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NIH awards \$75M to boost data science in Africa

The NIH is investing about \$74.5 million over five years to advance data science, catalyze innovation and spur health discoveries across Africa. Under its new Harnessing Data Science for Health Discovery and Innovation in Africa (DS-I Africa) program, the NIH is issuing 19 awards to support research and training activities. DS-I Africa is an NIH Common Fund program that is supported by the Office of the Director and 11 NIH Institutes, Centers and Offices. Awards will establish a consortium consisting of a data science platform and coordinating center, seven research hubs, seven data science research training programs and four projects focused on studying the ethical, legal and social implications (ELSI) of data science research. Awardees have a robust network of partnerships across the African continent and in the U.S., including numerous national health ministries, nongovernmental organizations, corporations and other academic institutions.

Photo courtesy of UCT



The University of Cape Town (UCT) will develop and manage the open data science platform and coordinating center of the NIH's new Data Science in Africa program.

"This initiative has generated tremendous enthusiasm in all sectors of Africa's biomedical research community," said . . . continued on p. 2

NIH Director Collins will step down at end of 2021



Dr. Roger Glass (left) and Dr. Francis Collins (right)

Dr. Francis S. Collins has announced he will end his tenure as NIH director by the end of the year. Collins is the longest serving presidentially appointed NIH director, having served in three administrations. During his 12-year leadership,

NIH's budget grew by 38%, from \$30 billion in 2009 to \$41.3 billion in 2021.

"It has been an incredible privilege to lead this great agency for more than a decade," said Dr. Collins. "I love this agency and its people so deeply that the decision to step down was a difficult one."

A physician-geneticist, Collins previously served as the

director of the National Human Genome Research Institute from 1993-2008, where he led the international Human Genome Project, which culminated in a finished sequence of the human DNA instruction book.

As NIH Director, Collins travelled widely and supported a number of significant global health research and training initiatives, including the Human Heredity and Health in Africa (H3Africa) program, the Medical Education Partnership Initiative (MEPI), the Health-Professional Education Partnership Initiative (HEPI) and the new Data Science in Africa (DS-I Africa) program.

"I am proud of all we've accomplished," Collins said. "I'm most grateful and proud of the NIH staff and the scientific community, whose extraordinary commitment to lifesaving research delivers hope to the American people and the world every day."

FOCUS



Fogarty awards \$3.3 million in COVID-19-related grant supplements

- Scientists will study vaccine hesitancy, antibody response and other topics
- Some funds will support research training for pandemic response
- Funding will aid researchers whose projects were interrupted

Read more on pages 6 – 9

NIH awards \$75M to boost data science in Africa

. . . continued from p.1

NIH Director Dr. Francis S. Collins. “Big data and Artificial Intelligence (AI) have the potential to transform the conduct of research across the continent, while investing in research training will help to support Africa’s future data science leaders and ensure sustainable progress in this promising field.”

The University of Cape Town (UCT) will develop and manage the initiative’s open data science platform and coordinating center, building on previous NIH investments in UCT’s data and informatics capabilities made through the Human Heredity and Health in Africa (H3Africa) program. UCT will provide a flexible, scalable platform for the DS-I Africa researchers, so they can find and access data, select tools and workflows, and run analyses through collaborative workspaces. UCT will also administer and support core resources, as well as coordinate consortium activities.

The research hubs, all of which are led by African institutions, will apply novel approaches to data analysis and AI to address critical health issues. Scientists in Kenya will leverage large, existing data sets to develop and validate AI models to identify women at risk for poor pregnancy outcomes; and to identify adolescents and young healthcare workers at risk of depression and suicide ideation. A hub in Nigeria will study SARS-CoV-2 and HIV with the goal of using data to improve pandemic preparedness. In Uganda, researchers will advance data science for medical imaging with efforts to improve diagnoses of eye disease and cervical cancer. Scientists in Nigeria will also study anti-microbial resistance and the dynamics of disease transmission, develop a portable screening tool for bacterial infections and test a potential anti-microbial compound. A project based in Cameroon will investigate ways to decrease the burden of injuries and surgical diseases, as well as improve access to quality surgical care across the continent. From a hub in South Africa, researchers will study multi-disease morbidity by analyzing clinical and genomic data with the goal of providing actionable insights to reduce disease burden and improve overall health. Finally, another project in South Africa will develop innovative solutions to mitigate the health impacts of climate change throughout the region, with initial studies of clinical outcomes of heat exposure.

The research training programs, which leverage partnerships with U.S. institutions, will create multi-tiered curricula to build skills in foundational health data science, with options ranging from master’s and doctoral degree tracks, to postdoctoral training and faculty development. A mix of in-person and remote training will be offered to build skills in topics such as applied mathematics,

biostatistics, epidemiology, clinical informatics, analytics, computational omics, biomedical imaging, machine intelligence, computer science and engineering. Trainees will receive intensive mentoring and participate in internships to learn how to apply data science concepts to medical and public health areas including the social determinants of health, climate change, infectious diseases, noncommunicable diseases and health surveillance.

Recognizing that data science research may uncover potential ethical, legal and social implications (ELSI), the consortium will include dedicated ELSI research teams that will be embedded in the research hubs to address these topics. This will include efforts to develop evidence-based, context specific guidance for the conduct and governance of data science initiatives. Researchers will evaluate current legal instruments and guidelines to develop new and innovative governance frameworks for data science health research in Africa. They will explore legal differences across regions of the continent, as well as investigate public attitudes regarding data science approaches for healthcare.

A second phase of the program is being planned to encourage more researchers to join the consortium, foster the formation of new partnerships and address additional capacity building needs. A concept under development would support discrete research projects led by African investigators who propose innovative health data science research and solutions with a new non-academic partner. To enhance the career pipeline and retention of health data scientists in Africa, at least half of the awards would go to new and early-stage investigators. A second concept would enhance the existing research training programs.

In addition to the Common Fund, the DS-I Africa awards are being supported by Fogarty, the National Cancer Institute, the National Human Genome Research Institute, the National Institute of Allergy and Infectious Diseases, the National Institute of Biomedical Imaging and Bioengineering, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the National Institute of Dental and Craniofacial Research, the National Institute of Environmental Health Sciences, the National Institute of Mental Health, the National Library of Medicine and the NIH Office of Data Science Strategy.

More info at <https://commonfund.nih.gov/AfricaData>.

GEOHealth hub studies climate change in East Africa

Climate change-related health problems due to droughts, floods, heat waves, and vector- and water-borne diseases are increasingly affecting the world's most vulnerable populations. Scientists in four East African countries have conducted studies of these complex issues, developed needs assessments and provided guidance to policymakers on how to address them. The research projects—which may serve as models for other countries—were supported by the Fogarty-led Global Environmental and Occupational Health (GEOHealth) program.

Rising temperatures have already begun to take their toll on Ethiopian health, said Dr. Belay Simane, the lead author of his country's study, which was published in the *Ethiopian Journal of Health Development*. Ethiopia's annual temperature has already risen more than 1.3° Celsius since 1960 and models suggest it could climb as much as 2.9° Celsius more by the 2050s. A warming planet has caused repeated droughts, floods and extreme temperature events in Ethiopia over the past few decades, explained Simane, who is a scientist at Addis Ababa University. Water scarcity leads to inadequate hygiene, which results in fecal-oral transmission of diseases. Meanwhile, floods are expected to become more frequent and more severe under most scenarios. Given that Ethiopia relies heavily on pit latrines, flooding can contaminate surface, ground and drinking water. An epidemic of cholera followed flooding in 2006, leading to widespread illness and loss of life. Diarrhea, a leading cause of infant mortality, is becoming a growing health risk, noted Simane.

Hotter temperatures also spur climate-sensitive illnesses, including vector-borne diseases that require optimal ground, air and water temperature for the survival and reproduction of insects, Simane said. "The more the temperature increases, let's say, 0.5° Celsius every 10 years, the larger the area of vector-borne disease—and the longer the transmission period—becomes." Malaria, customarily prevalent in the lowlands, is moving into the highlands. The WHO estimates 68% of Ethiopians are now at risk of malaria. Other vector-borne diseases, notably dengue and visceral leishmaniasis, are already escalating due to climate change, Simane observed.

Water-borne and zoonotic diseases are increasing as well. Bacteria that live in water are more apt to multiply in warmer temperatures, while helminthic infections like hookworm (transmitted through soil) follow a similar pattern, said Simane. Zoonotic infections are already escalating. Currently, the nation has the fourth highest burden of zoonoses, which cause an estimated one-fifth of all human infectious diseases in low-income countries.



Four East African countries have produced climate change needs assessments for their countries through the Fogarty-managed GEOHealth program.

Add to this the fact that global warming intensifies humidity and dust levels, two factors that increase the risk of meningitis outbreaks. Ethiopia sits within sub-Saharan Africa's "meningitis belt" and Simane's study reported certain types of meningitis have been diagnosed beyond those regions traditionally prone to the disease.

Yet, it is climate change's effects on agriculture and nutrition that pose the greatest threat, said Simane. Heat stress has a negative impact on the crops themselves while also curtailing workers' productivity. Some crops are no longer viable in higher temperatures, forcing a reliance on carbohydrates. The number of people sickened due to malnutrition will be greater than those affected by malaria and other climate-sensitive diseases, stated Simane.

Addis Ababa University leads the eastern Africa GEOHealth hub, which includes universities in Kenya, Rwanda and Uganda. The hub's members meet regularly to share findings and all have completed similar national situational and needs assessment studies. The hub's Principal Investigator, Dr. Abera Kumie, believes these reports can serve as blueprints for other low-resource countries seeking to clarify the impact of climate change and identify gaps in research, training and capacity.

The need for more research—and researchers—is urgent so that interventions can be developed and implemented, said Kumie. "The whole point of our project, our research, is to produce evidence that could influence policy change."

The East Africa hub has been supported by Fogarty, the NIH's National Institute of Environmental Health Sciences, the CDC's National Institute for Occupational Study and Health, and Canada's International Development Research Centre.

RESOURCES

https://bit.ly/climate_EAfrica

PROFILE

Fogarty Fellow investigates trauma care in Tanzania

By Mariah Felipe

Rapid urbanization in many low- and middle-income countries (LMICs) is resulting in a growing number of trauma injuries due to traffic accidents. Shin bone fractures are the most common broken bones globally and have a high infection rate, up to 40%. There are currently two common ways to treat the fractures surgically—placing a nail or plate internally to stabilize the bone or fixing it externally with pins and rods. While external fixation is far less invasive, it requires a much longer healing time, which is difficult for working patients whose jobs require mobility.

Fogarty Fellow Dr. Abigail Cortez spent a year studying surgical outcomes of patients with tibia fractures in Tanzania to see which treatment method had better results. Cortez, now an orthopedic surgery resident at the University of California, Los Angeles, was forced to work remotely from her home base due to the COVID-19 pandemic. She relied heavily on her team of research coordinators in Tanzania. They followed up with about 240 patients who were offered in-person appointments, which involved x-rays and a clinical assessment, or a phone consultation. To work around COVID restrictions, the research team developed a detailed questionnaire to try and elicit the same level of information, even though they couldn't physically be with the patient.

Her study found that there are no fundamental differences between the two surgical approaches, even two to five years after the initial surgery. This proved that the internally applied nail did not cause higher rates of infection and is a viable alternative to external fixation, which is often preferred in LMICs. Eight of the patients reported persistent or complex complications after their surgery, and these patients were seen to have overall lower quality of life. Four of them had received the internal nail, and four had received external fixation. The quality-of-life scores they shared were comparable to some chronic illnesses, which highlighted the importance of complication and infection prevention and continuity of care.

"We should be focusing on how best to prevent infection prior to surgery so that we can avoid the burden of those complications after surgery," said Cortez. "Chronic complications will ultimately cost a lot more to the health-



Abigail Cortez, M.D.

Fogarty Fellow:	2020-21
US Institution:	University of California, San Francisco
Foreign Institutions:	Muhimbili Orthopedic Institute, Tanzania
Research area:	Trauma care in low- and middle-income countries

care system, and this is true in both low- and high-income countries."

During her fellowship, Cortez trained in biostatistics and learned how to work with online data capturing tools, in addition to practicing fundamentals such as study design and manuscript writing. "This was a very impactful year and I gained a lot of tools in my research toolbox," she said. "Now, I feel a lot more confident conducting research independently, and I think it's only going to help my career."

Logistics were a considerable part of Cortez's study because she was working remotely in the U.S. She learned to communicate effectively with her research coordinators and trained them in data collection, a skill they'll be able to use in future studies.

"During this process, you realize how long research takes, from the inception of an idea, testing your hypothesis, formulating your study design and nailing down the logistics for implementation," Cortez observed. She recently helped develop two projects that allowed her to employ the skills she learned during her Fogarty experience. One will examine amputation and the impact of prosthetic devices in LMICs and the second will study post-surgical infection rates.

"I feel like my life has changed for the better because of the Fogarty fellowship. I learned so much, and I also made so many valuable connections," she said. "The global health community is a close one. Now I know that if I have any questions or any new research interests, I know who to contact, and I'll be able to find the right person in any country."

NANDINI KUMAR, MBBS, DCP, MHSC

Dr. Nandini Kumar completed a medical degree in clinical pathology from India's Trivandrum Medical College, where she also completed post-graduate training in pathology and gastroenterology. Later, she participated in the first cohort of Fogarty's research ethics training program in 2001. While at the Indian Council of Medical Research, she held a Fogarty grant to establish a national bioethics training program and helped formulate India's national research ethics guidelines. She has also served on the WHO's Forum for Ethics Review Committees in India and chaired the bioethics committee at Manipal University.



What led you to Fogarty?

I was chosen to participate in Fogarty's new bioethics research training program by the director of the Indian Council of Medical Research because I'd done bioethics work in the past. With Fogarty support, I completed a master's course at the University of Toronto. We studied the philosophical and historical approaches to bioethics, regulatory codes and case studies that illustrated the complexity of bioethics research issues. As trainees, we felt that we were given every opportunity to develop as bioethicists.

For example, one of the exercises was to write a grant to establish a bioethics training program at home. It was a challenge—the application process was unfamiliar to me. But I knew that India could really benefit and I also knew that my position at the Council, the apex of Indian biomedical research, was the best ground in which to initiate bioethics training. Some prestigious people in our biomedical community were already talking about ethics, so I asked them if I could use parts of their programs for my project. I never imagined they would encourage me, but they did and that helped. Writing that grant became a stepping stone for me, another important lesson from my training.

How did you begin ethics training in India?

I thought very seriously about how to train people in a way that is suitable to India. The training was a step-by-step “upscaling” process. First, we held one-day workshops. Then we held three-day workshops and that evolved into five-day workshops, five-week training programs and eventually degree programs. Researchers are spread out across India and some cannot travel or take a leave from their jobs for long-term training. My thought was that our program could encourage mentorships and then when trainees returned home, both trainee and mentor could work together to plan bioethics programs and workshops.

And that happened in many regions. My program was meant for mid-career people but one of our trainees was a medical college dean who then started a two-year diploma program. Other trainees innovated in smaller ways.

Did the pandemic influence Indian bioethics?

We received a large number of proposals related to COVID-19 and this led to changes at the Ministry of Ayurveda, Yoga, Unani, Siddha, Sowa-Rigpa and Homeopathy (AYUSH). I was chair of that ministry's safety monitoring group and, during COVID, the concept of data safety and evidence was applied to traditional medicine for the first time. It used to be said that our plants don't have safety issues because they've been used for centuries, but we required evidence around claims related to COVID drugs. So, you could say the pandemic led to an integration of ideas between modern and traditional medicine. And the Ministry of AYUSH actually came out with two products to use for mild to moderate COVID cases. Another problem was: How exactly do ethics committees review COVID proposals? With everything online, scientists had to produce certificates proving they'd received all the necessary training in ethics. You could say COVID compelled investigators to become more sensitized to ethics.

What impact has ethics training had?

I'm very happy to announce that we recently launched a Good Clinical Practice (GCP) program—certified by the International Organization for Standardization—which is the first of its kind. The initiative includes standard principles of ethics and GCP within the Indian context. It is a train-the-trainer program so, importantly, people will have to pass an exam and only then will they be able to train others. So just like there are certified ethics committee members, we will also have certified professionals for GCP. That is a very big step.

RESOURCES

https://bit.ly/Kumar_bioethics



Fogarty awards \$3.3M in COVID-19 supplements for research, training

Low-resource nations have faced significant challenges in responding to the COVID-19 pandemic and numerous researchers have had their projects disrupted. To help address these issues, Fogarty has awarded nearly \$3.3 million in 42 administrative supplements to existing awards for one year of support.

Priority was given to COVID-19-related projects that address unique scientific questions associated with the pandemic in the low-resource country where the research is conducted. Precedence was also shown for COVID-19-related research training conducted in LMICs. Fogarty also provided supplementary support to researchers who were unable to complete their projects due to pandemic lockdowns.

The supplements will support research and training in a broad range of COVID-related topics. Several projects will examine the mental health aspects of COVID-19, particularly among people living with HIV. Others will study interactions between SARS-Co-V-2 and other infectious diseases such as HIV and TB. In addition, supplements will fund COVID-19-related investigations into vaccine hesitancy, intimate partner violence, stigma and other topics.

The NIH Office of AIDS Research and the NIH Common Fund provided significant support for the awards. Several project examples are described below.

Investigating vaccine hesitancy in Kenya

The COVID-19 vaccine is safe for people living with HIV (PLHIV), yet vaccination rates within this group have been lower than expected in Kenya. University of Washington's Dr. Carey Farquhar received a supplementary award to define both barriers and facilitators of COVID-19 vaccine uptake among PLHIV in Kenya. Her team's proposal also aims to identify strategies to overcome vaccine hesitancy while building research capacity at Kenyatta National Hospital (KNH) in Nairobi.

Vaccine hesitancy among PLHIV is not well understood. During the first phase of the study, baseline surveys will be conducted among patients accessing care at the hospital's comprehensive HIV care center and the outpatient units. This will be followed by in-depth interviews and a survey administered to health care workers. These will identify attitudes and knowledge about the COVID-19 vaccine. "Understanding the

patient-health care worker interaction will be key in promoting use of the COVID-19 vaccine," said team member Dr. Nancy Ngumbau of KNH. Research capacity at the national hospital will be strengthened with four trainees gaining experience in research methodology via hands-on experience, mentorships, workshops and courses.

During phase two, stakeholders will participate in a two-day workshop to identify strategies for optimizing COVID-19 vaccine uptake among PLHIV. Participants will include health ministry leadership, NGOs, health care workers and networks of PLHIV. The study will use an integrated, implementation science approach to "ensure that interventions, strategies and policies will be developed to increase uptake of vaccination," said Ngumbau. "Therefore, the results of this study can be rapidly adopted and used to influence optimal COVID-19 vaccine delivery for PLHIV in Kenya."

Photo courtesy of NIAID

Studying intimate partner violence in India

Across the globe, an unintended consequence of COVID-19-related lockdowns has been an uptick in domestic violence. In India, roughly a third of married women experience intimate partner violence even during normal times, according to University of Iowa professor Dr. William Story.

When the pandemic began, Story's colleagues, Dr. Nancy Angeline Gnanaselvam and Dr. Avita Johnson, were in the Bangalore suburbs collecting data on attitudes surrounding violence against women for a Fogarty-funded study. "We were able to interview women both before the COVID-19 lockdown and then after," said Story. His supplemental grant from Fogarty will enable him to analyze this data and also re-interview some women given that initial trends were "curious." "Intimate partner violence in some populations decreased after the lockdown, when we expected to see an increase," he said.

Since many people moved during the pandemic, he noted, someone in an abusive relationship may have relocated away from their partner. With liquor stores and bars closed, alcohol consumption might have decreased. "It's a complex pattern that we want to look into more deeply," Story said.

Peri-urban neighborhoods—created by the settling of previously rural areas near cities—are appearing throughout Southeast Asia and in other regions. For this reason, Story believes his work will be applicable to settings beyond India. Story hopes his data will also inform his work developing an intervention for teens that addresses patterns of behavior around concepts of masculinity. The new funding will also support data analysis instruction for the research team at St. John's Medical College in India.

"Supplements are great for being able to look at a question that maybe we weren't expecting to come up during a study," Story said. "COVID has put us in a position of asking extra questions and looking at things a little bit differently and I want to continue to practice that moving forward."

Examining antibody response to SARS-CoV-2 in Sierra Leone

Sierra Leone has experienced much lower COVID-19 caseloads and much less disease severity than countries in other parts of Africa. Preliminary testing done on blood samples collected prior to the pandemic showed Sierra Leoneans had a higher antibody response to SARS-CoV-2, SARS-CoV, MERS and other human coronavirus strains than their U.S. counterparts.

"One theory is that there may be other circulating coronaviruses in that part of the world that don't necessarily cause disease—or severe disease—yet may be providing some level of protection," said Vanderbilt University's Dr. Troy Moon.

Vanderbilt and its partners at Tulane have been using a Fogarty grant to help build research capacity in Sierra Leone in the wake of the 2014-16 Ebola outbreak. With supplemental funding, Moon and his colleagues will expand on this preliminary data to determine the percentage of participants who are seropositive to different human coronaviruses, including SARS-CoV-2, both before and during the pandemic, but prior to vaccination. In addition the team will determine the proportion of positive-testing patients whose serum has neutralizing antibodies against SARS-CoV-2. Finally, the team will determine if this pre-existing immunity has any impact on the immune response in their cohort of participants following COVID-19 vaccination.

The onsite work will be led by Sierra Leonean investigator Dr. Robert Samuels, who recently trained at Vanderbilt as a scholar with support from the original Fogarty grant. Samuels will apply his newly acquired knowledge of research methods and management to lead and oversee the day-to-day implementation of the study, while gaining hands-on experience.

Moon believes this research could provide essential clues to further understand how coronaviruses operate. "I think it opens up many questions as we try to better understand our immune response and coexistence with different respiratory pathogens and how that affects us at different time points when we see different illnesses," he noted. "This is now the third pathologic coronavirus epidemic we've seen and one that probably will be with us for a long time. This is not going to be the last time we hear from coronaviruses."

Scientists in India are using supplemental funds to analyze partner violence during the pandemic lock-down.



Training researchers at Rakai

The COVID-19 pandemic has interrupted HIV treatment and prevention services throughout Africa. Given the limited number of health workers and researchers on the continent, a clear need exists for immediate capacity building and research training specific to the HIV/COVID-19 syndemic. To help meet that need, Johns Hopkins University's Dr. Larry Chang and Rakai Health Sciences Program's Drs. Fred Nalugoda and Godfrey Kigozi will establish an HIV/COVID-19 Training and Research Initiative at the Rakai Health Sciences Program in Uganda through a supplement to the existing grant.

The Rakai Health Sciences Program is an extramural training site for Makerere University that provides field training for Ugandan and U.S. students. The program can implement and support HIV/COVID-19 research and capacity building through the Rakai Community Cohort Study, which has been collecting sociodemographic, behavioral, health and other data since 1994.

The supplement, like its parent grant, aims to support locally relevant research. Planned activities include didactics and discussions, mentored research, online writing accountability groups, data science training and in-country mini-sabbaticals.

Advancing implementation science in Malaysia

Malaysia—spared in the earliest days of the pandemic—had the largest COVID-19 case load per capita by the spring of 2021. Concurrently, this Asia-Pacific nation is battling a rapidly expanding HIV epidemic. COVID-19 has been an “implementation disruptor,” stalling research and the prevention and treatment of HIV in Malaysia, noted Yale University's Dr. Frederick Altice in his supplement proposal.

With the additional support, Altice and his colleague Dr. Adeeba Kamarulzaman will establish COVID-19-related trainings and activities through an existing implementation science training program. These will include a series of lectures on COVID-19 and an expansion of the summer bootcamp to address issues directly related to COVID-19. In addition, research funding will be provided so faculty members can conduct pilot projects focused on both COVID-19 and HIV.

The nation of 32.8 million people has more than 100,000 cumulative cases of HIV. Recent rapid growth is attributed to an inadequate scale-up of evidence-based interventions, including access to HIV testing, pre-exposure prophylaxis, antiretroviral therapy and syringe exchange programs.

Building biostatistical capacity in South Africa

COVID-19 disease, when combined with existing high rates of HIV/AIDS and tuberculosis, threatens fragile healthcare systems and infrastructures in sub-Saharan



Fogarty grant supplements will support an array of COVID-19-related activities such as mentored research training in Rakai, Uganda.

Africa. Policymakers require quality evidence to prevent and treat COVID-19. Instead, they face an “infodemic”—innumerable studies conducted across the globe, many of poor quality, plenty with contradictory findings, noted Dr. Taryn Young of Stellenbosch University.

With her supplementary grant, Young will develop training to support evidence synthesis and network meta-analysis to inform COVID-19 and HIV policy and practice decisions. Young's team plans to increase capacity by developing an online course that instructs participants to find, appraise, interpret and consider the use of network meta-analysis and systematic reviews. The South African team will also develop a global network meta-analysis master class for researchers, decisionmakers and students in HIV/AIDS. This online workshop will build regional capacity and cultivate analysis and systematic review skills. “We are busy registering the short courses and developing content,” said Young, noting that the courses will be offered early in 2022.

Having seen the pandemic's disruption of care delivery systems, she believes that the pandemic will likely reverse gains achieved over decades by HIV programs. Young's supplementary project aligns with her parent grant, which aims to establish an Africa Center for Biostatistical Excellence. “There is an urgent need for data driven interventions to address these threats to African populations.”

Determining the mental health of Ugandan youth

Uganda responded to the COVID-19 pandemic with stern measures, including a lockdown, shelter-in-place requirements and school closures. This strict approach exposed youth living with HIV (YLHIV) and their families to a variety of stressors, including social isolation, anxiety, loneliness, difficulty accessing medications and disruptions in economic activities, explained Dr. Fred Ssewamala of Makerere University. With supplementary support from Fogarty, he plans to examine the pandemic's impact on the mental health of YLHIV in Uganda.

Ssewamala and his team will interview 500 YLHIV across 39 health facilities in the greater Masaka region of Southwestern Uganda. Prevalence of HIV and AIDS in this region is 8% compared to about 6% nationally. His primary aim is to gain a clearer understanding of “the intersectionality of the consequences of two viral infections at a physiological level: HIV and COVID-19,” he said. “We need to understand the psychological impact of the pandemic in real time in order to design appropriate measures to address any challenges.”

Ssewamala's team anticipates seeing increased depression, anxiety and post-traumatic stress disorder in study participants. “We know that prior large-scale disasters—such as Ebola and SARS—had a negative impact on the psychological wellbeing of patients and healthcare providers,” he noted. “However, we have never witnessed such drastic control measures before.”

During the project, Ssewamala and his colleagues will be training and mentoring the cadre of 18 Ugandan scientists chosen under his original research training grant. Participants will learn “rigorous and culturally-congruent research methods,” he said. He hopes to exchange data and lessons learned with other Fogarty awardees and, eventually, plans to disseminate his findings among the broader scientific community. “The lessons are potentially transferable to other low-resource settings in sub-Saharan Africa.”

Understanding stigma in Nigeria

Nigeria has a high burden of HIV-related brain disorders, including mental health illnesses and neurological impairment. Dr. Babefemi O. Taiwo of Northwestern University in Chicago estimates that HIV-associated neurocognitive disorders alone affect many Nigerians living with HIV, but exact numbers are not known. Taiwo, supported by an award attached to his HIV Research training grant, will look at the intersection of COVID-19 and HIV amongst people living with HIV (PLHIV) in Nigeria. “We have a particular interest in how mental health issues have been impacted, which will include how stigma might have played into that.”

PLHIV historically bear a disproportionate share of mental



health challenges caused by both the diagnosis itself and the environment, he explained. Pockets of stigma still exist in Nigeria—like in many parts of the world—and COVID-19 has added to this psychological burden. Meanwhile, the lockdown complicated pre-existing mental health issues and restricted access to treatment. “Testing for COVID-19 is not widespread and there is a lot of misinformation, fear and stigma,” Taiwo noted. “So what you have now is a confluence of mental health challenges from COVID-19 and HIV that, for PLHIV, can be quite significant.” This “entanglement” often leads to poor adherence to treatment, the cornerstone of success.

Ongoing research includes longitudinal data on depressive symptoms and HIV care adherence both before and after the onset of the pandemic, explained Dr. Bibilola Oladeji, Taiwo's colleague who will lead the research team in Ibadan. “We want to leverage this data to explore the effects of the COVID-19 pandemic-related lockdowns and movement restrictions on depressive symptoms.” The team expects to gain a better understanding of how COVID-19 is impacting the mental health of PLHIV, which age groups are most affected and how to use that information to develop interventions.

Progress is underway. The team has selected trainees and brought together key stakeholders. Currently, they are developing lectures, courses and other educational experiences. Oladeji said, “Trainees will explore available data and develop qualitative data as part of their hands-on training and to fulfill the program's capacity building activities.” Taiwo concluded, “This supplement will help nurture another group of investigators with an interest in the mental health and neurologic complications of HIV infection.”

OPINION

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

Investing in Africa will improve economy and health



The 20th century has demonstrated that innovations in technology and investments in research have been among the most powerful and cost-effective ways to advance economic development and improve health and prosperity. I was delighted to participate in a recent event hosted by the African Business Coalition and

the U.N. Economic Commission for Africa (ECA), where we explored the tremendous opportunities for progress across their continent. COVID-19 has clearly shown us the need to strengthen African research capacity to respond to health issues with African solutions.

Sustainable advances usually require a well-developed research agenda and a solid workforce trained in science, technology, engineering and mathematics (STEM) capable of carrying it out. We must think about things differently. First, we need to refocus our training in STEM from rote memory learning to problem solving. We need to think about how to foster creativity, innovation and leadership.

Second, we must recognize that team science is critical. It's not just the health scientists who are important but it's the engineers, the data scientists, the businesspeople and the marketers. It's understanding where we can identify local priorities for health research and find solutions that will make a difference. We're now investing in teams to do this kind of research, where each member brings different perspectives to the table not just to conduct research, publish papers and push out academic promotions but to develop products, find solutions and bring these solutions and products to market.

Third, governments and industry have to come together to develop activities like biotech parks, filled with spaces where new ideas from academia can be incubated and accelerated into products that improve health and can be brought to scale.

Partnerships are absolutely critical to all these endeavors. South-South partnerships should be encouraged, so that new skills acquired are shared regionally and across the continent. North-South partnerships remain important to bring new technologies and help discover how they could be adapted for local use. NIH has contributed by establishing African networks for research training

through the Medical Education Partnership Initiative and for genomics research through the Human Health and Heredity in Africa program.

Finally, we should consider ways to engage diaspora scientists with Africa, so their knowledge, perspectives and networks can be leveraged for progress. We are encouraged by the example of Dr. John Nkengasong. Early in his career, he received Fogarty training in the U.S., spent time at the American CDC and now has gone on to be a truly outstanding leader of the Africa CDC. We need to train more people for leadership positions who understand research, who can make policies that respond to the science and can move this agenda forward.

In addition to strengthening its pandemic preparedness, Africa must also prepare to address the rising tide of noncommunicable diseases such as mental illness, diabetes, stroke and lung cancer. These illnesses have overlapping risk factors—hypertension, high fasting plasma glucose, high body mass index, tobacco use and ambient air pollution. Some of these diseases and risk factors are also predisposing factors for more severe and prolonged cases of COVID-19. Through our implementation science efforts, we are trying to leverage the HIV research and care platforms for NCDs, but much more is needed.

We see huge opportunities with Africa's rapidly expanding population of young people who will be the stimulus for these activities in the future. We need to encourage them as they progress in scientific careers, find ways to keep them on the continent and make them part of the solution. We believe that in the next few decades economic advances in Africa will be driven by innovations in science and technology, leading to improvements in health. Much of that will come from local solutions to local problems aided by global collaborations and partnerships.

NIH plans to remain an active participant. This month we are launching a \$75 million data science in Africa initiative. Through this investment, we will be creating a network of research and training hubs in data science and innovation across Africa to stimulate innovation, advance data science and spur health discoveries.

We realize progress is measured over decades and we are committed for the long haul.

RESOURCES

www.abchealth.com



AAMC honors scientists for integrity during pandemic

Three NIH-affiliated scientists are being honored by the Association of American Medical Colleges for their leadership in biomedical research and contributions during the pandemic. NIH Director Dr. Francis Collins is cited for engaging the full capabilities of the NIH to combat coronavirus and for managing the international Human Genome project.



Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, is being acknowledged for his commitment to scientific integrity and public health during the COVID-19 pandemic. In addition to his role as a respected government spokesperson, Fauci is also recognized for overseeing the rapid development of the COVID-19 vaccines. He is also one of the principal architects of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).



Finally, the AAMC is presenting its 2021 Robert Wood Johnson Foundation David E. Rogers Award to NIH grantee and former Fogarty board member, Dr. Peter Hotez. Dean of Tropical Medicine at Baylor College, Hotez is honored for his work in countering anti-vaccine messaging during the pandemic and leading efforts to confront anti-COVID-19-vaccine aggression.



NHGRI names Rotimi as scientific director

The NIH's National Human Genome Research Institute has selected Dr. Charles Rotimi as its next scientific director and head of its intramural research program. Rotimi—the first African-born scientific director of an NIH Institute—was a key architect and major participant in the Human Heredity and Health in Africa (H3Africa) Initiative.



Global Health Council names new President and CEO

The Global Health Council recently announced the appointment of Elisha Dunn-Georgiou as its new president and CEO. Previously, she was vice president for policy and advocacy at Population Action International (PAI). She holds a master's degree in epidemiology and a law degree from the State University of New York at Buffalo.



Bhutta receives 2021 Roux Prize

Agha Khan University Professor Zulfiqar Bhutta has been awarded the 2021 Roux Prize for turning evidence into health impact. Bhutta's work has focused on newborn and child survival and undernutrition, with an emphasis on reducing health disparities. The award is administered by the Institute for Health Metrics and Evaluation at the University of Washington.



Jirair Ratevosian tapped as senior PEPFAR advisor

Jirair Ratevosian, MPH, has been named by the White House to serve as a senior advisor in the State Department's Office of the U.S. Global AIDS Coordinator and Health Diplomacy. Ratevosian, a Boston University graduate, will help oversee the President's Emergency Plan for AIDS Relief (PEPFAR).

HHS requests input on new strategic plan

The U.S. Department of Health and Human Services, of which NIH is a part, has released a new draft strategic plan open for comment until Nov. 7. One goal addresses global health and calls for improved capabilities to prevent and respond to threats, protect populations from disease, promote healthy behaviors and mitigate climate change.

Website: https://bit.ly/HHS_plan

HHS establishes climate change office

HHS has announced it is forming an Office of Climate Change and Health Equity (OCCHE), tasked with the mission of protecting vulnerable communities that disproportionately bear the brunt of pollution and climate-driven disasters, at the expense of public health. OCCHE's interim director is the NIH's Dr. John Balbus.

Website: www.hhs.gov/ocche

NIH launches stigma research toolkit

NIH has developed a stigma and discrimination research toolkit that contains information about theories, models, frameworks, measures, methods and interventions that can be applied to reduce the impact of stigma and discrimination. Hosted by the National Institute of Mental Health, partners include the National Institute on Drug Abuse and Fogarty.

Website: https://bit.ly/stigma_toolkit

WHO recommends malaria vax for kids

The WHO is calling for widespread use of a groundbreaking malaria vaccine for children in sub-Saharan Africa and other regions with moderate to high malaria transmission. The WHO said the RTS,S/AS01 vaccine should be provided in a schedule of 4 doses in children 5 months of age and older.

News release: https://bit.ly/WHO_malaria_vax

PMI releases plan to end malaria faster

The U.S. President's Malaria Initiative (PMI) has announced its new five-year strategy to end malaria faster. PMI said it will work with partners to maximize program efficiency by addressing five focus areas: reach the unreached, strengthen community health systems, keep malaria services resilient, invest locally, and innovate and lead.

Full plan: https://bit.ly/PMI_Plan

Funding Opportunity Announcement	Deadline	Details
Global Infectious Disease (GID) Research Training D71 Clinical Trials Not Allowed	Oct 28, 2021	http://bit.ly/IDtraining
Emerging Global Leader Award K43 Independent Clinical Trials Required K43 Independent Clinical Trials Not Allowed	Nov 3, 2021	https://bit.ly/E_Lead
Mobile Health: Technology and Outcomes in Low and Middle Income Countries R21 Clinical Trials Optional R33 Clinical Trials Optional	Nov 15, 2021	https://bit.ly/NIH_mHealth
Ecology and Evolution of Infectious Diseases (EEID)	Nov 17, 2021	http://bit.ly/EEIDNIH
HIV-associated Noncommunicable Diseases Research at LMIC Institutions	Dec 8, 2021	https://bit.ly/FogartyHIVNCD
Global Brain and Nervous System Disorders Research Across the Lifespan R21 Clinical Trials Optional R01 Clinical Trials Optional	Dec 9, 2021	http://bit.ly/NIHGlobalBrain
International Research Scientist Development Award K01 Independent Clinical Trials Required K01 Independent Clinical Trials Not Allowed	Mar 9, 2022	https://bit.ly/IRSDAK01

For more information, visit www.fic.nih.gov/funding

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Fogarty International Center
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Managing editor: Ann Puderbaugh
Ann.Puderbaugh@nih.gov

Writer/editor: Mariah Felipe
Mariah.Felipe@nih.gov

Writer/editor: Susan Scutti
Susan.Scutti@nih.gov

Designer: Carla Conway

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World Report used to detail US-India partnerships

The U.S. Health Attaché in India Dr. Preetha Rajaraman has scored a trifecta using World Report, a tool illustrating global research funding. With simple query terms, she was able to quickly generate scene-setting information and start a conversation about India's role in global biomedical research. World Report helped her highlight the expansion of collaborative health research for a recent report titled "The US-India Partnership: Ambition and Achievement," to brief the Indian Minister of Human Resource Development and provide introductory remarks for U.S. Chargé d'Affaires at a bilateral workshop on vision research.

"World Report has been a great resource to help advance our goals of initiating and facilitating regional cooperation in health and biomedical research," Rajaraman observed. "It is easy to use and updated specifically for global biomedical research, allowing me to quickly locate where collaborations are happening in South Asia."

RESOURCE

worldreport.nih.gov