

FOCUS

Fogarty's Research Roundup June - December 2024

PROFILE

How Barclay Stewart's work impacts U.S. military and rural communities

LEADERSHIP

A Q&A with Dr. George Mensah of the National Heart, Lung, and Blood Institute

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Cures Within Reach offers funding opportunities for global health researchers

NATIONAL INSTITUTES OF HEALTH • DEPARTMENT OF HEALTH AND HUMAN SERVICES

Global Health Matters

FOGARTY INTERNATIONAL CENTER

Fogarty scientists tackle a spectrum of global health challenges through research projects focused on the U.S., other nations, and now the International Space Station.





Strengthening capacity in data science: PREPARING FOR THE NEXT QUARTER CENTURY AND BEYOND

NIH makes a wealth of biomedical data available to research communities and aims to make these data findable, accessible, interoperable, and reusable—or FAIR.

AS I WRITE THIS FIRST COLUMN, of 2025, it's hard to believe a quarter century has passed since the anxiety about Y2K. As many people remember, the Y2K fear was that computer systems and software would fail when the date rolled over from December 31, 1999, to January 1, 2000. Concerns stemmed from how dates were commonly programmed with a two-digit year format in older computer systems. Fortunately, proactive audits, testing, upgrades and contingency planning allowed the world to move past midnight of New Year's 2000 with minimal computer-related disruptions.

Our dependence on technology has only escalated in the past 25 years, as has computing performance and the access by organizations and individuals to large computing systems. The use of big data computing and data analysis to inform decisions is now

commonplace for the infrastructure, financial, health and business sectors – and, increasingly, for scientific discovery and advancements. Innovations in data collection, technology, and mass production of data worldwide have fueled the popularity of “data science.”

The National Institutes of Health (NIH) defines data science as “the interdisciplinary field of inquiry in which quantitative and analytical approaches, processes, and systems are developed and used to extract knowledge and insights from increasingly large and/or complex sets of data.” NIH makes a wealth of biomedical data available to research communities and aims to make these data findable, accessible, interoperable, and reusable—or FAIR. NIH also seeks to make these data usable with artificial intelligence and machine learning applications.

In November 2024, I had the



opportunity to witness an innovative, multidisciplinary and collaborative NIH data science program in action when I attended the Data Science for Health Discovery and Innovation in Africa (DS-I Africa) consortium meeting. DS-I Africa is an NIH Common Fund initiative that leverages prior investments by NIH and other funders in this discipline. Fogarty is one of four lead Institutes and Centers (ICs) – along with the National Institute of Biomedical Imaging and Bioengineering, National Institute of Mental Health and National Library of Medicine - that coordinate the day-to-day management of the program. In addition, DS-I Africa harnesses the collective wisdom and experience of 16 institutes, centers, offices and entities at NIH, which fund, manage, and/or provide project scientists for individual awards.

DS-I Africa awards were first launched in September 2021, when NIH funded 38 awards across 22 African countries and 28 U.S. universities. The achievements in the short tenure of this program have been remarkable. In only three years, DS-I Africa has made a unique and important contribution to NIH's portfolio and to the research landscape in Africa. At the meeting I attended, I learned how researchers are applying artificial intelligence/machine learning-based technology to overcome specialized training and technology barriers for the diagnosis and prognostication of colorectal cancer; to

combat antimicrobial resistance; to understand the relationship between air pollution exposure and maternal and child health; and to develop mobile applications to track patients discharged following trauma care.

The initiative has grown into a powerful multidisciplinary and multisectoral network with over 300 partner organizations and has produced more than 150 scientific publications. DS-I Africa researchers are applying data science approaches to develop innovations to address critical health problems with relevance to the African continent, and with implications for the US population. I was impressed with the innovative, enthusiastic and dedicated investigators I met, including many early career investigators who were a focus of the program from inception. The vibrant atmosphere fostered networking and scientific dialogue.

None of us can predict the future of data science, but we can be certain that it will continue to evolve and advance. It is critical that scientists everywhere have the access and training necessary to effectively use data to advance science, influence policy and improve health for all. DS-I Africa is a great example of a program built – like so many others at Fogarty – on the foundation of partnership, sustainability and capacity strengthening. It is fun to imagine what the next 25 years will bring.

Global Health Matters

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profile



Barclay Stewart

MD, PhD, MPH

Fogarty Fellow
2008–2009; 2014-15

U.S. Institution
University of Washington

Foreign institutions
Kenya Medical Research Institute in Kenya; Kwame Nkrumah University of Science and Technology in Ghana

Research topic
Clinical trials addressing HIV co-infections; developing capacity-building strategies for trauma care

Current affiliation
University of Washington Medicine

Global health researcher helps US military and rural communities

Dr. Barclay Stewart, a trauma and burn surgeon, credits his time as a Fogarty fellow with shaping his career: “It changed my life!”

Initially, Stewart was interested in environmental health, focusing on how things like dams and wastewater treatment affect population health. He ended up in medical school with a master’s degree in public health from the London School of Hygiene and Tropical Medicine.

Next, he took his first job in what was then southern Sudan, where he did tropical disease control work for the Malaria Consortium at the tail end of the war there, just before their independence in 2011. There, he witnessed hundreds of patients with war injuries and no emergency care

or trauma system to help people with life and limb threatening problems. “It was a gap that I wanted to spend my career filling,” said Stewart.

This realization led him to train in general surgery at the University of Washington (UW) and Harborview Medical Center, which focuses on adult and pediatric trauma and burn care and also healthcare for the Pacific Northwest’s most vulnerable people regardless of ability to pay. He began collaborating with the UW Department of Global Health and Drs. Charles Mock, Judd Walson, and Joe Zunt, a principal investigator in Fogarty’s LAUNCH Fellows and Scholars program.

Stewart’s first Fogarty fellowship, 2008–09, brought him to Kenya, where he assisted with clinical trials addressing HIV co-infections (e.g., soil transmitted helminthiasis, tuberculosis, malaria). “That experience cemented my interest in global health and conducting interventional

studies in low-resource settings while training the next generation of global health practitioners focused on injury prevention and control and trauma care.”

Stewart is one of a few Fogarty alumni who went on to do a second fellowship. In 2015-17, he worked with Fogarty investigators, Drs. Adam Gyedu and Peter Donkor, in Ghana, performing observational and interventional studies related to trauma care capacity building. After finishing that project, he completed a doctoral degree at Stellenbosch University in South Africa focused on health services research. Yet, he remained close to mentors and collaborators in Ghana with whom he continues to work on several projects and training programs for U.S. and Ghanaian master’s and doctoral degree students. Student projects include NIH- and Department of Defense- funded grants for trials that advance real-time decision support tools for trauma care at first-level hospitals and a nationwide cluster randomized trial studying enteral versus intravenous resuscitation for children and adults with major burn injuries.

“We’re excited to see the results of the enteral resuscitation trial and how the protocol might be implemented at a broader scale, particularly at first-level hospitals where access to burn resuscitation is critically limited.” He and his colleagues also developed additional Fogarty training sites in Nepal and Burkina Faso with projects in Ethiopia,



A photograph of Children’s paintings outside a camp for internally displaced people (IDPs) in Burkina Faso.

Rwanda and Ukraine. Stewart, who is now director of the Dr. Dana C. Lyngne Program for Global and Rural Surgery at UW and associate chief of trauma and burns at Harborview Medical Center, notes parallels between his work abroad and challenges faced by American and allied soldiers and civilians living in conflict.

“There are many similarities between working in low-resource settings globally and those encountered by warfighters during prolonged field care scenarios in settings where we don’t necessarily have air superiority and therefore can’t evacuate the wounded quickly,” he explains. In the Pacific Northwest, he adds, “caring for injured and burned adults and children from Washington, Alaska, Idaho, and western Montana—across nearly 2,000 miles of pre-hospital transport—is synonymous in many ways with what warfighters experience as they’re being evacuated over hours or days across multiple echelons of military care.”

The biggest challenge in global trauma care is that the hardest

Dr. Stewart is a board-certified trauma, burn, and critical care surgeon who specializes in the care of injuries, burns and trauma reconstruction.



A military medical student defending his thesis about military casualties in Burkina Faso.

places to do this work is where it’s most important and where funding is limited (despite how much injury contributes to the overall level of disease and disability). “However, Fogarty has ensured that there’s funding for those who want to change the way injured people can access higher quality trauma and burn care in a variety of settings, including areas of conflict.”



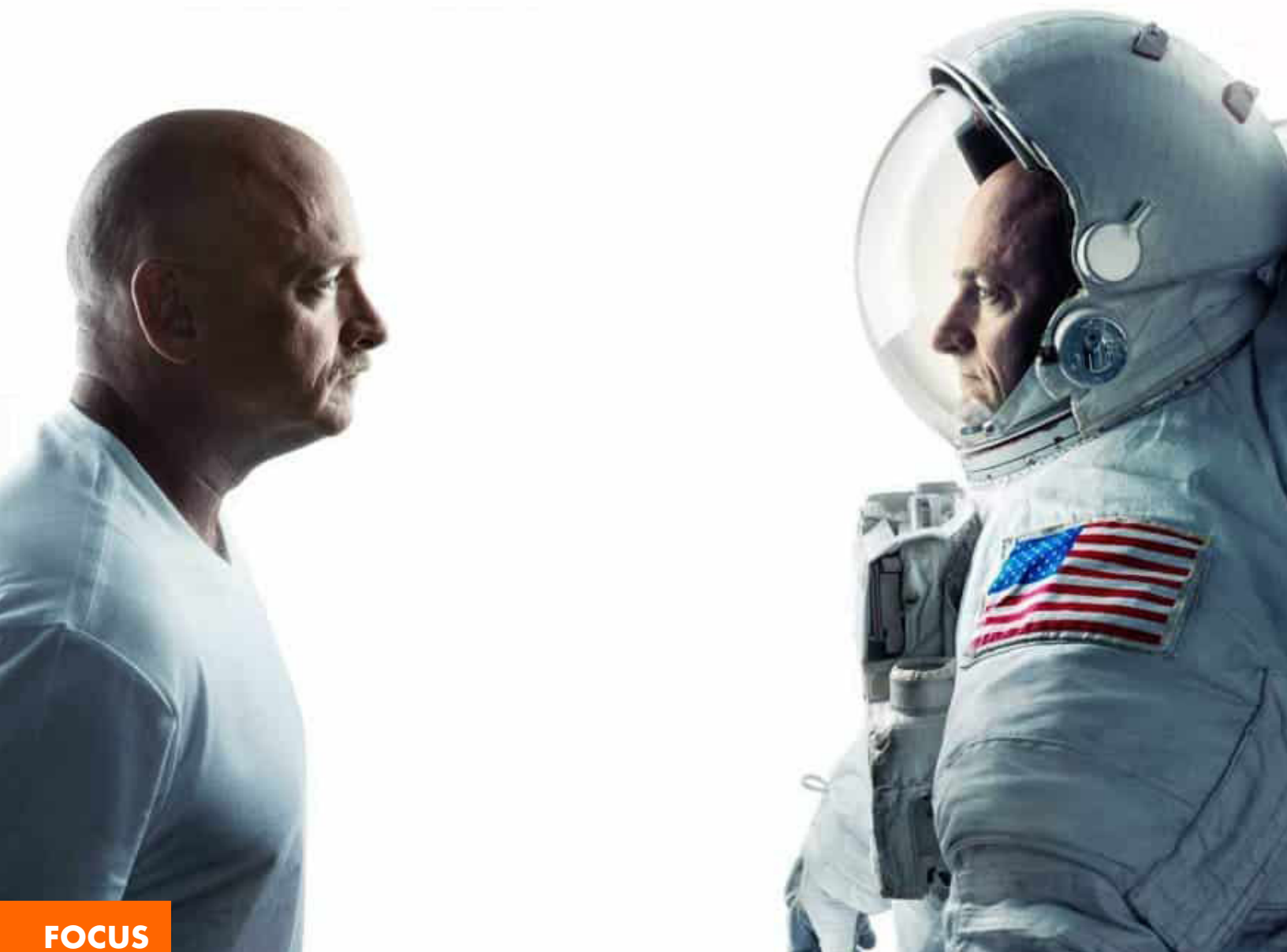
Dr. Barclay Stewart currently conducts research at the National Burn Center in Nepal.

“ WE WANT TO HONOR FOGARTY’S COMMITMENT BY DOING HIGH-QUALITY WORK, EVEN WHERE IT’S HARD.”



RESEARCH ROUNDUP

JUNE-DECEMBER 2024



FOGARTY SCIENTISTS CONDUCT ORIGINAL RESEARCH IN EPIDEMIOLOGY AND MATHEMATICAL MODELING OF DISEASES, GENOMIC EVOLUTION OF PATHOGENS, IMPLEMENTATION SCIENCES AND POPULATION STUDIES.

“The Division of International Epidemiology and Population Studies has significantly advanced public health in the U.S. by developing cutting-edge modeling techniques that enhance preparedness and improve responses to pandemics and emerging health threats, directly benefiting the health and safety of Americans,” said Fogarty’s David J. Spiro, PhD, the division’s director.

Left: Retired astronauts Mark and Scott Kelly, identical twin brothers, participated in the NASA Twins Study, where Mark remained on earth while Scott spent 340 days aboard the International Space Station. The study provided data for microRNA research by Fogarty’s Nidia S. Trovão



Photo courtesy of NASA

Can astronauts' health be protected by targeting microRNAs?

Space exploration presents challenges for human health, including exposure to radiation, altered gravity, and isolation, which can lead to serious issues like bone and muscle loss, cardiovascular diseases, and cognitive impairments. One area of research has focused on microRNAs, small molecules that regulate genes and are linked to various diseases. Past studies show that certain microRNAs in astronauts' bodies change in response to space conditions, particularly in the liver, muscles, and heart. A research team, including Fogarty's Nidia S. Trovão, PhD, experimented on three microRNAs—miR-16-5p, miR-125b-5p, and let-7a-5p—associated with immune function, stress responses, and mitochondrial health. By targeting these, scientists may be able to develop countermeasures to protect astronauts' health during space missions, with potential benefits for improving medical treatments on Earth as well.

A new approach for modeling global circulation of influenza

This study proposes a new approach to better understand the global spread of seasonal influenza by combining local and international factors. Fogarty's Nidia S. Trovão, PhD, contributed to this novel, combined approach model that integrates high-resolution demographic

and mobility data along with genetic information, to simulate flu migration across countries. The approach shows that population distribution, local mobility, and international travel, as well as seasonality, are fundamental influences on influenza migration patterns. The findings suggest this method can help improve preparedness for future flu seasons.

Framework for Effective Scenario Design in Epidemiology

Scenario modeling has become a key tool in many fields for making long-term projections and evaluating how different interventions might impact outcomes. This method involves projecting multiple scenarios at once to compare potential results and inform decision-making. The design of scenarios is crucial to their effectiveness. Senior Author Cécile Viboud, PhD, and her colleagues identify six fundamental purposes for scenario design—decision making, sensitivity analysis, situational awareness, horizon scanning, forecasting, and value of information. The paper discusses how each purpose shapes the scenario structure and highlights the importance of considering multi-model projections.

Reduced household air pollution has little effect on newborn length or head circumference

Around 3 billion people, mostly in low- and middle-income regions, rely on solid fuels like wood and coal for cooking, which leads to high levels of household air pollution.

Cooking in Guatemala



This exposure can negatively impact pregnancy outcomes. The Household Air Pollution Intervention Network (HAPIN) trial team compared head circumference and length at birth in households using traditional cookstoves versus households using liquefied petroleum gas (LPG). Pregnant women in India, Guatemala, Peru, and Rwanda were randomly assigned to either receive free LPG stoves or to continue with traditional stoves. The LPG stove intervention during pregnancy reduced personal exposures to PM2.5, black carbon and carbon monoxide but had small or no effects on head circumference and length at birth. Fogarty's Joshua Rosenthal, PhD, contributed to this study.

Impact of COVID-19 on RSV dynamics

During the COVID-19 pandemic, measures like social distancing and mask-wearing reduced the spread of many viruses, including respiratory syncytial virus (RSV). However, when these measures were lifted, RSV cases surged, particularly in the winter of 2022-2023. RSV has two subtypes; RSV-A tends to spread faster and cause more serious infections than RSV-B. Researchers used models to predict that RSV-A would dominate in the post-pandemic period, as many people had been unexposed during the pandemic. Data from around the world supported this, showing that RSV-A became more common after COVID-19 restrictions ended. Fogarty's Cécile Viboud, PhD, Nidia Trovão, PhD, and Samantha Bents contributed to this report.

Courtesy of Mundubat Fundazioa

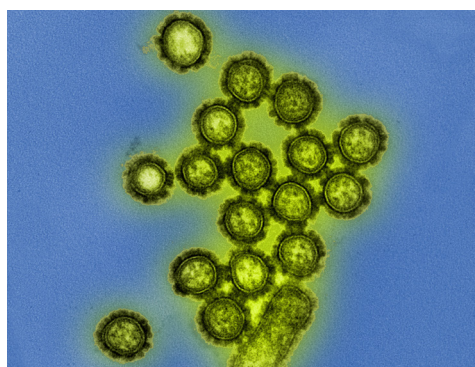
How to make better influenza A vaccines

Influenza A has two main groups, with stronger immunity within each group compared to between groups. Researchers are exploring vaccines that provide broad protection, but these may work better for certain groups than others. To evaluate vaccine formulation and strategies, a team of researchers, including Fogarty’s Cécile Viboud, PhD, propose a vaccine population-level target product profile (PTPP), using models to predict the impact of future vaccines. Results suggest that a broadly protective vaccine could reduce cases of both groups and even eliminate influenza with high vaccination rates. The key takeaway is that future vaccines should not only be effective but also have broad coverage and long-lasting protection to better control influenza.

Evaluating influenza forecasting across two disrupted seasons

Influenza forecasting is a critical tool for outbreak response. Since 2013, the CDC’s FluSight challenge has engaged external research teams to submit weekly one-to-four week ahead predictions of flu activity across the U.S. The challenge originally focused on outpatient influenza-like illness (ILI) rates, but the COVID-19 pandemic disrupted this

Influenza virus



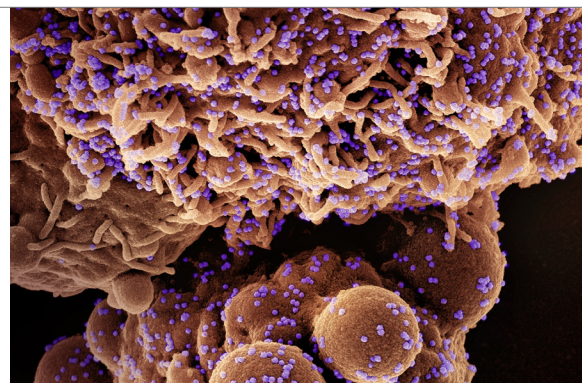
Courtesy of NIAID

Future vaccines should have broad coverage and long lasting protection to better control influenza.

approach. By 2021, changes in outpatient care-seeking behavior and continued SARS-CoV-2 circulation had made ILI data less reliable, prompting FluSight to shift its focus to laboratory-confirmed hospital admissions—a more stable metric newly available across all U.S. jurisdictions. In the 2021-22 and 2022-23 seasons, 26 teams, including Fogarty’s Amanda Perofsky, PhD and Cécile Viboud, PhD, contributed weekly forecasts. While only about half of individual models outperformed CDC’s baseline projections, FluSight’s ensemble model—combining predictions from all teams—ranked among the top five most accurate models.

Understanding how antibodies protect against COVID-19 variants

Neutralizing antibodies (nAbs) are a vital component of the immune defense against infectious pathogens, including SARS-CoV-2. While nAbs are known to provide protection against COVID-19, their role in preventing infection, particularly with emerging variants, remains unclear. Researchers, including lead author Kaiyuan Sun, PhD, and Cécile Viboud, PhD, both of Fogarty, examined the role of nAbs in individuals previously infected with SARS-CoV-2 in South Africa. The study found that nAbs from prior infections contributed approximately 37% of the protection against reinfection during the Delta wave, though this protection waned



SARS-CoV-2 virus (causes COVID-19)

Photo courtesy of NIAID

over time. In contrast, the Omicron variant largely evaded neutralization, with Omicron-specific nAbs accounting for only 11% of the observed protection. However, nAbs alone don’t explain all the protection; measuring other immune responses may be required to fully understand immune protection against SARS-CoV-2.

How COVID-19 impacted cancer mortality in the US

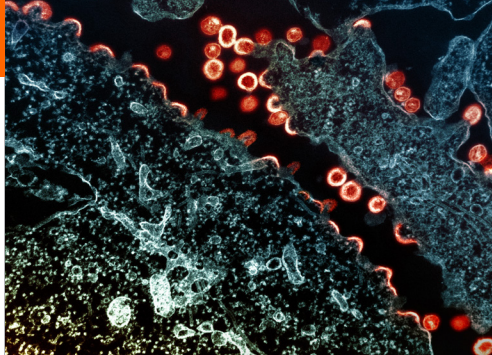
During the COVID-19 pandemic, cancer was considered a risk factor for increased mortality, yet surprisingly, cancer deaths did not rise substantially during the first year of the pandemic. Lead Author Chelsea Hansen, Cécile Viboud, PhD, both of Fogarty, and Lone Simonsen, PhD, explored the impact of COVID-19 on cancer-related deaths in the U.S. by reviewing death certificates from different states during 2020. They estimated that cancer-related deaths remained within historical levels, with only a small increase in overall cancer mortality (about 3%), adding

roughly 13,600 extra deaths. They compared this to deaths from diabetes and Alzheimer’s disease, which rose by 37% and 19%, respectively. Notably, the increase in deaths was higher for cancers with better survival rates, like breast, colorectal, and hematological cancers, while cancers with lower survival rates, like pancreatic and lung cancers, showed minimal increases in mortality.

Epidemics special issue examines real-time COVID-19 modeling efforts

A special issue of *Epidemics*, co-edited by Fogarty’s Cécile Viboud, PhD, highlights some of the learnings from the years and efforts to create real-time models to help guide decision-making during the COVID-19 pandemic. Among these endeavors, the COVID-19 Scenario Modeling Hub (SMH) was created to coordinate modeling efforts and provide evidence for policies in the U.S. Since December 2020, the SMH has produced multiple rounds of COVID-19 projections, as well as projections for other diseases like influenza and RSV. The Hub brought together 30 models and made significant advances in multi-model forecasting and collaboration. The first 6 papers describe the Hub itself, its impacts, some of the governing science behind it and the advances made. The remaining articles detail the individual models of nine teams that contributed to SMH.

COMBINING MULTIPLE MODELS SIGNIFICANTLY REDUCED FORECASTING ERRORS.



Human Immunodeficiency Virus (HIV)

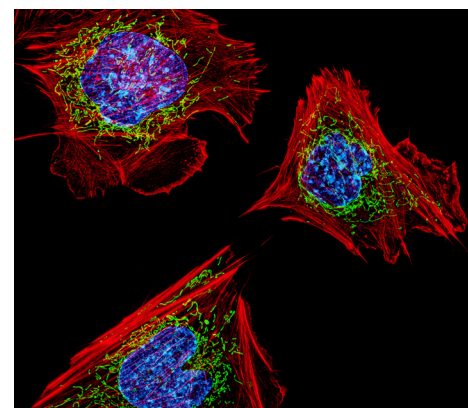
Exploring the origins and spread of an HIV subtype in China and Myanmar

In this study, Nidia S. Trovão, PhD, of Fogarty and co-author Xingguang Li investigate the early evolutionary and other dynamics of HIV-1 CRF08_BC in China and Myanmar using near-complete genome sequences from 28 samples collected between 1997 and 2013. The researchers found that HIV-1 CRF08_BC likely originated in Yunnan Province, China, among people who inject drugs and later spread to other areas. (Yunnan Province is close to the heroin-producing Golden Triangle region.) The analysis also estimated that the virus emerged around 1989, evolving at a slower rate than previously thought. The study stresses the importance of genomic surveillance to inform public health strategies aimed at controlling HIV-1 CRF08_BC transmission and preventing future outbreaks.

How adaptive ensemble models can improve influenza

Senior Author Cécile Viboud, PhD, contributed to this examination of forecasting influenza activity in tropical and subtropical regions, which have unpredictable seasonal patterns. The team developed and tested a diverse set of approaches to forecast influenza activity in Hong Kong, leveraging a surveillance record that spanned 32 epidemics (1998 to 2019). They found that

combining multiple models significantly reduced forecasting errors and best results came from an adaptive weight blending ensemble, which adjusts model weights based on the most recent data; it improved predictions by up to 62%. This approach, which proved effective in predicting influenza activity even during irregular seasons, could be applied to other regions with similar challenges.



Cells with nuclei in blue and mitochondria in green

Lethal COVID-19 is associated with RAAS-induced inflammation

How does COVID-19 lead to lethal outcomes? The researchers, including Fogarty’s Nidia S. Trovão, PhD, found that SARS-CoV-2 (the virus causing COVID) disrupts mitochondrial functions, leading to a buildup of reactive oxygen species and activating immune responses, which can worsen disease severity. The virus also triggers an overactivation of certain signaling pathways, such as the renin-angiotensin-aldosterone system (RAAS), leading to inflammation, blood clotting, and tissue damage—also known as a “cytokine storm.” Findings suggest that targeting mitochondrial dysfunction and specific immune pathways may help reduce COVID-19 severity and potentially alleviate symptoms in long COVID.

Photo courtesy of NIAID

Photo courtesy of NICHHD

Q&A

Addressing challenges in the US...and abroad



Dr. George A. Mensah, a clinician-scientist, is director of the Center for Translation Research and Implementation Science (CTRIS) at the National Heart, Lung, and Blood Institute (NHLBI). His professional experience includes 25 years of public service at the U.S. Department of Veterans Affairs (VA), the Centers for Disease Control and Prevention (CDC), and the National Institutes of Health. Mensah has authored nearly 500 manuscripts, abstracts, book chapters, and an atlas on heart disease and stroke published by WHO and CDC.

Why did you become a doctor and specialize in cardiology?

I was born in a small village in West Africa. We were fortunate to have a clinic in our village and there was a doctor who staffed the clinic. What was most impressive was how much he knew about every disease. He was invaluable to everyone, from children and their mothers to young adults and the elderly. I wanted to be like him—to know so much about every disease and be of value to everyone. A real eye opener came when I was training as an intern and resident. Someone could come in dead-on-arrival because of a heart attack or cardiac arrest, but in some cases, we could treat that person and later they would just walk out of the hospital! To me, that was magic, so I became a heart specialist.

Tell us about the Center for Translational Research and Implementation Science (CTRIS).

CTRIS supports the work of experts in translational and implementation research, who use science to help turn discoveries into

real-world health impacts. Translational science is important because you can have major fundamental science discoveries, but unless we turn those into clinical and public health applications, the vast majority of people who could benefit from this cutting edge science never really do. As a field, translational science has an early stage, which is where you go from basic science to small human studies, and a late-stage, for example, phase 3 clinical trials, where the safety and effectiveness of a new treatment is compared against the current standard treatment.

Implementation science addresses dissemination and adoption of a new treatment. There may be technical challenges, economic and funding challenges, regulatory challenges, and even social and environmental challenges. Overcoming these requires a very coordinated effort among multiple disciplines, but there can still be human behavioral challenges. What's needed then is to engage with communities

in meaningful ways, so that people will trust the science and have science-based information to make decisions for themselves and their families.

How can international research help NHLBI achieve its agenda?

NHLBI is the third largest institute at NIH, and the vast majority of our work is through researchers here in the U.S. Still, supporting research abroad helps our institute fulfill its mission. There are times when the populations you need to work with cannot be found in the U.S., so, by working with a unique population abroad, we can advance science that may be relevant in the U.S. Take sickle cell disease, for example. There aren't as many sickle cell disease patients in the whole U.S. as there are in just one country, Nigeria, right? So if you're designing a study that requires thousands of patients, working in Nigeria would enable you to conduct your research and possibly discover outcomes that have real implications here in the U.S. While most of CTRIS work is done in the U.S., we sometimes partner with Fogarty so that the limited resources we have to spend outside our country can go a long way in supporting investigators working abroad, including in low- and middle-income countries (LMICs), which often bear a disproportionate burden of the diseases in NHLBI's portfolio and so can uniquely inform the research mandated by its mission.

Repurposing known drugs to deliver Cures Within Reach

Researchers looking for funding opportunities would be wise to check out Cures Within Reach (CWR). This nonprofit identifies and finances clinical trials that test approved therapies in new indications. Clare Thibodeaux, PhD, CWR's vice president, scientific affairs, noted that its Repurposing Grants for the Rest of the World (ReGRoW) program funds clinical trials in low- and middle-income countries (LMICs). Therapies in this program need to be accessible to regional patients.

"ReGRoW fills a gap in LMIC clinical research funding while also helping researchers find an efficient approach to developing treatments for neglected populations," said Fogarty's Deputy Director Dr. Peter Kilmarx. Unusually, ReGRoW not only supports the testing of generic pharmaceutical drugs for new indications but also the testing of indigenous medicines.

Niche yet broad

Nearly three decades ago, Chicago-based CWR began as a family foundation that funded translational research. Early projects included several studies to test approved drugs for unapproved conditions. In 2008, the foundation assessed all past projects and made an unexpected discovery: The repurposing studies had made the greatest impact on patients' lives.

This Eureka moment led to CWR's current policy. "De-risking known drugs, devices, nutraceuticals and diagnostics in new indications really

is the fastest way to create patient impact," said Thibodeaux.

Though CWR has a narrow focus, its portfolio is broad. "We're disease agnostic, we're geography agnostic, and we're patient population agnostic," said Thibodeaux. Research grants start at US\$65,000 and can support a small, proof-of-concept, Phase I or Phase IIa human clinical trial, which may establish a repurposed drug's safety and/or dose range, and, less often, larger Phase IIb/Phase III trials, which determine if an experimental drug is effective.

"Perhaps a researcher has an idea based on preclinical research, but other funders have said, 'That's a great idea—come back when you have pilot data... or when you've got the safety and dosing worked out.' By providing catalytic seed funding, CWR spurs these projects forward," said Thibodeaux. Importantly, success is measured based on how much investigators raise after completing their CWR projects.

"We're at \$10 million that we've invested in repurposing research over the years, and our P.I.s have gone on to raise more than \$110 million in follow-on funding."

Notable achievements

ReGRoW floated its first request for proposals in late 2019, its fifth in 2024. "Now we have funds to support 16 more trials over the next two years," said Thibodeaux.

So far, three ReGRoW projects have been completed, with two having raised significant follow-on funding. The first examined the addition of atorvastatin—a lipid-lowering drug used to treat high cholesterol—to



Dr. Mainga Hamaluba, KEMRI Wellcome Trust Research Programme in Kenya, led the snakebite trial funded by CWR.

Photo courtesy of CWR

the standard of care for treating tuberculosis in Nigeria. The second project looked at repurposing unithiol, used to treat heavy metal poisoning, as a therapy for snake bites in Kenya. Thibodeaux noted that this team received \$5.4 million in follow-on funding.

Starting in 2025, ReGRoW will be funding community engagement in addition to clinical research. Thibodeaux said, "Some of our LMIC researchers were already doing community outreach to reduce fear, mistrust and other obstacles to clinical trial enrollment."

As ReGRoW expands, Thibodeaux has seen escalating researcher submissions and, equally important, increasing interest from LMIC reviewers. "In 2024, we had 18 countries represented on our review panel." Fogarty contributed its expertise to help with the review process; as a result, CWR is now "more of a known quantity," said Thibodeaux.

"WHAT REALLY AMAZES ME IS NOT ONLY THE VOLUME OF IDEAS THAT COME OUR WAY—VERY CREATIVE, VERY INTERESTING IDEAS—BUT THE ENTHUSIASM OF VOLUNTEER REVIEWERS WHO WANT TO SUPPORT THIS EFFORT. IT'S CLEAR MANY PEOPLE WANT TO SEE OUR REGROW EFFORT SUCCEED."

Peru hypertension study illustrates NHLBI's commitment to global health research

Eating too much salt increases blood pressure. If blood pressure becomes too high, it affects the body's arteries, forcing the heart to work harder pumping blood. Hypertension (another word for high blood pressure) is a common condition worldwide, one that contributes to heart disease and stroke.

Too often, low- and middle-income countries (LMICs) like Peru have poor rates of controlling hypertension. "Peru is a context where we have many limitations on the supply side of the health system—we have very few doctors, very few medicines, very few trained people. So adding more things at the health system level would have very limited advantage," said Jaime Miranda, MD, PhD, founding director of CRONICAS Center of Excellence at Cayetano Heredia Peruvian University in Lima.

To address hypertension in Peru, Miranda decided a population-level solution was needed. He and his colleagues, including Robert Gilman, MD, Johns Hopkins Bloomberg School of Public Health, conducted a community-wide study in which a salt substitute replaced conventional table salt with the aim of lowering blood pressure in the general population. Their findings could be applicable in low-resource settings across the globe.

Miranda and Gilman, both long-standing Fogarty grantees, found support for their project from the

National Heart, Lung, and Blood Institute (NHLBI) as part of its commitment to the Global Alliance for Chronic Diseases (GACD).

Birth of an international alliance

In 2007, an article published in *Nature* identified the chronic, non-communicable diseases that caused the greatest share of disability and accounted for about 60% of all deaths worldwide: cardiovascular diseases, type 2 diabetes, chronic respiratory diseases, and certain cancers. To stem this rising tide of chronic illness, the article's authors established research priorities and argued for increased international funding. Spurred by this publication, NHLBI and other global funders helped found GACD in 2009 to bring together international funders to address chronic diseases in LMICs as well as in underserved populations in high income countries.

Since then, NHLBI's influence on GACD has remained strong. In 2011, NHLBI's Deputy Director Dr. Susan Shurin was elected chair of GACD. Shurin attracted interest and support across the National Institutes of Health. Also during her term, GACD launched its first round of funding focused on hypertension.

Three years later, NHLBI answered a GACD research call and backed Miranda's salt substitution project.

Prevention of hypertension

Miranda, who is now director of the public health school at



Dr. Robert Gilman views Puerto Ocopa, Peru.

Photo courtesy of Robert Gilman

University of Sydney, began his project with an "attack" on the salt supply of six participating villages in the Tumbes region of Peru, where hypertension levels are high. "We went through the villages and we replaced salt with the salt substitute," he explained. Importantly, their salt substitute contained 75% sodium chloride and 25% potassium chloride. "We did some 'triangle tests,' experiments where, in a way, we trick people so that we can understand the exact level of additives where they start saying 'this tastes different.'"

The study ran from 2014 to 2017. At its end, participants with hypertension showed a decrease in systolic pressure—the top number in a blood pressure reading—of 1.92 millimeters of mercury (mm Hg). (Generally, hypertension is 130/80 mm Hg or higher.) Participants over age 60 with hypertension saw a 2.17 mm Hg drop, while average declines in systolic pressure was 1.18 mm Hg for participants without hypertension. The changes seem slight, but observational studies suggest a reduction of even 2 mm Hg could lead to about 10% lower risk of death from stroke and 7% lower risk of death from heart disease.

Importantly, new cases of hypertension fell by half among those using the salt substitute. "We showed prevention—that was the major finding of this study," said Gilman.

Community



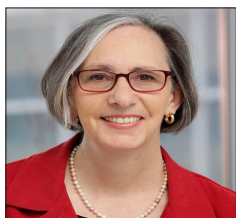
NIH Director Monica Bertagnolli steps down

Dr. Monica Bertagnolli resigned as National Institutes of Health Director, a role she's held since November 2023. (NIH director has been a presidentially appointed role since 1971.) The first surgeon to hold the title, she launched a new primary care clinical research network pilot program called Communities Advancing Research Equity for Health, or CARE for Health, to connect innovative research with routine clinical care in real-world settings. Her previous roles include director of the National Cancer Institute and chief of surgical oncology at the Dana-Farber Brigham Cancer Center. Dr. Matthew J. Memoli, Chief of the Laboratory of Infectious Diseases Clinical Studies Unit, serves as acting NIH director.



Abdool Karim named in Forbes 50 over 50

Quarraisha Abdool Karim has been named in Forbes Magazine's first-ever 50 Women over 50 global list. The list highlights 'women who are building wealth, creating jobs, and proving that age is not an impediment to making a lasting impact on the world.' An expert HIV/AIDS researcher, Abdool Karim has led since 1998 the Southern African AIDS International Training and Research Program (AITRP), which has trained over 600 scientists. She also serves as co-founder and associate director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA).



NCI Director Kimryn Rathmell resigns

Dr. Kimryn Rathmell stepped down as Director of the National Cancer Institute (NCI), a presidentially appointed role. During her tenure, she launched the Early-Onset Cancer Initiative and prioritized reducing inequities in cancer care. Rathmell came to NCI from Vanderbilt University Medical Center where she served as the Hugh Jackson Morgan Chair in Medicine, chair of the Department of Medicine, and physician-in-chief. Dr. Douglas R. Lowy, principal deputy director, serves as Acting Director of NCI.

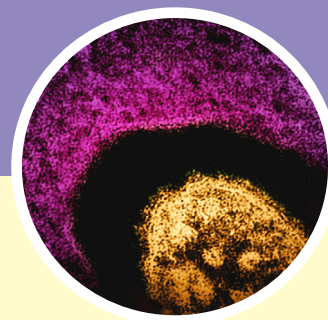


Gardner receives 2025 CUGH mid-career leadership award

The Consortium of Universities for Global Health (CUGH) selected Indiana University's Adrian Gardner, MD, MPH, for the 2025 Dr. Tom Hall-Dr. Nelson Sewankambo Mid-Career Leadership Award for his commitment to global health. Gardner is associate dean for global health at the IU School of Medicine, and executive director of the Academic Model Providing Access to Healthcare (AMPATH) Consortium of 16 academic health centers working in partnership with Moi University and Moi Teaching and Referral Hospital in Kenya and additional new partners in Ghana, Mexico, and Nepal.



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Does undernutrition contribute to measles outbreaks?

Researchers tracked the growth of more than 600 fully vaccinated children in South Africa as an indicator of undernutrition and measured their antibody levels through blood tests. Children who were stunted around age three had, on average, 24% lower measles' antibody levels by age five compared to their non-stunted peers. The findings, published in *Vaccine*, imply that undernutrition may affect the duration of vaccine protection. The University of California at Berkeley-led researchers suggest that combatting child hunger could help prevent spread of measles, a highly contagious infection that can lead to severe complications.

Newly designed proteins could combat venom

Original proteins not found in nature effectively neutralized toxins *in vitro* and also protected mice from lethal neurotoxins, according to a study published in *Nature*. The researchers, led by Susana Vázquez Torres of University of Washington, designed the proteins using computational biology, which uses computer science, statistics, mathematics, algorithms, theoretical models and simulations. The proteins counteract certain components of snake venom found in elapid snakes (which include cobras and mambas) living in the tropics and subtropics. Each year more than 400,000 people die or develop severe complications and lasting disability from snakebite.

TB strains already resistant to new regimen

WHO recently endorsed a new six-month regimen, BPaL/M, for treating tuberculosis (TB), which leads to an estimated 1.25 million annual deaths. A study led by Swiss TPH in collaboration with the National Centre for Tuberculosis and Lung Diseases in Tbilisi, Georgia, found that resistance to the new TB drugs has already developed in at least 27 countries across four continents; and a quarter of these cases involved patient-to-patient transmission, according to a study published in the *New England Journal of Medicine*.

Using nanobody technology against deadly viruses

Nanobodies are tiny antibodies derived from animals; their small size allows them to access areas of viruses and human tissues that larger antibodies cannot. Researchers at the University of Minnesota and the Midwest Antiviral Drug Discovery Center have developed the first nanobody-based inhibitors of the Ebola virus, which causes death in half of patients with known infections. The study, published in *PLOS Pathogens*, suggests that nanobodies represent a major step toward developing treatments for other viruses in the same family, such as the Marburg virus.

New pill shows promise against intestinal worms

A new pill that combines albendazole and ivermectin is safe and more effective than albendazole alone in treating *Trichuris trichiura* and other soil-transmitted helminths, a type of neglected tropical infection that affects 1.5 billion people worldwide. The findings, published in *The Lancet Infectious Diseases*, were derived from a clinical trial conducted by a consortium led by the Barcelona Institute of Global Health. The research team say the new pill is easy to administer, in part because it does not require dose adjustments based on a patient's weight.

Scientists identify the causes of two diseases killing cassava plants

An estimated 800 million people rely on cassava, an edible tuberous plant, for food and income. In recent decades, harvests have been decimated by rapidly spreading diseases. A series of studies published in *Scientific Reports* described the pathogens and the first diagnostic tests for two of these diseases, Cassava Frogskin Disease and Cassava Witches' Broom Disease. Based on this research, crop specialists and national institutions have already begun to deploy tests to certify cassava seeds as disease-free; monitor disease spread and pathogen evolution; identify resistant cassava varieties; and guide targeted chemical control measures.



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FUNDING NEWS

On behalf of the Fogarty International Center at the U.S. National Institutes of Health (NIH), the following funding opportunities, notices and announcements may be of interest to those working in the field of global health research.

Funding Announcement	Deadline	Details
International Research Scientist Development Award (IRSDA) K01 Independent Clinical Trial Not Allowed K01 Independent Clinical Trial Required	March 10, 2025	https://www.fic.nih.gov/Programs/Pages/research-scientists.aspx
Mobile Health (mHealth): Technology and Outcomes in Low and Middle Income Countries R21/R33 Clinical Trial Optional	March 21, 2025	https://www.fic.nih.gov/Programs/Pages/mhealth.aspx
Global Infectious Disease Research Training Program D43 Clinical Trial Optional	August 6, 2025	https://www.fic.nih.gov/Programs/Pages/infectious-disease.aspx

Remembering Global Health Advocate Jimmy Carter

FORMER U.S. PRESIDENT James Earl 'Jimmy' Carter, passed away on December 29, 2024. Carter's legacy as a U.S. president and a Nobel Peace Prize winner for the Camp David Accords and the Guinea Worm Cease-fire is only aided by his reputation as a passionate advocate for public and global health. Through the Carter Center, a non-profit organization he established in 1982, he focused his efforts on eradicating Neglected Tropical Diseases (NTDs) in low-and-middle-income countries by providing funding, health education and simple, low-cost prevention and treatment methods to eliminate several of these preventable diseases. In addition to

his work through the Carter Center, he championed the WHO African Programme for Onchocerciasis Control and was involved in several other WHO programs and task forces aimed at eliminating NTDs.

“People in resource-poor countries have the same hopes, work ethic, and dreams for their children as you and I; they are just as decent and intelligent. When they receive the right tools and training, they will implement the solutions themselves.”

In Ghana, Former President Jimmy Carter speaks to children outside Savelugu Hospital and observes health workers providing care.



Photos courtesy of the Carter Center



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