

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

Fogarty-led effort seeks to inform humanitarian care

Armed conflict, forced displacement, natural disasters and disease outbreaks affect more people today than at any point in recorded history. Yet the evidence base that informs how humanitarian organizations respond to these crises is weak, according to an article published recently in the *BMJ Global Health*. The study is the result of consultations and a workshop organized by Fogarty's Center for Global Health Studies, as part of its project titled Advancing Health Research in Humanitarian Crises. In all, about 180 experts from 80 organizations contributed to the effort—co-authored by George Washington University's Dr. Brandon A. Kohrt, American University of Beirut's Dr. Iman Nuwayhid and Fogarty staff—that lays out four key messages.

First, humanitarian health is integral to global health. "Developing global health strategies without significant attention to the humanitarian context is like building a hospital without an emergency room," the authors noted. . . . continued on p. 2

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A team of doctors and volunteers provides medical care to flood victims of the Sendong Typhoon in the Philippines.

New Fogarty program addresses HIV-related NCDs

Fogarty has launched an initiative designed to stimulate new research on the interplay between HIV and noncommunicable diseases (NCDs) in developing countries. The program aims to support locally relevant research in critical areas of HIV-associated NCDs, enhance research capacity, and build a network of researchers both within and across low- and middle-income countries (LMICs) to address this critical burden.

Projects may include exploratory studies to uncover the extent to which HIV infection or drugs influence the cause and development of NCDs, and to identify and develop methods for effective diagnosis, prevention and treatment for people living with HIV (PLWH). Research

teams should contain an appropriate mix of expertise to accomplish the proposed studies, including partnerships between HIV and NCD researchers who can initiate new ideas and determine the feasibility of novel approaches. Possible research areas include basic science, the aging process in PLWH, diagnostics for early detection of NCDs, behavioral studies and clinical investigations. Four NIH institutes have partnered with Fogarty on the program, which will issue two-year awards for a total of up to \$275,000 each.

The first round of funding is expected in mid-2020 and the next application deadline is Dec. 3, 2020. For more information, visit <http://bit.ly/FogartyHIVNCD>.

FOCUS



Scientists encourage holistic study of diseases

- New report examines convergence of infectious diseases and NCDs
- Shifting trends in global mortality require new strategies
- Research training should be less siloed, better integrated

Read more on pages 6 – 9

NIH, Gates collaborate to develop gene-based cures



Though sickle cell disease (SCD), a genetically inherited disease, and HIV, an acquired infectious disease, present significantly different scientific challenges, gene-based treatments hold promise for both. NIH and the Bill & Melinda Gates Foundation have announced they will

invest \$100 million each to develop affordable gene-based cures for the two diseases and make them globally available, including in low-resource settings.

“This unprecedented collaboration focuses from the get-go on access, scalability and affordability of advanced gene-based strategies for sickle cell disease and HIV to make sure everybody, everywhere has the opportunity to be cured, not just those in high-income countries,” said NIH Director Dr. Francis S. Collins. “We aim to go big or go home.”

SCD and HIV are major health burdens in low-resource communities around the world. Approximately 95% of the 38 million people living with HIV globally are in the developing world, with 67% in sub-Saharan Africa (SSA). The initiative’s goal is to advance safe, effective and durable gene-based cures to clinical trials in the U.S. and SSA within the next seven to 10 years.

Fogarty-led effort seeks to inform humanitarian care

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If health in fragile contexts is not prioritized, it will be very difficult to achieve the UN’s Sustainable Development Goals (SDGs), such as the pledge to ensure healthy lives and promote well-being for all ages. Children in conflict-affected areas are twice as likely to die before age 5, compared with those in other, more stable low- and middle-income countries (LMICs), the authors observed. Infectious diseases are more difficult to manage in conflict settings, such as the current Ebola outbreak in the Democratic Republic of Congo, recent cholera outbreak in Yemen, and stalled efforts to eradicate polio in sections of Afghanistan, Pakistan and Nigeria.

In addition, there are unique and important scientific questions that can only be answered through research in humanitarian settings, the authors said. For example, research can help determine which interventions are most effective, if new or adapted solutions are needed, and how best to deliver care in crisis settings. Yet, the quantity and quality of relevant evidence is lacking. “Research is not typically perceived as a priority when immediate survival needs of populations need to be funded and administered,” according to the authors. The absence of evidence-based practices in humanitarian crises leads to a reliance on research findings from stable settings, which may not be relevant in situations “where health systems may be damaged, infrastructure is weakened and populations have experienced exceptional trauma.”

A number of principles generally apply to research in humanitarian crises, the authors suggested. Investigators should use flexible and adaptive methodologies, form partnerships with humanitarian actors such as local governments and nongovernmental organizations (NGOs), engage with affected populations and leaders, build research capacity, collaborate among disciplines, and leverage existing tools and networks. The publication also laid out 22 humanitarian health research questions and provided a directory of relevant online resources, tools and networks that are available to researchers.

While there are limited research funding opportunities specific to humanitarian crises, the authors found some cause for optimism. Awareness of the need for evidence in humanitarian health is growing, humanitarian NGOs are strengthening their internal research capacities and deepening relationships with academic experts, and a number have established programs that include research activities.

Still, the needs remain formidable. “Humanitarian health should be recognized as a key research priority and integral to progress in global health, not an outlier,” the authors concluded. “Without this, we will never be able to comprehensively address high-burden global health needs nor achieve the ambitious SDGs.”

RESOURCES

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

Fogarty helps build research capacity to combat Ebola

Ebola remains a concern in sub-Saharan Africa, with the WHO continuing to report new cases in the Democratic Republic of Congo. Since the current outbreak began in August 2018, there have been about 3,200 confirmed infections and more than 2,200 deaths.

During the 2014-2016 Ebola pandemic that struck Guinea, Liberia and Sierra Leone, Fogarty developed a targeted program that has provided eight grants to encourage planning to build scientific capacity in the three countries, designed to help combat Ebola and other viral hemorrhagic fevers such as Lassa fever.

In the summer of 2019, Fogarty issued three new awards under its Global Infectious Disease (GID) research training program that will provide further support to the three countries. The GID program's overarching goal is to increase the number of researchers and support staff who conduct independent infectious disease research in developing countries.

One grant was awarded to the University of California, San Francisco (UCSF)—in collaboration with the University of Liberia—to strengthen capacity by enrolling early-career researchers in a two-year master's degree in clinical research at UCSF. Alumni will receive a partial stipend to use their skills to perform research in Liberia, with ongoing mentorship from UCSF and local faculty. The program will also support graduates to develop and teach introductory classes in research design, epidemiology and biostatistics.

“The long-term goal is to develop and support a trained cadre of researchers who can become independent, develop a similar research training program in Liberia and advance relevant infectious disease research in the region,” according to UCSF Professor Dr. Kryisia Lindan.

Another award is focused on combatting Lassa fever in Sierra Leone, where the disease poses a significant public health burden. The new grant will help develop the leadership needed to apply, manage and conduct research studies and clinical trials on Lassa fever and other diseases. It will support training in grants management, mentorship, grant writing and research



Since 2016, Fogarty has been supporting research training in West Africa to build capacity to conduct clinical trials and other studies.

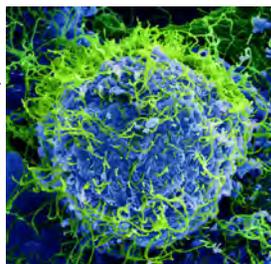
skills. The project is a partnership among Tulane University, Vanderbilt University, the University of Sierra Leone and Kenema Government Hospital. While there are no active Ebola cases in West Africa, “there is a significant risk of another spillover event from the animal reservoir—likely bats—to the local communities,” said co-PI Dr. John S. Schieffelin, of Tulane. “This animal-to-human transmission is likely to lead to human-to-human transmission and could easily escalate to another outbreak.”

The third award is supporting a partnership between Boston University and the University of Liberia to create a tiered research training program in emerging infectious diseases. It will provide master's and doctoral degree training, and foster mentored research projects in Liberia. A bootcamp will provide trainees with a background in the foundations of basic, translational and clinical research, and serve as the recruitment pool for advanced degree candidates.

In addition, a GID grant awarded in 2017 to Dr. Seydou Doumba of the University of Sciences, Techniques and Technologies of Bamako, Mali, is helping to strengthen scientific capacity across West Africa and is training researchers from underserved countries such as Guinea. Fogarty support is critical and has helped retain scientists, Doumba said. “You have very few organizations that are willing to spend money on training because you don't see the results right away. And there's a risk if you don't mentor people, you may lose them.”

The NIH's National Institute of Allergy and Infectious Diseases is partnering with Fogarty to fund the awards, which are structured to facilitate collaboration with other U.S. government projects active in the region.

Courtesy of NIAID



Ebola virus

RESOURCES

<http://bit.ly/EbolaResearchTrain>

PROFILE

Fogarty Fellow studies women living with HIV in Uganda and South Africa

By January W. Payne

Cultivating long-term partnerships and developing the ability to listen were key to the success of Dr. Lisa Bebell's two Fogarty fellowships in sub-Saharan Africa (SSA). "One of the things I learned is to take the first cues from the people living in the environment and really try to understand from them what the research priorities are," she said. The enduring value of these early-career experiences has been research collaborations that continue today.

Fogarty's Global Health Program for Fellows and Scholars provides doctoral and postdoctoral students with a year-long mentored research experience in a low- or middle-income country.

In 2005, Bebell traveled to the Centre for the AIDS Programme of Research in South Africa (CAPRISA) for her first fellowship, to study mucosal immunity among women living with HIV. "We were most interested in understanding what mucosal markers during acute HIV infection would be able to tell us about how the disease would affect a woman over the span of her infection," Bebell explained. The findings from that work helped establish predictive models to determine how women with HIV would fare over time, and how best to allocate limited resources for assessment and treatment.

For her second fellowship in 2014, Bebell conducted research at Mbarara University of Science and Technology in western Uganda, studying the postpartum risk for women with HIV to develop other infections after delivering their babies in a semi-rural hospital. The findings she published in conjunction with her partners showed there were fewer infections than expected but those that did exist—mainly urinary tract infections—were highly resistant to antibiotics.

Through this research, a substantial amount of data was collected from 1,500 study participants, providing a rich trove of information for other investigators.

Spending a total of six years overseas has changed Bebell's perspective and helped her grow both personally



Lisa Bebell, M.D.

Fogarty Fellow: 2005-2006 and 2014-2015

Foreign Institutions: Centre for the AIDS Programme of Research in South Africa and Mbarara University of Science and Technology in Uganda

Research topic: Women living with HIV

and professionally, she said. "Living and working in other settings really challenged me to understand my own place in the world and to understand how it is that we can all work together to make the world a healthier place."

The research projects she started during her fellowships laid the groundwork for her to successfully compete for a five-year research career development grant from NIH's National Institute of Allergy and Infectious Diseases. That award is allowing her to test her hypothesis that placental inflammation may contribute to poor health outcomes for children who were HIV exposed but uninfected (HEU). More than one million HEU children are born annually in SSA, and fare worse than those who were not exposed.

Working side-by-side with peers and supervisors at overseas sites has given Bebell new insights into the concept of teamwork, she said. "It really changed my thinking in terms of what value I have to add, what my own limitations are, and how to help pair myself with people who have different strengths and different limitations to work effectively."

Now with dual appointments at Harvard Medical School and Massachusetts General Hospital, she's passing on what she learned during her Fogarty fellowships as she mentors the next generation of global health leaders.

"We are each just one cog in a really large machine and it's only by working together that we can actually achieve success," she observed. "I've learned that working alone is never very beneficial and it's only by collaborating with partners who understand the local setting that we've been able to do anything that really matters—to generate good research that changes people's lives."

During the recent American Society of Tropical Medicine and Hygiene (ASTMH) annual meeting, ASTMH President and Fogarty grantee Dr. Chandy John held a fireside chat with NIH Director Dr. Francis S. Collins. The two discussed a number of issues of interest to early-career scientists and Collins shared his non-linear career path.



What career advice do you have for students?

It took me quite a while to come to any sense of interest in medicine because I thought biology was much too messy. I fell in love with science in a chemistry class in high school and that's what I majored in for my undergraduate degree. After that, I got a Ph.D. in quantum mechanics.

Then I discovered I kind of missed out and realized maybe I narrowed my field much too soon. And with not much more justification than that, I decided to go to medical school. I immediately fell in love with the science, the medicine, the people and particularly with the genetics part. A few months in, I decided I wanted to find a way to use genetics to help people.

I tell you this story because some of you may be worried that you haven't mapped out your entire life course already. Even if you think you have, it probably won't turn out the way you think it will. Doors open, doors close.

How do you view physician-scientists?

We need more and this is one of my current anxieties. We see fewer and fewer physicians who are spending at least 50% of their time on research. And there are all kinds of reasons for this, all kinds of pressures that fall down on physicians, in terms of asking them to care for patients and to submit charges for that. It's challenging to get funded and to keep getting funded.

If there was ever a time when we needed physician-scientists as leaders, it is now! We are trying to understand the deterrents. How do we fix this? How do we change the training program so it is not so long? It's a great concern. We realize it's really hard to compete

"You may be worried that you haven't mapped out your entire life course already. Even if you think you have, it probably won't turn out the way you think it will."

against Ph.D.s who spend 100% of their time on research. We have increased our loan repayment program to help.

How are you working to increase diversity?

This is absolutely critical. At NIH, we spend a lot of time figuring out how to encourage women in biomedical research and looking at all the factors that have gotten in the way. We've done a lot better at getting women interested in pursuing Ph.D.s, with about half of students now being female. But then the trouble starts. Even at the junior faculty level, already the pressures that are placed upon people in academic tracks are not always consistent with having a family. We've talked about if there's more we can do there in terms of child care.

We have a lot of work that needs to be done in that space and we will do it. We still have circumstances with built-in discrimination against women. And that is so completely wrong. And that also factors into how a meeting is set up, who gets the invitation and the good old boy network that favors white men like me. I decided to make a public statement that if you want me to be involved in a conference, to speak on a panel, there must be diversity in the event. It's about productivity. Science is advanced with diversity.

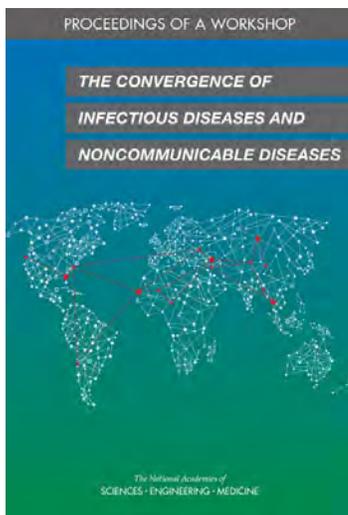
RESOURCES

<http://bit.ly/NIHCollinsCareers>

Scientists encourage holistic study of diseases

The research community has traditionally viewed diseases as either infectious or noncommunicable. With the growing evidence this is a false distinction, a group of scientists recently convened to examine the issue and have produced a report titled, *Breaking Down Silos: the Convergence of Infectious Diseases and Noncommunicable Diseases (NCDs)*.

The findings are based on discussions held during a workshop in July 2019 convened by the National Academies of Sciences, Engineering and Medicine (NASEM). The effort was supported by NASEM and



other public and private partners, including NIH's National Institute of Allergy and Infectious Diseases. A committee convened discussants from industry, academia, government, nongovernmental organizations and NASEM staff, and was chaired by Fogarty grantee Dr. Peter Daszak, president of the EcoHealth Alliance, one of the funding partners.

While there's a growing recognition of the links between infectious diseases and NCDs, "the two fields continue to be isolated from each other, with the two realms often supported by separate funding streams, studied using divergent research methodologies, and shaped by vertical health policies and programs," the report noted. Yet scientists have known for decades, for instance, that *Helicobacter pylori* causes gastric inflammation, ulcers and gastritis.

More recent discoveries have found that human papillomavirus is linked to cervical cancer, and that hepatitis B and C can lead to chronic liver disease. Another example is *Borrelia burgdorferi*, which can cause Lyme disease.

The authors warn that epidemics of both infectious diseases and NCDs are expanding globally and are poised to affect huge numbers of people in the coming decades.



The growing convergence of infectious and noncommunicable diseases requires a more integrated approach to research and training, a recent NASEM report said.

NCDs disproportionately affect people in low- and middle-income countries (LMICs), where 32 million are dying from NCDs—nearly half before the age of 70—according to the WHO.

A constellation of factors is spurring the merging of infectious diseases and NCDs, the report said. Globalization and environmental factors cause increased spread of pathogens, while urbanization and lifestyle changes contribute to the rise in NCDs. "The convergent dynamics among microbes, infections, NCDs, normal health functioning and shared risk factors are complex and intertwined," the authors said.

"Gaining a better understanding of these linkages and bridging cross-sectoral collaborations would help advance research, develop better prevention and treatment interventions, and reduce the public health impact of both infectious disease and NCDs."

Multiple morbidities involving both infectious diseases and NCDs add another layer of complexity. Recent discoveries regarding the human microbiome have illuminated its role in health and its relationship to diet, lifestyle and use of antibiotics. Dozens of NCDs have already been shown to be related to the microbiome.

"Research has only begun to reveal the enormous complexity of the microbial world and the extent to which microbes interact with humans and influence human health," the report said. Gaining a better understanding of these linkages and bridging cross-sectoral collaborations would help advance research, develop better prevention and treatment interventions, and reduce the public health impact of both infectious disease and NCDs.

Data show colliding epidemics

Shifting trends in global mortality warrant convergent action against the colliding epidemics of infectious diseases and NCDs, according to Dr. Tolullah Oni of the University of Cambridge. Oni presented 2015 data from the Disease Control Priorities project that showed only three of the top 10 contributors to the global crude death rate were infectious diseases. By contrast, NCDs represented seven of the top 10, with considerable increases in dementias, diabetes, lung cancer and heart disease. In low-income countries, respiratory infections were the largest cause of death, with stroke and heart disease ranking second and third.

Infectious diseases not only co-occur with NCDs but also interact with them, driving a rise in multi-morbidity, Oni explained. In South Africa, a national survey found double, triple and even quadruple multimorbidity. Significant numbers of people suffer from a combination of diabetes-hypertension-HIV or TB-diabetes-hypertension. Also common were those with hypertension-diabetes-TB-HIV. Such multimorbidities are being seen in people at increasingly younger ages. Moving toward convergence will require dispelling myths and false dichotomies, Oni said. Before the global HIV epidemic, the chronic nature of illness was thought to be an exclusive feature of NCDs. When that infectious disease proved to also have chronic characteristics, it catalyzed a shift in thinking about how to care for its comorbidities. Among people receiving treatment for HIV, about 20% have another condition such as hypertension, TB or diabetes.

There's also a false presumption that the causal relationship between NCDs and infectious diseases only works in one direction, Oni said. However, evidence suggests it is bidirectional. For instance, a 2015 study found the emergence of smoking and alcohol abuse are risk factors for TB, in addition to widely acknowledged causes such as HIV and malnutrition. Many believe NCDs and infectious diseases have distinct risk factors. In fact, shared risk factors are a potential starting point for convergent action, Oni suggested. Rapid urbanization creates an additional layer of complexity that requires identifying shared risk factors and developing strategies to address them.

Unhealthy environments can impede healthy lifestyle choices, contributing to NCDs. In addition, infectious and zoonotic diseases are reemerging as rapid urbanization has pushed the boundaries of human settlements. Oni proposed broadening the concept of health services to include habitation planning, transportation, water and waste, and food—since all of these can affect both infectious disease and NCDs.

Gum disease may spur Alzheimer's

There's growing evidence to support a hypothesis that a brain infection could be a driver of Alzheimer's disease, according to presenter Casey Lynch, CEO of Cortexyme, Inc. A decade ago, tooth loss, periodontal disease and the bacterium *P. gingivalis* were established as risk factors for Alzheimer's, Lynch said. Studies have suggested that having gum disease in middle-age increased the risk for developing Alzheimer's later in life.

While epidemiology cannot prove causation, Lynch said researchers wonder if *P. gingivalis* is entering the brain and contributing to dementia. Half of elderly people have periodontal disease and the vast majority are infected with this bacterium, Lynch reported. If a person flosses and has bleeding gums, the pathogen can enter the circulatory system and may enter the brain. In animal models, infection with *P. gingivalis* does infiltrate the brain and causes inflammation, which triggers development of amyloid plaques. Studies of a new drug in animals suggest treating the infection can potentially make damaged neurons function again.

EB virus causes NCDs

More than 95 percent of the world's population is infected with the Epstein-Barr virus (EBV), according to panelist Dr. John Harley of Cincinnati's Children's Hospital Medical Center. Many NCDs are linked to EBV, including lupus, multiple sclerosis, rheumatoid arthritis and type 1 diabetes. By studying genetic markers for the diseases, scientists hope to discover how they are triggered.

SOME INFECTIONS LINKED TO CHRONIC DISEASES:	
<i>Borrelia burgdorferi</i>	Chronic Lyme arthritis
Epstein-Barr virus	Autoimmune diseases Inflammatory diseases Lupus, multiple sclerosis Nasopharyngeal cancer Stomach cancer Burkitt lymphoma
<i>Helicobacter pylori</i>	Gastric inflammation (ulcers and gastritis)
Hepatitis B and C	Chronic liver disease
Human papillomavirus	Cervical cancer
<i>P. gingivalis</i>	Alzheimer's disease

HIV program functions are applicable to Noncommunicable Diseases (NCDs)

Key Elements of Chronic Care Delivery Systems	Examples Common to HIV and NCD Programs
Diagnosis and enrollment	Identification of risk factors, early diagnosis, opportunistic case-finding, point-of-service diagnostics, standardized diagnostic protocols.
Retention and adherence	Appointment systems, defaulter tracking, patient counseling, expert patients, secure medication supply chains, pharmacy support.
Multidisciplinary family-focused care	A multidisciplinary team of health care providers and community members delivers care in partnership with the patient.
Longitudinal monitoring	Health information systems have standardized and easily retrievable data.
Linkages and referrals	Links within the health facility (to lab, pharmacy, others), between facilities, and between facility and community.
Self-management	An informed, motivated patient is an effective manager of his/her own health.
Community linkages and partnerships	Need functional partnerships between health facility-based providers and community-based groups that facilitate access to services across the care continuum.

Sources: Rabkin presentation, June 12, 2019; ICAP, 2011.

NCDs can boost risk of infections

There are known and suspected risks that chronic diseases pose to the development and severity of infectious diseases, according to two experts who presented case studies.

Research has shown that having a high body mass index (BMI) is associated with increased risk for infections. Dr. Christopher Thaiss of the University of Pennsylvania said he and his team are studying mice to try to figure out why that is. His results suggest hyperglycemia causes an intestinal barrier problem that drives susceptibility to enteric infection, he said.

Studies have shown that people with diabetes have roughly double the risk of developing active TB, and poorer outcomes for those receiving TB treatment, according to Dr. Julia Critchley of St. George's University of London. Given the world regions with the highest



predicted increases in diabetes over the next few decades—sub-Saharan Africa and Southeast Asia—are also where TB is endemic, Critchley says the population impact could be large.

Microbiome holds clues

Human gut microbes can not only affect the body in obvious ways such as inflammatory bowel disease, but also in surprising ways including food allergies, liver disease and cardiovascular disease, according to Dr. Rob Knight of the University of California, San Diego.

In the 20th century, rates of multiple sclerosis, Crohn's disease, type 1 diabetes and asthma skyrocketed. All four have now been shown to be associated with the human microbiome, Knight said. The NIH's Human Microbiome

Project is coordinating DNA studies so scientists can better understand the complex relationship of microbes to infectious diseases, NCDs and normal physiological functioning.

Leveraging HIV platforms

The relatively well-resourced HIV programs could be leveraged to provide NCD services, according to presenter Dr. Miriam Rabkin of Columbia University. The expansion of HIV treatment and prevention services has been successful with the leadership of communities and ministries of health, and with support from the global community and donors. HIV and some NCDs also share the same challenges such as the need for continuity of care. The prevalence of NCDs and NCD risk factors among people living with HIV is as high, or higher, than the rest of their communities, Rabkin noted.

Another lesson from HIV scale-up is the need to be realistic and innovative in dealing with resource constraints, including engaging the private sector, faith-based organizations, and civil society, she said.

Kenya's AMPATH provides model

HIV platforms can successfully be expanded to include NCDs, with Kenya's AMPATH program as an example, its director Dr. Sylvester Kimaiyo said in a presentation to the workshop. AMPATH—an acronym for Academic Model Providing Access to Health care—incorporates care, research and training. Formed in 2001 to attract support for HIV services from outside the country, AMPATH expanded its focus to include NCDs in 2008.

In addition to close relationships with county governments and the national health ministry, AMPATH has formed academic partnerships with Moi University and a consortium led by Indiana University (IU). Over the years, AMPATH has benefitted from support from USAID, CDC and NIH. For example, a Fogarty grant to IU helped establish AMPATH's electronic medical record system, which increased efficiencies and enabled research activities. AMPATH's integrated approach includes a number of projects that are providing screening and care for chronic conditions.

Research training must be integrated

Convergence of infectious and chronic diseases is already a reality for Dr. K. Srinath Reddy, president of India's Public Health Foundation. He told the committee that his organization aims to address the diversity of health challenges across the spectrum of diseases. But to operationalize transdisciplinary research, health education must change, he said. It needs to produce individuals who acquire a transdisciplinary understanding and the ability to collaborate, even while they are developing depth in one area of research that is necessary to qualify them to become leaders, he said.

If dedicated funding streams could be established to bring together postdocs from different disciplines to work on multidisciplinary research challenges, Reddy said it could help build researchers who believe in the concept right from the beginning.

"We need to undo all the things that we have been doing for years," suggested Dr. Patty Garcia, longtime Fogarty grantee and professor at Peru's Cayetano Heredia University. The process should begin with rethinking training programs because the current system has created silos and overspecialization. The health education system should be more comprehensive and person-centered, she said.

It's difficult for advocates to convince policymakers to invest in NCDs, which must compete for funding with urgent infectious disease pandemics.

Photo by David Snyder for Fogarty



Fogarty grantee Dr. Patty Garcia—professor at Peru's Cayetano Heredia University—said research training programs should be reconsidered to account for the convergence of infectious and chronic diseases.

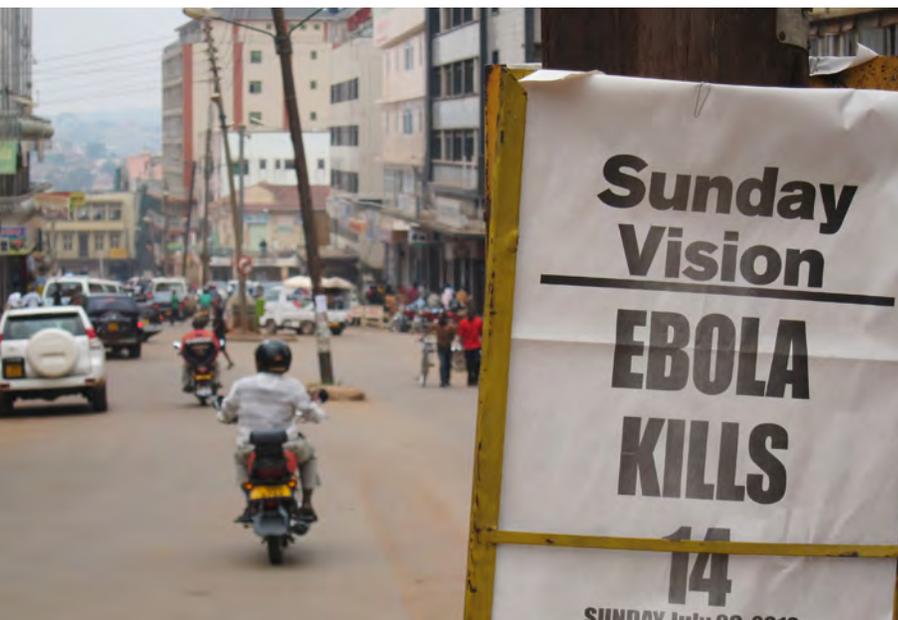
The first priority should be to continue supporting research on the convergence of infectious and chronic diseases that takes into consideration life course, gender, ethnicity and diverse environments, Garcia said. Secondly, a shift in thinking is needed to bring research into policies for prevention, surveillance and detection, control and treatment, she said. While funders tend to prefer randomized controlled trials (RCTs), qualitative research and descriptive epidemiology within conceptual models should be prioritized as well. Since RCTs are carried out in sterile settings, the research output usually fails to become policy because the reality is more complex than the research environment, she said. Systems-based research can be leveraged across sectors and provide cost-effectiveness analyses and other information that is useful for policymakers.

NCD advocacy needed to improve equity

Disease convergence presents a complex, tangled web of information and ideas, said Daszak in his closing remarks. The community should try to grasp nuggets of value that could be used to communicate effectively with policymakers, he suggested.

Many people working on infectious diseases and NCDs may be self-selecting their respective silos, which are reinforced through different belief systems and behaviors, separate journals, distinct funding streams and disparate research methods, Daszak observed. That may make it more difficult to break down the silos.

Finally, Daszak said the key lesson is that there is a massive inequity problem, yet convincing policymakers and politicians to invest in NCDs is enormously challenging, especially in competition with the urgency and concern surrounding infectious disease pandemics.



OPINION

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

Reflecting on service to others this holiday season



In this time of giving, I find myself reflecting on the meaning of service for those of us in the field of global health. Working for the benefit of others is a most gratifying and humbling experience. I believe giving back is part of what makes us human and demonstrates we care for others, beyond our immediate families and communities, and

that we strive to ensure everyone has an equal right to a long and healthy life.

I often say I've never worked a day in my life and it's how I truly feel. The opportunity to spend my career trying to make a difference in the lives of others is a privilege I greatly enjoy.

I was recently reminded of President John F. Kennedy's call to action, which made a lasting impression on me when I was a young adult, pondering my future. His historic words, "Ask not what your country can do for you—ask what you can do for your country," challenged all of us to contribute in some way to the greater public good.

One of Kennedy's signature achievements was the Peace Corps, which was established in 1961. A few weeks ago, I was honored to host its director on the NIH campus for a fireside chat. Dr. Jody Olsen is an inspiration and the perfect embodiment of a public servant.

She encouraged the audience to consider taking time off to volunteer through the Peace Corps Response program, designed for experienced, mid-career professionals to undertake short-term, high-impact service assignments in the country of their choice. A background in health research is especially useful. For example, one volunteer helped an HIV facility in South Africa dramatically reduce the time it took to locate patient files for clinic visits. Of course, it's a mutually beneficial experience and can also help boost careers.

For the first year after returning to the U.S., returned Peace Corps volunteers (RPCVs) receive special hiring preference to help them enter the federal workforce.



In a fireside chat at NIH, Peace Corps Director Dr. Jody Olsen encouraged health professionals to consider volunteering for a short-term, high-impact project.

Hiring managers tell Olsen they prefer returned volunteers because of their adaptability and unique perspective. In addition, 120 graduate schools award \$11 million each year through a fellowship program for RPCVs, with an emphasis on those working in health fields.

Since its inception, more than 235,000 Americans have joined the Peace Corps and served in 141 countries. Olsen—who grew up in Utah—enrolled after she graduated from college in 1966. She said she'd always wanted to get on a plane and was intrigued by the idea of living in a strange place. Her experience volunteering in Tunisia was a great adventure that changed her life.

She said immersing herself in a culture that was so different from her own forced her to learn to listen and observe more intently, to learn to live and breathe the experience to comprehend it. That ability to understand has stayed with her, she said, and helped push her outward to try new things and to be more accepting of diversity.

I know that my own early-career experiences in Bangladesh and elsewhere helped me develop sensitivities that made me a better clinician back home.

And so in this season of giving, perhaps we can reflect on the Peace Corps motto—Work for the World—a concept that resonates with us all.



Dr. Christos Christou elected president of MSF

Dr. Christos Christou recently began his tenure as the new international president of Médecins Sans Frontières (MSF). Christou, who has a background in general and emergency surgery, joined MSF in 2002. He was previously general secretary, vice president and president of the MSF Greece Board of Directors.



NIH leader Bianchi receives international award

The International Society for Prenatal Diagnosis has awarded its 2019 Pioneer Award to Dr. Diana Bianchi, director of the NIH's National Institute of Child Health and Human Development. The award recognizes transformational research in prenatal diagnosis, society leadership and mentorship. Dr. Bianchi has been NICHD director since 2016.



Nobel Prize awarded for global poverty efforts

Two NIH grantees received the 2019 Nobel Prize in Economic Sciences for their experimental approach to alleviating global poverty.

Dr. Esther Duflo, a professor in the Department of Economics at the Massachusetts Institute of Technology, has received NIH grants to study women's empowerment, maternal and child health, anemia and other health issues in poor countries.



Fellow honoree Dr. Michael Kremer, a professor in the Department of Economics at Harvard University, has received NIH funding to study ways to improve education—such as school choice and preschool programs that better prepare children to learn.



The pair shared this honor with MIT economics professor Dr. Abhijit Banerjee, co-founder of the Abdul Latif Jameel Poverty Action Lab, a global research center working to reduce poverty. He is past president of the Bureau for Research and Economic Analysis of Development, which encourages research and scholarship in development economics.



Vaccine work recognized by ASTMH

Former Fogarty advisory board member Dr. Peter J. Hotez was honored by the American Society of Tropical Medicine & Hygiene for promoting vaccines and refuting the anti-vaccine movement. He also gave a lecture entitled, "Vaccine and Neglected Tropical Disease: Diplomacy in our Anthropocene Epoch," during ASTMH's annual meeting in November.



Fogarty MEPI fellow wins TB-HIV award

A junior faculty fellow in Fogarty's Medical Education Partnership Initiative, Dr. Christine Sekaggya-Wiltshire has won the Stephen Lawn TB-HIV Research Leadership Prize. Sekaggya-Wiltshire leads the TB-HIV clinic at Makerere University in Kampala, Uganda. Her work was featured in a recent *Lancet* article.

Fogarty studies diversity of authorship

About one-third of NIH-funded research publications had at least one co-author with a foreign affiliation, a Fogarty study showed. Papers with both U.S. and foreign authors had a higher category-normalized citation impact than those whose authors were only U.S. affiliated or non-U.S. affiliated.

Full report: <http://bit.ly/JAMAdiversity>

NCI offers implementation science training

The NIH's National Cancer Institute (NCI) is offering both a facilitated and an open-access, on-demand course on dissemination and implementation (D&I) research. Each of the six modules introduces fundamental terms, concepts and principles of D&I, with examples of their application.

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

Lancet reports on climate change

The *Lancet* Countdown's annual report on climate change examines more than 40 indicators and shows a rise in health impacts including increased transmission of dengue fever, a growing number of days suitable for vibrio—a pathogen responsible for diarrheal disease—and rising mental health issues.

Full report: <http://bit.ly/ClimateLancet>

World Bank publishes study on AMR

A new World Bank report—Pulling Together to Beat Superbugs—identifies knowledge gaps such as the current level of antimicrobial consumption in humans and animals, and what vaccines could be developed to reduce microbials that stymie efforts to contain AMR.

Full report: http://bit.ly/WB_AMR

Report examines global drug regulation

A new study by the National Academies of Sciences, Engineering and Medicine provides an overview of the global drug regulation landscape and presents a strategy for improving cooperation among regulatory authorities to ensure the quality, safety and efficacy of medicines.

Full report: <http://bit.ly/NAdrugreg>

WHO says adolescents inactive, at risk

The majority of adolescents worldwide are not sufficiently physically active, putting their current and future health at risk, according to a new WHO-led study. More than 80% of school-going adolescents did not meet current recommendations of at least one hour of physical activity per day.

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

Funding Opportunity Announcement	Details	Deadline
International Research Scientist Development Award K01 Independent Clinical Trial Required K01 Independent Clinical Trial Not Allowed	http://bit.ly/IRSDAK01	Mar 6, 2020
Japan Society for the Promotion of Science (JSPS) Fellowships for U.S. Postdoctoral Scientists in Japan	http://bit.ly/JSPSforUS	Mar 31, 2020
International Bioethics Training R25 Clinical Trial Not Allowed D43 Clinical Trial Optional	http://bit.ly/BioethicsTraining	Jun 4, 2020
Fogarty HIV Research Training for LMIC Institutions D43 Clinical Trial Optional D71 Clinical Trial Not Allowed G11 Clinical Trial Not Allowed	http://bit.ly/NIHGlobalHIV	Aug 20, 2020
Mobile Health: Technology and Outcomes in LMICs R21/R33 - Clinical Trial Optional - non-AIDS applications	http://bit.ly/NIHmhealth	Sep 24, 2020

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

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Research!America honors Mary Fogarty McAndrew



Mary Fogarty McAndrew, daughter of Fogarty's namesake, the late Congressman John E. Fogarty, is being honored by Research!America for her health advocacy domestically and around the globe. McAndrew will receive the Gordon and Llura Gund Leadership Award at

Research!America's annual advocacy awards dinner on March 11, 2020 in Washington, D.C. Past recipients of the award include former Vice President Joe Biden and former New York Mayor Michael Bloomberg.

As chair of the appropriations subcommittee with oversight of NIH funding, Rep. Fogarty was a champion for research. Under his leadership, the NIH budget increased from \$37 million in 1949 to \$1.24 billion at the time of his sudden death in 1967. Since then, McAndrew has carried on her father's efforts as a staunch research advocate and as chair of the John E. Fogarty Foundation for Persons with Intellectual and Developmental Disabilities, headquartered in Providence, R.I.

RESOURCE

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