, doctors, facility managers, and allied health professionals such as pharmacists and physiotherapists—working in one rural and one urban community health clinic. His exploratory, descriptive study is designed to capture their first impression of the pandemic's arrival in their country, as well as their fears, stigma witnessed and achievements made while diagnosing and treating COVID-19 patients. "I'm working in a low-income, rural setting. When the pandemic first started, basic things like personal protective equipment were not available," said Nxumalo. Some PPE arrived as the pandemic progressed, which has been reassuring for workers at his clinic, he said. Another local issue was difficulty complying with the South African government's policy that those testing positive had to be isolated—difficult in his community.

Previously published research has shown that health care workers endure physical and mental health repercussions when dealing with disease outbreaks. Concerns for personal safety are to be expected. Additionally, hearing reports of



MEPI junior faculty fellow Themba Nxumalo is studying the 'lived experiences' of frontline health care workers, COVID-19 patients and their families in South Africa.

fellow health care workers getting infected and/or dying from COVID-19 can lead to fear and distress, Nxumalo said. His research aims to document these experiences in real time while his colleagues are still in the midst of the pandemic.

He also plans to conduct interviews with people who contracted COVID-19, as well as their families, to study the impact on them. "Something that affects one member will affect the entire family," he noted. The outbreak caused suffering due to separation during patient quarantine, financial difficulties and psychological problems, all of which could be better understood through anecdotal evidence, he said. Nxumalo suggested his Fogarty fellowship helped position him to make these kinds of observations and connections in the midst of a global pandemic that could help guide future public health response.

Prior to participation in the MEPI program, he was not exposed to scientific and academic writing—something he craved. "The fellowship gave me the skills to write effective articles, publish and network," he explained. His training opened his eyes to the issues he and his colleagues face providing primary care and gave him the research skills necessary to uncover the root causes of these problems, Nxumalo said. "The first step is collecting evidence, then looking at it from a scientific research perspective and finally marrying the two to find a solution." He said he views research as a craft—one that he's become very comfortable practicing. "I know what I'm doing but there's still a lot to learn because learning never stops."

## Decolonizing global health research is difficult, but vital



A renewed effort to decolonize and democratize global health has recently been gathering steam, especially among college students, who are questioning the fairness of the existing framework and are calling for a shift in leadership and broader knowledge sharing. What does this mean for the research community?

At Fogarty, we believe health equity and open access to knowledge are at the very heart of our mission—to build scientific capacity in low- and middle-income countries (LMICs) to help develop equitable research partnerships, ensure studies are locally relevant and that participating communities benefit from the knowledge gained. Informing all our activities is the Fogarty vision of “a world in which the frontiers of health research extend across the globe and advances in science are implemented to reduce the burden of disease, promote health, and extend longevity for all people.”

It is obvious to us that the historical approach of taking solutions developed in high-income countries (HIC) and trying to make them fit in LMICs is not an effective approach or respectful of the local circumstances, cultural practices or available resources. Ideally, local scientists with an understanding of the local context and resources will develop and study the effectiveness of interventions tailored for the setting.

In the 1980s, when Fogarty began its first research training program to build capacity in LMICs, in most cases trainees traveled to a HIC for their studies. Since then, the Center has supported significant training for more than 6,000 scientists worldwide. As a cadre of highly knowledgeable faculty developed in numerous LMICs, a transition began toward creation of local advanced degree programs in disciplines such as infectious diseases, epidemiology and public health. There are now 91 LMIC institutions that award degrees with Fogarty support, including more than 1,338 master's degrees and 452 Ph.Ds.

This is significant because, not only is it more economical so allows more students to be trained, LMIC curricula are far more relevant to the local disease priorities and

available resources than in programs developed for HIC consumption. Our goal is to empower LMIC scientists so they can enter into equitable partnerships where they set the research agenda, based on national priorities, and direct studies that will produce data so that policymakers can make evidence-based decisions. We believe these equitable research partnerships should be reflected in the authorship of the resulting publications. We were encouraged to discover promising trends in a study done with the NIH Library of Fogarty-supported publications had LMIC senior (last) authors and approximately 85% had U.S. senior authors. By 2019, LMIC senior authorship had increased to about 44%.

This shift has also been reflected in our grantmaking. In 2015, 18% of our grants went to LMIC institutions. By 2019, that had risen to 31%. The NIH policy decision in 2006 to allow multiple Principal Investigators on grants has allowed more equitable recognition of research partnerships. Since 1988, Fogarty has awarded grants to 408 LMIC PIs, or about 20% overall.

In recent conferences and other venues, some have called for the decolonization of the mind and democratization of information. They propose shifting the paradigm in global health education away from Eurocentric thought to a more inclusive approach. We hope we have made a contribution to that effort, through our Medical Education Partnership Initiative (MEPI), which was an African-led effort to strengthen and expand medical curricula across the continent. MEPI also supported improved internet connectivity, provided tablet computers to medical students and enabled access to up-to-date electronic medical texts and journal articles. Through the Human Heredity and Health in Africa program, NIH and Wellcome Trust have supported genomic training and established a biorepository, so African data and samples will remain in Africa, where they can be studied by African scientists.

Building equitable partnerships in global health and pushing for wider access to knowledge so that people everywhere benefit from discoveries will require sustained effort and are on ongoing process that is central to our mission. We measure progress made over decades and understand that this is a marathon and not a sprint. At Fogarty, we are in it for the long haul.

### RESOURCES

<http://bit.ly/DemocratizeGH>



## Collins wins Templeton Prize

NIH Director Dr. Francis S. Collins is the recipient of the 2020 Templeton Prize, awarded in recognition of his scientific leadership, public speaking and writing, including his 2006 book, *The Language of God*. His work has demonstrated how religious faith can inspire and motivate scientific research, according to Templeton philanthropies.



## NIH selects Woychik to direct environmental sciences

Dr. Rick Woychik is the new director of the NIH's National Institute of Environmental Health Sciences. He served as deputy director since 2010 and was appointed acting director in late 2019. Previously he spent a decade running the Jackson Laboratory in Maine, where he established the genetics science division.



## Zenk to lead NIH nursing research institute

Dr. Shannon N. Zenk was recently tapped to become director of the National Institute of Nursing Research. Zenk has been a visiting scholar in Rwanda and Australia and was inducted into the International Nurse Researchers Hall of Fame in 2019. She is currently a professor at the University of Illinois at Chicago.



## Global community mourns Dr. Kirk R. Smith

Former Fogarty grantee Dr. Kirk R. Smith died in June. He was a professor at the University of California, Berkeley and director of the Collaborative Clean Air Policy Centre in New Delhi. He shared the 2007 Nobel Peace Prize and served on numerous national and international scientific advisory committees.



## Senate confirms Panchanathan as NSF director

Dr. Sethuraman Panchanathan was recently confirmed by the U.S. Senate as director of the National Science Foundation (NSF). He previously was executive vice president of Arizona State University's (ASU) Knowledge Enterprise, and ASU's chief research and information officer. During his time at ASU, he helped elevate the university's research profile.



## Virologist known for first HIV cloning dies

Molecular virologist Dr. Flossie Wong-Staal, formerly a Fogarty grantee, died in July. In 1973, Wong-Staal became a fellow at the NIH's National Cancer Institute. She was best known as the first person to clone HIV. In 1990, she joined the University of California San Diego to launch its AIDS research center.

## NIH issues plan for COVID-19 research

NIH has developed a framework for accelerating the development of therapeutic interventions, vaccines and diagnostics for SARS-CoV-2. The NIH-Wide Strategic Plan for COVID-19 Research includes five cross-cutting strategies that draw upon the agency's unique position to coordinate a swift research response to the pandemic.

Full plan: [https://bit.ly/NIH\\_Covid\\_Plan](https://bit.ly/NIH_Covid_Plan)

## WHO releases COVID infodemic advice

Strategies on how to effectively manage the COVID-19 infodemic were explored during a recent online consultation organized by the WHO. The goal was to crowdsource ideas from an interdisciplinary group of global experts and the 1,300 participants. Video presentations, a meeting summary and other materials are available online.

Website: [https://bit.ly/WHO\\_infodemic](https://bit.ly/WHO_infodemic)

## FNHI launches global malaria effort

A new initiative will advance the safe and responsible exploration of genetic biocontrol technologies, a set of tools with the potential to save lives particularly among those afflicted with malaria. The GeneConvene Global Collaborative was announced by the Foundation for the NIH.

News release: [https://bit.ly/FNHI\\_GeneConvene](https://bit.ly/FNHI_GeneConvene)

## New research ethics guidance released

Ethics guidance has been produced by an international working group to advance responsible HIV co-infection research in pregnant women. This population is commonly excluded from research and the resulting evidence gaps have put them and their children in harm's way. The NIH's National Institute of Allergy and Infectious Diseases funded the project, with technical assistance from Fogarty.

Website: <http://www.hivpregnancyethics.org/>

## Gender toolkit for health workers released

A package of materials—including modules on unconscious biases, mentorship and sexual harassment—has been developed to offer health workers and organizations the skills and strategies needed to respond to gender disparities in health leadership. The participatory toolkit was developed by Jhpiego, an affiliate of Johns Hopkins University.

Website: [https://bit.ly/Gender\\_toolkit](https://bit.ly/Gender_toolkit)

Funding Opportunity Announcement	Details	Deadline
Mobile Health: Technology and Outcomes in LMICs non-AIDS applications	<a href="http://bit.ly/NIHmhealth">http://bit.ly/NIHmhealth</a>	Sep 24, 2020
Fulbright-Fogarty Fellows and Scholars in Public Health	<a href="http://bit.ly/Fulbright-Fogarty">http://bit.ly/Fulbright-Fogarty</a>	Oct 13, 2020
Global Infectious Disease (GID) Research Training Program	<a href="http://bit.ly/IDtraining">http://bit.ly/IDtraining</a>	Oct 28, 2020
Emerging Global Leader Award	<a href="http://bit.ly/NIHGlobalLeader">http://bit.ly/NIHGlobalLeader</a>	Nov 4, 2020
Global Brain and Nervous System Disorders Research Across the Lifespan	<a href="http://bit.ly/NIHGlobalBrain">http://bit.ly/NIHGlobalBrain</a>	Nov 6, 2020
Reducing Stigma to Improve HIV/AIDS Prevention, Treatment and Care in LMICs	<a href="http://bit.ly/NIHstigmahiv">http://bit.ly/NIHstigmahiv</a>	Nov 12, 2020
Chronic, Noncommunicable Diseases and Disorders Research Training	<a href="http://bit.ly/NCDtrain">http://bit.ly/NCDtrain</a>	Nov 13, 2020
Ecology and Evolution of Infectious Diseases	<a href="http://bit.ly/EEIDNIH">http://bit.ly/EEIDNIH</a>	Nov 18, 2020
Harnessing Data Science for Health Discovery and Innovation in Africa U2R Research Training Program U01 Ethical, Legal, and Social Implications Research U2C Open Data Science Platform and Coordinating Center U54 Research Hubs	<a href="https://bit.ly/nih-dsiafrica-funding">https://bit.ly/nih-dsiafrica-funding</a>	Nov 24, 2020 Dec 1, 2020 Dec 3, 2020 Dec 8, 2020
Mobile Health: Technology and Outcomes in LMICs - AIDS	<a href="http://bit.ly/NIHmhealth">http://bit.ly/NIHmhealth</a>	Dec 3, 2020
HIV-associated Noncommunicable Diseases Research at LMIC Institutions	<a href="http://bit.ly/FogartyHIVNCD">http://bit.ly/FogartyHIVNCD</a>	Dec 3, 2020

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

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## NIH director encourages 2020 Fogarty Fellows & Scholars



For the first time, the 2020 Fogarty Fellows and Scholars orientation program was held via teleconference. NIH Director Dr. Francis S. Collins made his annual appearance from his home office to offer advice and words of encouragement.

Fogarty’s Global Health Program for Fellows and Scholars provides year-long mentored research experiences in low- and middle-income countries. Collins suggested the new program participants keep their horizons wide open during the next year and that they not become too narrowly focused. He welcomed them to the Fogarty network that extends around the world and said he counts on Fogarty alumni to develop into significant global health leaders.

“You will be changed by the experience and that’s good; you will be positioned to take on leadership roles,” he said. “We are a family and we like to support each other. And now you are part of it.”

**RESOURCES**  
<http://bit.ly/FellowsScholars2020>