

FOCUS

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NATIONAL INSTITUTES OF HEALTH • DEPARTMENT OF HEALTH AND HUMAN SERVICES

Global Health Matters

FOGARTY INTERNATIONAL CENTER



*A participant in the research
of Columbia University's
Dr. Ayesha Sania.*

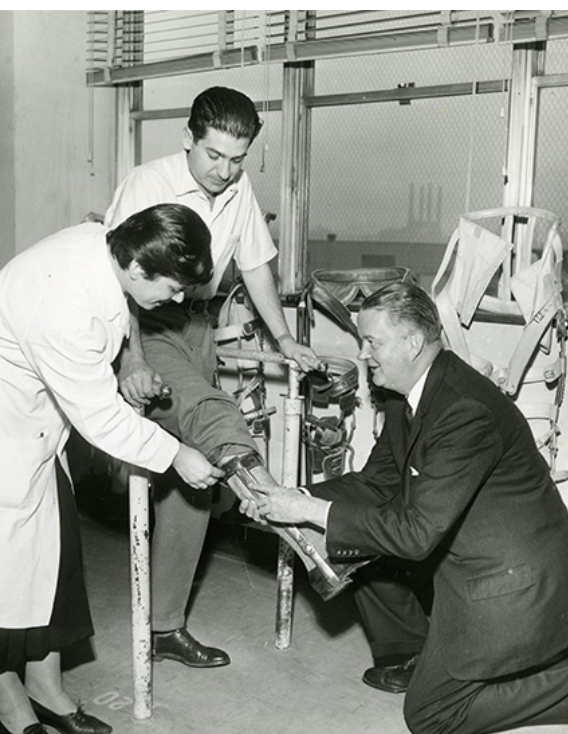


TELLING OUR STORY

How America and the World Benefits

FROM GLOBAL HEALTH RESEARCH COLLABORATION

Fogarty has supported over 8,500 scientists from 132 countries, many of whom now hold senior positions in academia, government, and public health institutions around the world.



IN HIS 1959 NEW YORK TIMES ARTICLE, “The Universal Republic,” Dr. Howard A. Rusk praised Congressman John E. Fogarty’s “Health for Peace” bill, which would create within NIH a new “National Institute of International Medical Research” with an annual appropriation of \$50 million. Writing during the Cold War, Rusk argued that science could serve as neutral ground for collaboration across ideological divides and that Fogarty’s legislation exemplified this principle. By supporting medical research abroad, the bill recognized that disease knows no borders and that American health and security are strengthened through global engagement. More than six decades later, that insight remains profoundly relevant.

Several new Fogarty resources illustrate why global health research is not only an act of scientific solidarity but also a strategic investment in the health and well-being of the

American public. These online materials offer updated evidence, data, and case studies that demonstrate how Fogarty’s work and NIH’s global research enterprise more broadly support U.S. health priorities, strengthen the domestic research ecosystem, and enhance our readiness for emerging health threats. As the Acting Director of the Fogarty International Center, I’m pleased to share them with you.

The web page, “Fogarty’s Impact in the United States,” describes how our international collaborations directly benefit Americans. Benefits include developing low-cost diagnostics for early cancer detection, testing interventions to prevent Alzheimer’s disease in highest-risk populations abroad, and bringing a novel treatment for a life-threatening pediatric condition developed in Africa back to the United States. The page reports metrics from fiscal year 2024 showing that 77% of

Fogarty's 488 grants involved U.S. individuals or institutions. These awards supported research and training programs that contributed to nearly 1,400 publications and strengthened global research capacity in ways that amplify the U.S. scientific enterprise.

Another new resource, "Fogarty's Impact: Facts, Numbers, and Stories," offers a more comprehensive look at the Center's contributions over time. Since its founding in 1968, Fogarty has supported over 8,500 scientists from 132 countries, many of whom now hold senior positions in academia, government, and public health institutions around the world.

Through sustained investment in people and partnerships, we have helped build the infrastructure for global discovery science and enabled U.S. scientists and institutions to remain at the cutting edge of international research. To further support communication efforts, we also released five new two-page fact sheets, each summarizing a key aspect of Fogarty's impact. These printable documents highlight the Center's role in researching non-communicable diseases, addressing childhood obesity in the Americas, using technology and innovation to improve health care, and, importantly, advancing bioethics research capacity. They offer concise, non-technical language supported by visuals and data.

An additional resource broadens the lens to the full NIH enterprise. "How Global Scientific Advances Can Benefit the American Public" provides examples across the

NIH that highlight how global research collaborations improve health outcomes in the U.S. The page describes how studies of diseases like cervical cancer, malaria, and COVID-19, conducted through international partnerships, have produced tools, data, and insights that directly informed U.S. prevention and treatment strategies. These collaborations have also supported drug discovery, improved diagnostics, and developed scalable care models that benefit underserved populations in America.

Together, these web resources and fact sheets underscore a core principle of Fogarty's work: The health of Americans is inseparable from the health of the world. This is not a new concept, but it has become more salient in recent years. From global pandemics to chronic disease trends and weather-related health threats, many of the most pressing challenges we face today demand scientific cooperation that crosses national borders.

As all government programs are being scrutinized to increase their efficiency and impact, it is important to articulate clearly how global engagement serves national interests. I encourage our community to review these new web pages, share them, and reflect on what they reveal: that the United States benefits scientifically, economically, and in terms of public health when it leads in global health research.

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The Fogarty International Center is dedicated to advancing the mission of the National Institutes of Health by supporting and facilitating global health research conducted by U.S. and international investigators, building partnerships between health research institutions in the United States and abroad, and training the next generation of scientists to address global health needs.

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profile

Dr. Courtney Choy

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2019-2020 & 2021-2022

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Dr. Courtney Choy works with a community health worker in Samoa.

BUILDING HEALTH INFRASTRUCTURE TO PREVENT CHILDHOOD OBESITY AND RELATED DISEASES IN SAMOA

For families in the Pacific region, cardiometabolic diseases, such as diabetes, diseases of the heart, kidneys and liver, and stroke, are the leading

cause of premature and preventable deaths. Dr. Courtney Choy, a two-time Fogarty Fellow and postdoctoral fellow at the Yale School of Public Health, studies chronic diseases including obesity, diabetes, cancer and hypertension in Samoa, a small Pacific Island nation with a rich culture

and a high prevalence of chronic diseases. She seeks to understand both risk factors and protective factors to help prevent obesity and related cardiometabolic conditions.

For 10 years, Choy has been engaged with the Ola Tuputupua'e ("Growing Up") study. "The project has

evolved into a longitudinal observational cohort that is uniquely situated to understand child growth and development." She follows a cohort made up of Samoan children and their primary caregivers, who entered the study in 2015 at ages 2 to 4 years old, and studies what healthy growth and development look like for children, what factors are associated with good and with poor health, and how the health of families is changing. "How can we best make sure that children are well-positioned to be at the most minimal risk of developing obesity, which is connected very much to other chronic diseases and conditions later in the life course?"

Choy has seen these children enter school and start to become their own people, and, as she learns more about their lives, she's begun to think about ways to better support their health and well-being over time. "As scientists, we tend to focus on the things putting them at risk, yet they are still

very resilient.” She hopes that eventually her team will be able to track health across the life course and across generations, and that her work will lead to better programs and interventions.

Current programs and interventions are not enough and what is needed is not only research, but a translation of the data into action and solutions that bridge services, not only in public health, but across education, judicial systems, commerce, industry, agriculture, communication, and information technology, Choy says. “I love the work that I do because every day we’re always thinking not only about public health but also sharing knowledge with each other so that there can be greater capacity to address the high and rising burden of chronic diseases. That’s a big part of what Fogarty taught me.”



Dr. Courtney Choy assists the community in measuring children for her study.

Choy says that her fellowship with Fogarty led to her work being highlighted in the community, on the radio and in the local newspaper, as well as in publications in several



Student trainees weigh and measure children for Dr. Courtney Choy’s study.

peer-reviewed journals. She’s given presentations at international meetings and received an NIH “Pathway to Independence” award. Her work has been used to improve school nutrition and health promotion in Samoa, to better understand the burden of disease, to identify opportunities to intervene, and to encourage healthier lifestyles for children. The fellowship was tailored to her specific career interests and helped her build networks and collaborations to achieve real impact. The fellowship also gave her time for development as an individual and public health professional, with an exceptional mentorship team, strong community partnerships and pathways to move her work forward. “I think those individuals who have that passion, drive, and are willing to listen, learn, and work collaboratively have the best experiences as a Fogarty fellow. It’s that open mindset that allows someone to also have an open heart and bring in not only their lived experiences and knowledge but also be able to engage in a way that creates this beautiful synergy of work.”

While Choy conducts research in the Blue Pacific Continent, a heavy

burden of chronic disease also exists in the U.S. and worldwide. “We’ve all seen how a child affected by obesity and these related chronic diseases may have a harder time paying attention in school, their energy level changes to the point where it impacts their activity, engagement, and even their social skills.” Choy believes that we have a responsibility to do better and serve our communities by working together to sustain programs that address the needs of different communities in the U.S. and worldwide.

“That’s part of what makes America great. We’ve always risen to the challenge of doing better than what’s been done before.”

**“ HOW CAN WE
BEST MAKE SURE
THAT CHILDREN ARE
WELL-POSITIONED
TO BE AT THE MOST
MINIMAL RISK OF
DEVELOPING OBESITY?”**

***Courtney Choy, NCD Epidemiologist
working with Asian & Pacific
communities.***





FOCUS | CHILDHOOD HEALTH

COLLABORATING TO FIND SOLUTIONS FOR

CHILDHOOD OBESITY

AND RELATED HEALTH ISSUES

OUR WORLD IS EXPERIENCING A CRISIS:
CHILDHOOD OBESITY IS INCREASING AT
ALARMING RATES ACROSS THE GLOBE

RISING RATES OF CHILDHOOD OBESITY MATTER BECAUSE IT AFFECTS BOTH CURRENT AND LIFELONG HEALTH OUTCOMES.

Children with obesity are more likely than their normal weight peers to develop type 2 diabetes, heart disease, depression and other non-communicable diseases. And, as overweight children mature into adults, their risk of chronic illness (and premature death) also exceeds that of peers.

Fogarty funds research projects in the U.S. and abroad that aim to produce evidence-based interventions and develop innovative strategies to stem this tide of rising rates. Opportunities to learn through collaboration have already produced positive results. The U.S. Fogarty's Global Health Reciprocal Innovation project implemented Colombia's Open Streets program (Ciclovía), which promotes physical activity, in New Orleans, Atlanta, Los Angeles

and the District of Columbia. And Fogarty's Cross-Border Collaborative Awards on Childhood Obesity have provided training and mentorship to over 20 junior researchers, mostly in the U.S.

Read about two Fogarty-supported researchers—Dr. Ayesha Sania of Columbia University and Dr. Abby King of Stanford University—whose collaborative work aims to elucidate and prevent childhood obesity and related health issues.

SLEEP HEALTH STUDY IN BANGLADESH PROVIDES A NUANCED UNDERSTANDING OF CHILDHOOD OBESITY

BANGLADESH, A DENSELY POPULATED, LOWER-MIDDLE-INCOME COUNTRY IN SOUTH ASIA, IS HOME TO APPROXIMATELY 170 MILLION PEOPLE. “When we think about the children of Bangladesh, we usually think of stunting,” says Dr. Ayesha Sania, an assistant professor at Columbia University Irving Medical Center. (Stunting is impaired childhood growth and development due to poor nutrition.) “Yet Bangladesh has a dual burden of malnutrition—this means a high rate of stunting (though this is decreasing)—while obesity among children is increasing at a concerning pace.”

Sania is examining sleep health as it relates to cognitive development and obesity in Bangladeshi children for her Fogarty International Research Scientist Development Award project. She notes that, between 2003 and 2015, childhood obesity in Bangladesh more than doubled from 3.6% to 7.9%,

while recent reports indicate that approximately 14% of children between ages 4 and 7 are obese. Similar striking shifts over relatively short periods can be seen in many low- and middle-income countries (LMICs).

“These changes reflect the broader lifestyle transitions happening in many LMICs,” says Sania.

Urgency required

As swift urbanization occurs in many LMICs, socioeconomic differences widen. “Urban families often live in small, densely packed apartments with limited or no space for children to play or be physically active,” says Sania. Meanwhile, processed foods, fast food, and high-calorie snacks increasingly replace home-cooked meals. Kids are spending more time on screens, which not only reduces opportunities for physical activity but also interferes with sleep. “Meta-analyses have shown that short sleep duration is associated with



One of the child participants in Dr Sania's sleep health study in Bangladesh.

Courtesy of Ayesha Sania

increased obesity risk in children.”

Sania explains that shorter sleep duration disturbs the metabolic hormones—such as leptin, insulin and cortisol—as well as the growth hormones, and these then disrupt metabolic regulation resulting in higher obesity rates. “We also hypothesize a bidirectional relationship between executive function and obesity,” says Sania. (Executive function, which includes self-control, cognitive flexibility, and working



Child study participant sleeps wearing an actigraphy watch to detect and record patterns in his sleep-wake cycle.

memory, begins to emerge around age 3 and then rapidly develops through age 6.) On the one hand, a child cannot stop eating due to poor executive function (poor impulse control), while, on the other hand, elevated hormones induced by obesity are modifying brain activity resulting in poor executive function.

“This complex interplay between sleep, executive function, and obesity could help us understand childhood obesity in a more nuanced way,” says Sania.

Childhood sleep deficits

Preliminary data for Sania’s Fogarty project show that roughly 40% of preschool children in Bangladesh slept less than what WHO recommends for the age group. Across all LMICs, emerging data highlight similar trends favoring later bedtimes and shorter nighttime sleep for children. “It’s a big problem, yet also a big opportunity where we can make a change,” says Sania. Research in high-income settings suggests that several features influence and predict sleep, including individual factors (such as screen time

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and physical activity), interpersonal factors (including maternal depression and parental stress), and family and social factors (socioeconomic status and household crowding). “However, we still don’t fully understand how these factors play out in LMICs where the context is quite different.”

Her study of children in Bangladesh relies on wearable devices (actigraphy watches) to collect sleep data that “will deepen our understanding of the relationship between sleep health (and other lifestyle factors including physical activity and diet), executive function, and obesity risk,” says Sania. Her team also plans to adapt and evaluate a sleep promotion intervention tailored to the local context. Overall, she hopes to gain valuable knowledge about preschool children in Bangladesh, while creating a pipeline of knowledge on which the scientific community can build.

As of May, Sania’s team had enrolled 256 of its 300 target participants and processed 140 actigraphy readouts. In 2024 the team faced delays due to political instability, yet things are running smoothly now primarily thanks to her Bangladesh mentor, Dr. Shams El Arifeen, and his team.

Benefits for Americans

When we sleep, where we sleep, and how we sleep may be cultural, but the biological aspects of sleep health, including the relationship between sleep, executive function, and obesity risk, are universal, says Sania. Insights gained from her study will be “broadly applicable, especially for children in similar sociocultural contexts, such as

“I CARRY LESSONS FROM EVERY CONTEXT INTO MY CURRENT WORK, AND THAT MOSAIC OF EXPERIENCES INFORMS AND INSPIRES ME, ENABLING ME TO SUPPORT POPULATIONS FACING SIMILAR CHALLENGES ANYWHERE ON THE GLOBE.”

those in South Asia and even in the U.S.” Children living in poor neighborhoods and small apartments, whether in New York or Dhaka, lead similar lives, she adds. “Many solutions developed in one context have been successfully adapted to others. For instance, one of my mentors has brought an intervention developed in LMICs to the U.S.”

“Science often transcends borders,” says Sania, whose research spans the U.S., South Africa, Tanzania, and Bangladesh. “If the intervention proves feasible, then we hope to study its impact in a larger randomized trial.”

A family begins the enrollment process for Dr. Sania’s sleep health study.



Courtesy of Ayesha Sania

OUR VOICE HELPS CITIZEN SCIENTISTS— AGES 7 TO 100—ADDRESS CHILDHOOD HEALTH

Childhood obesity is familiar research territory for Abby King, PhD, a professor of epidemiology and population health at Stanford Medicine. How researchers interrogate common health issues is crucial. “A lot of my research (I’m a clinical psychologist by training) started out on the very individual and group level of intervention, but then I got really frustrated because treating people is not what I wanted to do—I wanted to prevent what was going on to begin with!”

She developed a socioecological framework as her guiding principle when designing interventions. This approach, which considers both social and ecological factors while examining the processes that influence them, also informed her work as scientific co-chair of the Fogarty-led special issue in *Obesity Reviews*, *Childhood Obesity Prevention Across Borders: The Promise of US-Latin American Research Collaboration*. In that publication, she fused research done in Latin America with research done in the U.S.

These days King is most passionate about Our Voice (Nuestra Voz), an initiative that “turns everybody into citizen scientists who then collect meaningful health-related data for their own communities.” To guide novices through the Our Voice process, King’s lab developed the Discovery Tool, a multilingual app that is currently “in 14 languages and counting.”

Discovering empowerment

Anyone can learn the app in just minutes and use it to identify and understand the barriers to healthy behavior in their neighborhood, school, workplace or wherever they wish to study, says King. Take, for example, a group of neighbors who want to examine barriers to accessing healthier foods, including how easy or difficult it is to walk in their community. Using the Discovery Tool, these citizen scientists would first collect data and then interpret this information together. Next, they’d prioritize issues, and, in a facilitated process, present their research and possible solutions to “community decision-makers and policymakers—the people who really hold the reins of change.”

“We’ve had citizen scientists as



Student works with the Discovery tool.

young as 7 years old all the way up to 100,” says King. “Some of our best work in Mexico and Colombia focuses on intergenerational citizen scientists—abuelos and abuelas walking around with their grandchildren, each seeing things differently yet sharing their differences.”

Our Voice performs equally well in the U.S.—elementary school students in Daly City, California, who wanted

“We’ve had citizen scientists as young as 7 years old all the way up to 100.”

An Our Voice citizen scientist decides which issues to prioritize for a presentation.





Students in Daly City, California, present their work that was part of the Our Voice initiative to the city council.

to know, *How can we make it easier to walk or bike to school?*, turned to the Discovery Tool to collect data on dangerous and difficult conditions preventing these healthy activities. Next, the children, who were backed by their county's Department of Education and other community partners, discussed and prioritized issues. Finally, they presented their work to the city council, made suggestions and asked for help. "Now, if it had been a scientist, people would have applauded politely," says King. Instead, the council responded enthusiastically.

"You need to grab people's hearts and kids can do that."

Scientific connection

"What I bring to Our Voice is the inclusion of artificial intelligence (AI) into the process," says Eduardo de la Vega, a Fogarty-funded post-doc in Abby's lab. Once participants reach the sharing and discussion phase of

the process, they can use the Stanford version of chatGPT to help form solutions, he explains. For example, a group of teens in El Pozón, an impoverished area in Cartagena, Colombia, wanted to fix road- and building-related holes that had become pools of stagnant water attracting dengue-carrying mosquitoes. Iterating their proposed solution of filling the holes with cement or sand, the AI steered them toward the use of a cement lid as a temporary solution that would not interfere with future construction plans. The AI capabilities of Photoshop also generated new images from one of the teen's existing photos to reveal how the repaired holes might look in the future. "By interacting with AI, citizen scientists improve their solutions and make them more feasible."

Community engagement efforts also benefitted from de la Vega's attention. "In many places you cannot just invite major players or those holding formal offices to stakeholder meetings." To extend the political reach of citizen scientists, he incorporated social network analysis into the process to help identify those capable of mobilizing change. "Other relevant systems or people, such as NGOs working in the area or community leaders, may be doing similar work. If you don't do a rigorous search, you may miss the very people who are most likely to make solutions happen."

Global Influences

Sadly, childhood obesity is a crisis that trespasses all borders. Humans weren't built for so much abundance, but for hunting food, seeking food, burning calories, says King.

As an engineer-psychologist, de la Vega also emphasizes the impact of the environment on human

development. "If you improve the environment, you don't have to try to change or heal the individual so much—improving the environment is a population-level intervention." Given that childhood obesity is a shared, global problem, international collaboration is appropriate as it leads to shared knowledge, he says, adding that, when focusing on a universal issue, U.S. research dollars go farthest in more affordable countries.

"What you do with \$1 in the U.S., you can do 10 times in Colombia." How Latino populations like to solve problems is similar whether they live in the U.S. or in Latin America, he notes. "A lot of knowledge from Colombia about culturally sensitive approaches to improving health for Latino population can translate to the U.S."

American voices

King's lab has now completed Our Voice projects in more than 25 countries plus "18 U.S. states and counting." Community-engagement doesn't just empower residents, it empowers scientists, she says. "With participatory research you see the community impacts immediately." Effects are also lasting. A U.S. study found that end-of-year walking/biking to school was significantly higher when schools added Our Voice to a standard Safe-Routes-to-School curriculum (compared to when schools did not).

Recently, King and her colleagues spoke to West Virginia transit officials about helping them make statewide changes intended to increase children's activity levels and so improve overall health. "Our voice is remote and accessible," says King. "To work with children is just unbelievable—they're so excited to have a voice."

"IF YOU DON'T DO A RIGOROUS SEARCH, YOU MAY MISS THE VERY PEOPLE WHO ARE MOST LIKELY TO MAKE SOLUTIONS HAPPEN."

Q&A

Fogarty past & present



Joshua Rosenthal, a senior scientist in Fogarty's Division of Epidemiology and Population Studies, retired on March 31. After completing a PhD in Botany at the University of California, Berkeley, he conducted his post-doctoral research in Entomology and then joined Fogarty as an AAAS Science and Diplomacy Fellow in 1994. Over the course of his career at Fogarty, he served as a program officer, deputy director and interim director of the Division of International Training and Research, and interim deputy director of the Center.

What are you most proud of about your time at Fogarty?

After an exciting 30 years that's difficult to say. Because Fogarty is such a creative place full of dedicated people willing to take risks, I've had the opportunity to do lots of things—biodiversity-based drug discovery, ecology of infectious diseases, international training and research in environmental health, household air pollution, implementation science, and climate health. In terms of scientific impact, perhaps our creation of the Ecology and Evolution of Infectious Diseases program with the National Science Foundation and several NIH institutes has been among the most transformative, and I am thrilled that this 25 year old partnership with multiple agencies has continued to this day.

How did you get involved with the GeoHealth hubs?

The Environmental Training Research and Environmental Occupational Health Research program was a very traditional toxicology and epidemiology-focused program doing valuable work training scientists in

LMICs. But the projects were small and at the end of a grant, these individually trained scientists were left disconnected in disparate places around the world. It wasn't clear that we'd produced any institutional impact. Christine Jessup and I wanted to develop a program that was better networked, more institutionally based and more transdisciplinary. We came up with this notion of hubs that would link to multiple institutions in the U.S. and abroad. To build-out each hub, we gave a research grant and a training grant in parallel within a networked environment. It's still too early to know, but some of those projects have already generated follow-on investments from Canadian and European organizations and other parts of the NIH, so I hope the science and the capacity that's been created will have longstanding impact.

What is the connection between American health and global health?

Most people in the U.S. don't pay attention to health conditions outside the country. Occasionally, epidemics like those of HIV/AIDS, Ebola or

COVID raise awareness, but we tend to think of those problems as "overseas," until they threaten us. But today we are so connected that every health challenge and discovery in the developing world has either direct or indirect applications to health in the U.S., whether they're related to infectious or chronic diseases, or environmental in origin.

The U.S. is still the strongest country in the world scientifically, yet it's necessary to work with those who have expertise and deep knowledge about topics and environments that are less familiar here. These partnerships expand our own capacity to deal with problems that are here today and/or will be in the future. And when our partners are better scientists we are better as well.

For example, most people have forgotten that malaria was once endemic in the U.S., and now, once again, we have transmission of both malaria and dengue in the U.S. Because we have spent years investing in the study of malaria and dengue overseas, we've learned a lot about the biology of those diseases and how to manage them. The chance that they'll be able to embed themselves and become major health problems here are much lower because we understand how to reduce exposures, how to control the vectors, how to treat the diseases or vaccinate against them—all due to the extensive, painstaking work we've done overseas.

Smartphone-sized CRISPR-based device uses blood and saliva to rapidly diagnose TB

An estimated 10 million people, including more than a million children, develop tuberculosis each year. Roughly half of all infected children go undiagnosed or unreported. Several reasons contribute to the high number of untested and untreated patients.

To test for tuberculosis (TB), the World Health Organization recommends either an interferon-gamma release assay (IGRA, a type of blood test) or a tuberculin skin test (TST), which requires a shallow injection beneath the skin. IGRA requires specialized facilities and trained staff, consequently the skin test is more commonly used in low resource settings. Yet, there's a major drawback to the skin test; results are read two to three days later, so a patient must return to a healthcare provider or clinic, which in low resource settings may be far from home and difficult to access.

One other reason for the high numbers of undiagnosed children is “the IGRA and TST can only confirm that a patient has been infected with *Mtb*, they cannot distinguish latent TB infection from active TB,” says Dr. Tony Hu, a distinguished professor of biochemistry and molecular biology, biomedical engineering, and microbiology at Tulane University. (*Mtb* or *mycobacterium tuberculosis* is a species of bacteria that causes tuberculosis; a latent TB infection means a person lacks symptoms but has a small number of living, inactive germs in their body, while active TB means a person has both symptoms and many active germs in their body.) High numbers of undiagnosed cases, then,

are also a result of the current, limited active TB testing capabilities, which require “expensive, bulky equipment not suitable for point-of-care testing,” explains Hu.

To remedy this, Hu and his team developed a new assay that specifically and quickly tests for active disease, diagnosing patients with either symptomatic or asymptomatic TB. Its reagents, based on the CRISPR DNA-editing technology, can identify *Mtb* DNA in either sputum (mucus produced in the lungs and airways that may be coughed up), blood or saliva samples. Use of blood and saliva is key: Children (and many people living with HIV) often cannot produce sputum, so saliva or blood is much easier to obtain. The smartphone-sized, battery-powered device is also economical, costing less than \$800, with each assay totaling less than \$3. Most importantly, it delivers accurate TB diagnoses in under an hour.

For all these reasons, Hu and his team are hopeful that their TB testing device will contribute to improved rates of diagnosis across the globe. Their research, published in *Science Translational Medicine*, was supported by the National Institute of Allergy and Infectious Diseases, the National Institute of Neurological Disorders and Stroke, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, and other funders.

Accuracy & availability

A test's accuracy is determined by its sensitivity and specificity.



Dr. Tony Hu in his lab at Tulane University

Sensitivity refers to a diagnostic test's ability to correctly identify patients with a disease, while specificity refers to a test's ability to identify people without the disease. Using saliva samples from 15 TB positive and 15 TB negative patients, the test (known as LIT-TB) achieved 73% sensitivity and 100% specificity. Overall, sputum testing had perfect sensitivity (100%) and 90% specificity. “LIT-TB clinical testing had slightly lower sensitivity using saliva and blood compared to sputum, but both non-sputum sample types displayed higher specificity than sputum,” explained Hu. “The device performed similarly in saliva, blood, and sputum when combining sensitivity and specificity metrics.” The team is working to improve sensitivity related to saliva and blood samples, given how important these options are when testing children and patients living with HIV.

Though the new test is not yet commercially available, “Tulane is negotiating with some industry partners to manufacture and bring the LIT-TB test to market, including IntelliGenome,” says Hu. “Our point-of-care device is the next step in addressing TB diagnostic needs,” says Hu. Going forward, his team is pursuing additional CRISPR-based assays and clinical tools.

Photo courtesy of Tulane University

Shattering consequences of tuberculous meningitis described in new study

An estimated 10 million people, including more than a million children, develop tuberculosis each year. Young children, who have immature immune systems, are more likely to develop disseminated disease. Disseminated TB results when the immune system cannot control the spread of TB-causing bacteria and then cannot prevent the bacteria from growing in places like the central nervous system (in the case of TB meningitis).

Deadly when untreated, TB meningitis often causes death or disability even when treated. A Fogarty-funded study published in *The Lancet Global Health* provides first-ever estimates of TB meningitis incidence, morbidity, and mortality in children.

Understudied scourge

“Working as a clinician in a high TB burden setting and seeing the devastating effects of TB meningitis on children and their families motivated me to do our study,” says Dr. Karen du Preez of South Africa’s Desmond Tutu Tuberculosis Centre, Stellenbosch University. She and her team created a mathematical model and analyzed the literature to assess the number of children up to age 14 affected by TB meningitis in 2019. They estimate 24,000 children developed the disease, most of them younger than 5 years old, while approximately half were diagnosed and treated. Among these children, TB meningitis resulted in 16,100 deaths in 2019 and had a case-fatality rate of 67%, higher than the estimated

19% overall tuberculosis mortality in children that year.

Identification, diagnosis and treatment of the disease can be thorny, says Dr. Alexander Kay, who oversees clinical care at Baylor College of Medicine’s TB Centre of Excellence in Mbabane, Eswatini. “The initial symptoms of TB meningitis, which include fever, headache, and nausea or vomiting, overlap with common childhood illnesses.” Knowledge of a child’s exposure to TB would be helpful, but busy clinics are not always capable of recording patient histories. If a clinician suspects TB meningitis, a diagnosis typically requires cerebrospinal fluid tests and brain imaging, which are unavailable in many settings. For these reasons, children frequently become lost to care before receiving a diagnosis. Among those diagnosed, the duration of therapy is long plus children with TB meningitis often require neurosurgical care to prevent a build-up of fluid in the brain. Unable to swallow medication by mouth, children sometimes require the placement of nasogastric tubes. “In children who survive, the degree of disability can be profound.”

“TB meningitis can impact anyone, but mostly it impacts those without a voice,” says Kay, who did not contribute to the du Preez study. This includes “infants who have yet to speak” and those “without access to the care needed to prevent or treat TB meningitis,” particularly people with



Dr. Karen du Preez

suppressed immune systems (due to medication or diseases like HIV).

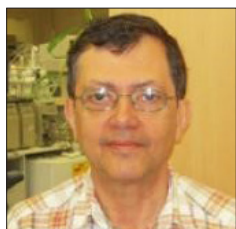
Eliminate TB

Kay believes awareness of this study is crucial for clinicians. If they understood how many children are affected and that this is a “fatal condition without treatment, it may spur them to initiate more diagnostic evaluations or start treatment early while working towards a definitive diagnosis.” Early detection can be achieved by robust case tracing programs to evaluate everyone with a recent TB exposure. “And ensuring that the Bacillus Calmette–Guérin (BCG) vaccine is given to all eligible newborns in countries where this vaccine is recommended can help reduce their risk of TB meningitis.”

Though most children impacted by TB meningitis are born in Africa or South-East Asia, Kay says the study findings also benefit American children. “Every year there are U.S. families whose children die or have lifelong disability resulting from this condition. Unless we eliminate TB, children will continue to suffer from TB meningitis. And until TB is eliminated, investing in research to improve diagnosis and treatment is absolutely needed to avoid devastating outcomes.”

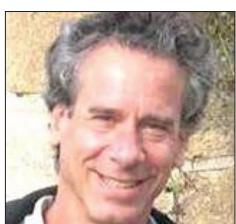
“TB MENINGITIS CAN IMPACT ANYONE, BUT MOSTLY IT IMPACTS THOSE WITHOUT A VOICE.”

Community



NAS welcomes NIAID's Jose Ribeiro and David Lawrence Sacks

The National Academy of Sciences (NAS) has selected two National Institutes of Health scientists for membership in recognition of their achievements in original research. José M.C. Ribeiro, MD, PhD, is chief, vector biology section, National Institutes of Allergy and Infectious Diseases (NIAID), whose research explores the biochemical and pharmacological diversity found in the salivary glands of blood feeding insects and ticks.



David Lawrence Sacks, PhD, is senior staff fellow, laboratory of parasitic diseases, NIAID, whose research focuses on the immunology and cell biology of leishmanial infections and the biology of *Leishmania* parasites within hosts and sand-fly vectors. This research may have indirect relevance to both tuberculosis and malaria. Previously, he studied immune suppression in African trypanosomiasis (sleeping sickness).



Reed Tuckson receives 2025 Elizabeth Fries Health Education Award

Reed V. Tuckson, MD, FACP, received the 2025 Elizabeth Fries Health Education Award, which is managed by the CDC Foundation and recognizes a leader who makes significant contributions to health education and promotion through program development, policy, advocacy or research. He is Managing Director of Tuckson Health Connections, LLC, an organization dedicated to promoting health and preventing disease through data analytics, care delivery, telehealth and biotech.



Global health experts rank among TIME 100 most influential people

Time Magazine's 100 Most Influential People of 2025 list includes several global health experts. Among those honored are Dr. Christian Happi, a Fogarty grantee who helped build the African Centre of Excellence for Genomics of Infectious Diseases to educate future generations of African scientists. His use of genomics technologies for early diagnosis and confirmation of Ebola virus disease helped contain the spread of disease in Nigeria during the Ebola epidemic of 2013-2016.



Wesley Sundquist, PhD, and Tomas Cihlar, PhD, a biochemist at University of Utah and a virologist at biopharmaceutical Gilead, respectively, were also named by *Time*. They transformed an antiviral treatment, lenacapavir, into a twice-a-year therapy to prevent HIV infection. Sundquist laid the groundwork by studying an HIV protein, the capsid, which creates a protective shell around the virus' genome. After visiting his lab, Cihlar worked on these discoveries to extend the effect of the drug over six months.



Another expert on *Time*'s list is Ismahane Elouafi, PhD, former chief scientist at the U.N. Food and Agriculture Organization and now Executive Managing Director of CGIAR, a global agricultural research partnership. Her work in sub-Saharan Africa and South Asia helps millions of farmers grow stronger crops and restore damaged soil, which helps make the global food supply more reliable and protects natural resources, thus improving human health.



NYU scientists link heart disease deaths to chemicals in plastics

Daily exposure to phthalates, chemicals used to make plastic items, could be linked to more than 356,000 global deaths from heart disease in 2018 alone, a new analysis from NYU Langone Health / NYU Grossman School of Medicine shows. Phthalates are found in cosmetics, detergents, solvents, bug repellants and other products; when broken down into microscopic particles and ingested, they increase the risk of various conditions, including obesity, diabetes and cancer. These chemicals are in widespread use globally, yet the Middle East, South Asia, East Asia, and the Pacific bear about three-fourths of total deaths. In their analysis, the authors estimated that exposure to one type of phthalate, Di(2-ethylhexyl) phthalate or DEHP, contributed to 356,238 deaths, which is more than 13% of all global deaths from heart disease in 2018 among men and women ages 55 through 64. The National Institute of Environmental Health Sciences and the National Institute of Diabetes and Digestive and Kidney Diseases funded this work.



Intervention reduces harmful emissions from brick kilns in Bangladesh

Researchers at Boston University School of Public Health, Stanford University and other institutes developed a strategy for reducing emissions caused by brick manufacturing, an industry that is central to economies in South Asia. Brick manufacturing releases carbon dioxide (CO₂), fine particulate matter (PM_{2.5}), and other contaminants into the environment, thus posing a threat to human health in many low- and middle-income countries. The intervention, which consists of educational resources, training, and technical support, promotes changes that prioritize practicality and profit. Introduced during the 2022-2023 season, the intervention was adopted by 65% of kiln owners and was associated with a 23% reduction in energy use and a 20% reduction in CO₂ and PM_{2.5} emissions alongside substantial savings in coal costs and higher-quality bricks. Returning the following season, the researchers found adoption had not only sustained but increased. Their findings are published in *Science*.



New anti-parasitic effectively treats lymphatic filariasis

A clinical trial in Cote d'Ivoire, led by researchers at Washington University School of Medicine in St. Louis, showed that moxidectin—a new, anti-parasitic drug approved to treat river blindness—is more effective against lymphatic filariasis (elephantiasis) than the drugs currently in use. Annually, millions of individuals worldwide are infected by the parasitic worms that cause lymphatic filariasis, a disease that leads to severe swelling and deformities of the limbs and genitals. The researchers, who collaborated with the Centre Suisse de Recherches Scientifique, believe fewer rounds of moxidectin will be needed to treat infections (compared to currently used drugs), so its use could accelerate elimination of lymphatic filariasis. Findings of the study, funded by The Bill & Melinda Gates Foundation, are published in *The Lancet Infectious Diseases*.



Global Virus Network seeks to tackle emerging virus threats

The 2025 Global Virus Network (GVN) Regional Meeting: Caribbean and Latin America convened scientists, public health experts and government officials in Kingston, Jamaica for a two-day summit focused on collaboration to bolster viral surveillance, diagnostics, vaccine research and pandemic preparedness across Latin America and the Caribbean. Former Fogarty Advisory Board Member Dr. Sten Vermund, who is also GVN chief medical officer, discussed vaccinology in his presentation. Meanwhile, longtime NIH Grantee Dr. Gene Morse, a SUNY Distinguished Professor at the University of Buffalo, praised Fogarty's Global Infectious Disease Research Training program and called for more support from industry and foundations for capacity-building programs in low- and middle- income countries.



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FUNDINGNEWS

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
Global Infectious Disease Research Training Program D43 Clinical Trial Optional	August 6, 2025	https://go.nih.gov/Gqp2oeI
HIV-associated Non-Communicable Diseases Research at Low- and Middle- Income Country Institutions R21 Clinical Trial Optional	December 8, 2025	https://go.nih.gov/3jZIVL8
Interventions for Stigma Reduction to Improve HIV/AIDS Prevention, Treatment and Care in Low- and Middle- Income Countries R01 Clinical Trial Optional	December 22, 2025	https://go.nih.gov/9yc65e2

A key period in Fogarty's history burnished the reputation of the NIH... and the U.S.

When World War II ended, the nations of Europe were devastated, their populations starving. In 1948, the U.S. implemented the European Recovery Program—popularly known as the “Marshall Plan”—to provide financial and material assistance in Western Europe. A decade later, NIH launched its own version of the Marshall Plan, the International Research Fellowship (IRF) program, to strengthen European capacity to conduct biomedical research. In 1968, management of this program was transferred to the newly established Fogarty International Center.

IRF aimed to develop a cadre of foreign investigators who trained at American universities and NIH before returning to Europe's academic centers.

The program's American mentors included renowned scientists and future Nobel laureates Drs. Christian Anfinsen, Julius Axelrod, David Baltimore, Baruj Benacerraf, Arthur Kornberg, and Severo Ochoa. Following the program, most IRF fellows pursued careers in research, teaching or administration in Europe, often maintaining close ties with their U.S. colleagues. Over three decades, IRF trained more than 2,500 scientists from 55 countries.

In 1969, Fogarty founded the Scholars in Residence, or SIR, program to foster international collaboration. Dr. Ken Bridbord, senior scientist emeritus at Fogarty, noted that the SIR program was “driven by NIH's desire to bring the best and brightest to NIH to collaborate with its intramural



Dr. Albert Sabin, who developed an oral polio vaccine, worked at Fogarty in the 1980s.

scientists.” At any given time, half a dozen internationally recognized scientists lived in Stone House on the NIH campus, where they held seminars, wrote books, and collaborated with NIH colleagues. Fogarty's SIR program hosted more than 200 scientists, including Dr. Margaret Mead and Nobel prize winners Drs. Daniel Bovet, Rita Levi-Montalcini, Sir Hans Krebs and Ragnar Granit.



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