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GLOBAL HEALTH MATTERS

Fogarty at 50

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Fogarty launches program to reduce HIV/AIDS stigma

Despite increasingly effective methods of treating and preventing HIV/AIDS, stigma deters many from seeking testing or care, and is a significant contributor to continued disease transmission. That's why Fogarty has launched a research program to spur development of innovative interventions to reduce stigma in low- and middle-income countries (LMICs), including among populations that are particularly vulnerable or marginalized, such as adolescent girls, people who inject drugs, and children and caregivers of those living with HIV.

Fogarty and NIH funding partners plan to invest about $3 million over two years to support collaborations between U.S. and LMIC investigators in six African countries, as well as Haiti, Nepal and Ukraine.

"Despite practices and medications that can reduce the

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Photo by Rabalio Thekiso/AFP/Getty Images

A new Fogarty program aims to reduce stigma, which is a significant barrier to HIV testing and treatment in many low-resource settings.

$17M to support HIV, disease ecology, mHealth projects

Fogarty is awarding about $17.5 million in grants for HIV research training, virus transmission studies and the development of mobile health tools for research in low- and middle-income countries (LMICs).

The largest group of awards—expected to total about $13.5 million over five years—is to support HIV research training through grants being issued to nine U.S. universities. Working in collaboration with an academic institution in a LMIC, the grantees will train scientists in six African countries—Botswana, Kenya, Nigeria, Tanzania, Uganda and Zimbabwe—and in Indonesia, where the AIDS epidemic is accelerating. To reverse that trend, training for Indonesian scientists will develop advanced skills to effectively implement prevention and treatment measures. Several training programs for African scientists also focus on implementation science to manage HIV care and prevention efforts. Other training areas include HIV/TB epidemiology and application of geospatial tools to better understand and respond to the HIV epidemic. In addition, two smaller grants were awarded that will help LMIC institutions improve their research infrastructure—one project will enhance an institutional review board, and the other will focus on research administration and management.

The NIH Office of the Director and National Institute of Mental Health co-funded some of the awards.

Another program, focusing on disease ecology, will provide $2.5 million over five years to the University of

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FOCUS

NIH supports research to reduce cancer burden in LMICs

- Viruses, environment, genetics, social changes boost cancer prevalence
- Researchers harness low-cost technology against lung, cervical cancer
- LMIC cancer studies translate to better care worldwide

Read more on pages 6 – 9

Fogarty launches program to reduce HIV/AIDS stigma

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risk of infection and keep the virus in check, HIV and AIDS persist around the world," said Fogarty Director Dr. Roger I. Glass. "Stigma research presents an opportunity to find new strategies for preventing the spread of disease and improving treatment outcomes and quality of life for people living with HIV/AIDS."

The nine awards reflect the diversity of populations affected and the additional stigma some may face associated with drug and alcohol abuse, mental health problems, tuberculosis and other co-infections, and gender or lifestyle choices.

Several projects focus on HIV-positive women who are pregnant or postpartum and may not seek care or stick with the antiretroviral therapy (ART) that both improves their health and reduces mother-to-child transmission. Young South African women, a group known to disengage from care, will be the focus of a University of Cape Town project to study a peer-support intervention, coupled with a mobile health platform. In Botswana, New York University plans to conduct a randomized controlled trial to assess the effectiveness of a peer-led stigma program on both the mother's ART adherence postpartum and her infant's health. Duke University researchers working in Tanzania will study an approach that reaches women at their first antenatal visit and provides counseling before HIV testing, and after, if they are HIV positive. And in Haiti, an intervention will be developed and studied that would enable doctors, nurses and midwives in the health system and birth attendants in the community to mitigate stigma in their respective environments, with support from a grant to the University of Maryland, Baltimore County.

Children and adolescents with HIV/AIDS are the focus of an Indiana University project in Kenya that will evaluate a multimedia training curriculum for teachers aimed at reducing stigma in classrooms. An underserved yet key population, transwomen, will be studied to explore the impact of anti-trans, HIV and sex worker stigma in Nepal, under a grant to the nonprofit Public Health Foundation Enterprises. Meanwhile, University of Botswana researchers will develop and study an intervention in Gabarone to destigmatize and encourage HIV testing among financially successful men over age 40, whose income and education are associated with multiple partners and other risky behavior.

In Ukraine, a Johns Hopkins University project will use a statistical method known as latent class analysis to understand the layered identities of female injection drug users who are HIV-positive. Finally, reducing the dual stigma of HIV/AIDS and tuberculosis, and improving treatment outcomes, is the goal of a grant to Columbia University for research in South Africa.

NIH's National Institute of Mental Health and National Cancer Institute are funding partners on the awards.

RESOURCE

Grant info: http://bit.ly/stigmaHIV

$17M will support HIV, disease ecology, mHealth projects

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Photos by Richard Lord for Fogarty

Illinois for studies that will use new phylogenetic and bioinformatics approaches to better understand virus transmission routes in a biodiversity hotspot in western Uganda. The research grant is funded by Fogarty through the Ecology and Evolution of Infectious Diseases Initiative, a joint program of NIH and the National Science Foundation.

To encourage exploration of mobile health (mHealth) solutions for low-resource settings, Fogarty is awarding about $1.5 million over two years to support four grants. A project in Costa Rica will develop mHealth tools enabling people in the community to identify and report insect breeding grounds to reduce vector-borne diseases. An effort in Thailand aims to lower HIV infection among young men who have sex with men by testing whether a social networking and game app can improve adherence to PrEP, the HIV medications that can diminish the risk of infection if taken daily. To help prevent cervical cancer, a project in Peru will study whether the colposcopy diagnostic procedure can be done remotely using mHealth technology. Telemedicine is also the focus of a program in Rwanda to see if it can be used to diagnose surgical site infections in women who have had cesarean deliveries.

RESOURCE

Grant info: http://bit.ly/FogartyGrants

Study explores how to repurpose HIV platform to combat NCDs

A combination of aging, long-term use of antiretroviral therapies (ART) and chronic inflammation means a growing number of people living with HIV in sub-Saharan Africa are developing non-communicable diseases (NCDs) prematurely. The global HIV response has not just provided millions with access to ART but has also made significant investments in improving health systems. But there are many considerations involved in repurposing the HIV delivery platform to tackle NCDs, which form an urgent research agenda that merits attention, according to the authors of a journal supplement devoted to the subject.

Titled "Research to Guide Practice: Enhancing HIV/AIDS Platform to Address Non-Communicable Diseases in sub-Saharan Africa," the collection contains a dozen open-access articles published as a supplement to *AIDS*, the official International AIDS Society journal. The supplement is the output from a project that Fogarty's Center for Global Health Studies conducted with partners at NIH, CDC and USAID, with funding from NIH and PEPFAR.

Cardiovascular disease, cervical cancer, depression and diabetes are the four NCDs that are most likely to cause health problems for people living with HIV (PLHIV), according to an article that provides a systematic review and analysis of these diseases in low- and middle-income countries (LMICs). While there is little data from sub-Saharan Africa (SSA), reports indicate PLHIV are more likely to develop heart failure, stroke and embolisms than their uninfected peers. Women with HIV are at risk for human papilloma virus (HPV) disease, particularly cervical cancer, with between 10 and 40 percent having precancerous lesions and as many as 1.7 percent developing invasive cervical cancer. Depression also commonly accompanies HIV infection, contributing to greater morbidity and mortality. People who are depressed are three times more likely to be nonadherent to ART, the study also noted. There is a wide range of prevalence of diabetes among PLHIV, which reflects the variation between populations. In addition to the normal risk factors for diabetes, PLHIV also face inflammation and side effects of antiretrovirals, which may increase the likelihood for the disease.

In order to address these and other NCDs, health system deficiencies in infrastructure, human resources, medical supply chain management and program monitoring must be further strengthened, suggested authors who examined lessons learned from four SSA countries. They called for coordinated planning and action by policymakers, researchers and implementers and also noted some may perceive combining HIV and NCD client cohorts as a threat to gains made in HIV control.

An examination of global partnerships that responded to the HIV/AIDS epidemic concluded that a range of financial and technical support will also be needed to effectively combat NCDs. Economic aspects of combining NCD with HIV care programs were also studied, with authors concluding that "although integrated HIV/NCD care has many benefits, the economic justification is unproven." Better information is needed to make the case, they said.

More data are also needed on the prevalence and incidence of NCDs among PLHIV if policymakers are to correctly assess the threat in SSA and plan investments accordingly, noted another study. Ongoing dialogue among researchers, and program implementers and policymakers is key to successful HIV/NCD integration. Another priority should be to address extensive research questions detailed in one of the papers. Issues involve service delivery models; human capacity development; research and evaluation; supply chain; financing and economics; policy, governance and leadership; health promotion; partnerships and cross-cutting issues.

A new study details research questions related to integrating NCDs into HIV care.

Photo by Richard Lord for Fogarty

Countries in SSA should look to successful HIV programs as models to confront the looming NCD health crisis. "Controlling NCDs, which represent some of the biggest killers in the world today, is feasible," according to two of the publication's authors, Dr. Wafaa El-Sadr, of Columbia University, and Dr. Eric Goosby, of the University of California, San Francisco. "HIV has taught us one indelible lesson: that the impossible is possible."

RESOURCE

http://bit.ly/AIDSsupp

PROFILE

First Fogarty dermatology Fellow studies KS in Uganda

By Karin Zeitvogel

Dr. Aileen Chang broke the mold when she chose to investigate Kaposi's sarcoma (KS) in Uganda as a Fogarty Global Health Research Fellow. Although numerous skin conditions—albinism, autoimmune skin conditions, eczema and scabies, to name a few—affect people in low- and middle-income countries (LMICs), Chang was the first dermatologist to be awarded a Fogarty fellowship. "Dermatology is hugely relevant in LMICs, but completely underrepresented," noted Chang. "Fogarty can help to change that."

Chang chose to study KS during her fellowship year, in part because research and care programs for the condition were already in place in East Africa. "It takes time to build the partnerships and relationships, the infrastructure and equipment that allow a researcher to come in and get data they can act on," she said. "A year isn't a long time, so I wanted to study something for which there was already momentum." Specifically, she focused on the biology of KS and the tissue micro-environment of patients' skin lesions. Researchers at the University of California, San Francisco (UCSF)—the U.S. university partner on Chang's Fogarty fellowship—had hypothesized that KS patients might respond to a treatment developed for metastatic melanoma sufferers that boosts the body's immune response against cancer cells by inhibiting a protein called PD-1. "Maybe looking at the PD-1 pathway in KS will provide us with more understanding about the biology and immunology of KS and, down the road, lead to a therapy that would be useful," Chang said.

Spending 2016-17 as a Fogarty Fellow at Makerere University's Infectious Diseases Institute in Kampala was "career-affirming," Chang said. In addition to doing important research, she met other Fellows and researchers, and learned to recognize and resolve issues that may seem inconsequential to people in the developed world, but can prevent people in LMICs from getting care. For example, in Uganda, the cost of traveling to and from a clinic—often the only place where care is dispensed—deters some people from seeking medical attention. During her fellowship year, Chang investigated using locally made compression wraps for KS-related lymphoedema, reasoning that if wraps were available in a community instead of in clinics only, KS patients could use them at home. "Eliminating the barrier of transportation costs could be a simple way to improve care," Chang said.

Aileen Chang, M.D.

Fogarty Fellow:	2016-2017
Fellowship at:	Infectious Diseases Institute, Makerere University
U.S. organization:	University of California Global Health Institute
Research focus:	Kaposi's sarcoma

Being in Uganda also gave Chang unexpected research opportunities that she would never have had in the U.S. One arose when American and Ugandan scientists teamed up to study rheumatic heart disease in the East African country. Traditionally, rheumatic heart disease is thought to be caused by streptococcal pharyngitis—commonly called strep throat—which can lead to episodes of acute rheumatic fever, which, in turn, can cause rheumatic heart disease. But there are parts of the world where strep throat is not very common, but streptococcal skin infection is—and often found in association with scabies. Scientists know that superinfected scabies sores can lead to severe illnesses including septicemia, glomerulonephritis—and, potentially, rheumatic heart disease. "So these American and Ugandan investigators had me come along on this incredible experience where we screened thousands of children for streptococcal infection," Chang recalled. "While most of the researchers were looking at the throat, I was looking at the skin. This opportunity was nowhere on my radar, but, because I was in Uganda, I got to do it."

Now an assistant clinical professor of dermatology at UCSF, Chang continues to work on projects that link global health and dermatology. "Being a Fogarty Fellow opened my eyes wide to the relevance of dermatology in global health," she said. "Fogarty allowed me to build partnerships and relationships, and create something sustainable that continues to have an impact, even after my fellowship ended."

Q&A

TAMIWE TOMOKA, M.B.B.S., F.C.PATH

Dr. Tamiwe Tomoka leads the Malawi Cancer Consortium's pathology laboratory at Kamuzu Central Hospital in Lilongwe and is a faculty member at the University of Malawi College of Medicine. After earning her medical degree at the College of Medicine, Tomoka completed a residency in pathology at the University of Cape Town. On her return to Malawi, she received further training through the Medical Education Partnership Initiative (MEPI), which was administered by Fogarty. The first woman pathologist in Malawi, Tomoka wants to be a role model for other African women and girls.

How did MEPI shape your career?

I was already qualified as a pathologist when I started on the MEPI program, but it provided me with a platform to advance as a cancer researcher. More broadly, though, the MEPI helped Malawi lay the foundations for home-grown research and capacity building. Through a MEPI project that I was an investigator on, we developed pathology laboratories at Queen Elizabeth and Kamuzu central hospitals and trained Malawians in the use of medical technology. More than a dozen people in Malawi have been trained in different areas of cancer care through MEPI.

What were the aims of Malawi's MEPI?

The goals were to expand resources for cancer diagnosis and treatment and build capacity by training Malawian doctors, scientists and medical personnel to diagnose, treat and conduct research on cancer, particularly malignancies associated with HIV. When the University of Malawi College of Medicine was awarded the MEPI grant in 2010, there were just three pathologists in Malawi, serving a population of 15 million in a country with a very large burden of HIV—the prevalence among 15- to 49-year-olds was 15 percent. HIV-associated malignancies such as Kaposi's sarcoma and cervical cancer were on the rise, but because we lacked diagnostic capacity and had few qualified medical personnel or support staff, such as lab technicians, we had little data on cancer.

Under MEPI, we trained two pathologists, three technologists, five oncology nurses and one participant earned a master's of public health. In addition, we offered short-term training programs to doctors, nurses and pharmacists in areas such as cervical cancer screening, colposcopy and chemotherapy preparation.

How has research advanced health in Malawi?

Our cancer research projects have helped inform the management and treatment of cancer in Malawi, and enabled us to identify areas where we have to prioritize our resources and research. Prior to 2010, when we were awarded the MEPI grant, cancer was not one of the 10 diseases on the Ministry of Health's list of priorities, and efforts to control, prevent or treat cancer were minimal. Since 2010, however, cancer has been included on the ministry's strategic plan for noncommunicable diseases and we continue to build capacity and develop infrastructure for cancer care.

Why did you choose to go into pathology?

I made this decision because Malawi needs more pathologists, and because pathology forms the core of cancer care. It's by getting a pathology diagnosis that you know you have cancer. That diagnosis will inform your treatment. Pathologists like me are the centerpiece of the work we do on cancer. We're working with partners including the College of Pathologists of East, Central and South Africa (COPESCA) to develop a regional residency program in Malawi. I would like the program to be an example of how international collaboration and south-south cooperation feed off each other to create opportunities for research and bring more investigators through the pipeline.

What is your research focus today?

At the moment, it's breast cancer. At the Malawi Cancer Consortium—which is a collaboration between NIH's National Cancer Institute, the University of North Carolina at Chapel Hill, Malawi's Ministry of Health and the College of Medicine—we have a breast cancer study through which we want to establish a well-characterized cohort of women with breast cancer in HIV-endemic areas of Malawi in terms of risk factors, clinicopathologic characteristics and outcomes.

I want women and girls to know that, despite the barriers we face in life, we can achieve something and move our country forward. Things are changing in Africa—more women are getting leadership roles. One of my students was inspired by my career and is now Malawi's second woman pathologist. Trends like those must continue.

NIH supports cancer research to reduce disease burden

Cancer is increasingly striking populations in low-resource settings, due to rising longevity and other risk factors. Around 70 percent of the 8.8 million cancer deaths that occurred globally in 2015 were in low- and middle-income countries (LMICs), where most new cancer cases are diagnosed and there are the fewest resources to treat them. The forecast is grim, with the WHO predicting the number of new cases will increase by more than 50 percent by 2030.

Lung cancer is the most common cancer in the world. Of the estimated 1.8 million new cases worldwide in 2012, 58 percent were in less developed regions. Most cases are caused by smoking—and around 80 percent of the world's 1.1 billion smokers live in LMICs, according to the WHO.

Breast cancer is the second most common cancer, according to WHO's 2012 data, although a more recent report shows that it may have surpassed lung cancer to become the most common globally. Improved screening and care have meant the mortality rate for breast cancer has fallen but those gains have been concentrated in high-income regions. In sub-Saharan Africa, where many women present with late-stage disease, fewer than half survive beyond five years, compared with nearly 90 percent in the U.S.

Caused by the human papilloma virus (HPV), cervical cancer is the most common cancer among women in parts of Africa, Asia and Latin America. It is three times more likely to occur in HIV-infected women, whose immune systems are too weak to fight an HPV infection, than uninfected women. Together with Kaposi's sarcoma and non-Hodgkin's lymphoma, cervical cancer is considered an HIV-associated malignancy, which are more prevalent in LMICs where HIV infection continues to be widespread.

Other common cancers in developing countries include prostate, liver, stomach and esophageal cancer.

Researchers note that cancer instances are likely underreported in resource-poor countries, as few have cancer registries. Only around 11 percent of the population in Africa and six percent in Asia are covered by registries. Cancer prevalence in LMICs is expected to continue to grow because of:

- Improved treatment and prevention of childhood, infectious and parasitic illnesses, and lower maternal mortality rates, which have allowed people to live into middle- and old-age, when most cancers occur.
- Rising rates of obesity caused by changes to diet and reduced levels of physical activity due to urbanization and other causes. Obesity has been associated with more than a dozen cancers including breast—particularly in post-menopausal women—ovarian, esophageal and colorectal.
- Gene mutations, environmental factors such as indoor and outdoor pollution, and viral illnesses in addition to HIV, including hepatitis B or C, are also risk factors for cancer.

Photo by Richard Lord for Fogarty

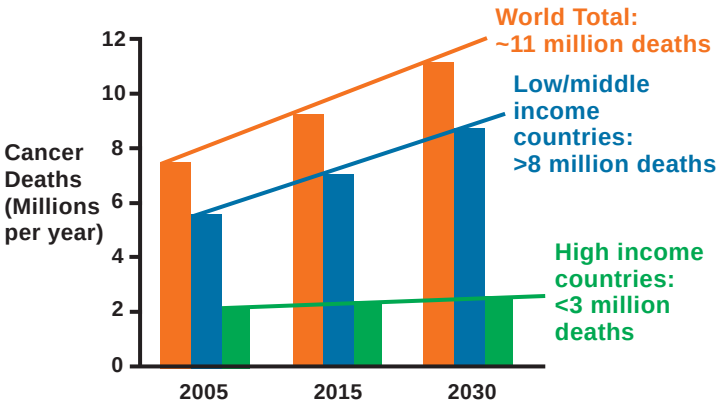
Trainees in Uganda learn to scan patients for breast cancer with support from Fogarty's Medical Education Partnership Initiative.

To stem the tide of cancer in LMICs, scientists say a multi-pronged approach is needed. Fogarty and NIH partners are supporting numerous projects to improve cost-effective and practical diagnostic tools and treatment options, explore genomics research, study tobacco cessation approaches and deploy mobile technology solutions, among others.

Studying cancers that are common in Africa, Asia or Latin America but rare in developed countries has allowed researchers to "reverse innovate" and use their findings to help cancer patients in the developed world—such as by bringing down the cost of treatment and finding less invasive ways to treat cancer.

Articles in this section by Karin Zeitvogel
Resources: http://bit.ly/GlobalCancer

Cancer deaths rising fastest in LMICs



Cancer currently accounts for ~12.5% of global deaths

Data Source: Globocan

About 70 percent of the world's 8.8 million cancer deaths in 2015 occurred in low- and middle-income countries.

-WHO

Researchers are also working to establish and expand cancer registries, which indicate how common certain cancers are, how frequently they occur, how well people are surviving and if there are clusters caused by environmental degradation or infections like HIV—all of which change a person's risk for cancer and can provide useful directions for future studies.

Global studies show single dose of HPV vax provides protection

The HPV vaccine has the potential to prevent women from dying from cervical cancer but many low- and middle-income countries (LMICs) are unable to afford multiple doses of the vaccine.

In 2004, a clinical trial was launched in Costa Rica to evaluate the efficacy of three doses of an HPV vaccine developed by a team of researchers, including several from the National Cancer Institute (NCI). At the end of the four-year trial, the researchers were surprised by the results: Women who received one or two doses of the vaccine had the same protection against HPV infections as the three-dose group.

"This leads us to believe that one dose may be enough. We're formally evaluating this research question now in a randomized controlled trial," said NCI's Dr. Aimée Kreimer, a senior investigator on the study.

Vietnam project studies text messages to curb smoking

In Vietnam, where more than half of men smoke, text messages are being studied as a means of reducing tobacco use through a Fogarty-supported grant to the University of Massachusetts Medical School (UMass). These messages, written by former Vietnamese smokers, are intended to motivate smokers to quit with help from cessation counselors via the Bach Mai Quitline in Vietnam. Smokers who call the quitline are provided with support and advice on smoking cessation, and free nicotine replacement therapy if they agree to quit.

The system is based on one used successfully in the U.S. to get smokers to kick the habit, but with messages adapted to the culture and needs of Vietnamese.

Early results from the project have found that many Vietnamese smokers cite family and work as the main reasons they want to quit smoking, and text messages are being crafted to address those motivations.

The project uses technology—sending the text messages—to foster human interaction between smokers and quitline counsellors, said Dr. Tom Houston, the health informatics and implementation science researcher and UMass professor who's leading the project. "There will certainly be benefits from the texting system in and of itself, but we expect those will be enhanced by encouraging people to speak with quitline counsellors."

The project is also providing training in tobacco control and the motivational systems for a Vietnamese mobile health researcher, and supporting development of a practice-based research network in the country.

"As a nation, Vietnam is really moving forward with tobacco control efforts and Fogarty is riding a rising tide of tobacco control efforts," said Houston. "So this is really an exciting collaboration."

Research, technology fight cancer in LMIC women

Nearly 90 percent of global deaths from cervical cancer and 60 percent of breast cancer mortalities occur in low- and middle-income countries (LMICs), where a lack of screening means many women present with advanced-stage disease.

"In Africa, where I do research, cancer is more common in women than men," said Dr. Clement Adebamowo, director for global health cancer research at the University of Maryland Medical School. "Over 60 percent of cancer cases in Africa are in women." Under the Human Heredity and Health in Africa (H3Africa) initiative, Adebamowo is studying the association between environmental, microbiomic, genetic and epigenetic factors, and HPV infection, and using molecular biology methods to characterize breast cancer tumors in thousands of Nigerian women. Fogarty, the National Human Genome Research Institute (NHGRI), and the NIH Common Fund provide NIH leadership on H3Africa.

Adebamowo is studying women from a defined area near the Nigerian capital to reduce "genomics noise"—defined by him as the deviation you might see when you mix Africans from one country on the continent with another, or with Africans in the Caribbean and African Americans. "People have said African women are uniquely predisposed to having poor prognostic tumors," said Adebamowo. "With our large sample size and new technology, we hope to be able to confirm that or lay it to rest once and for all."

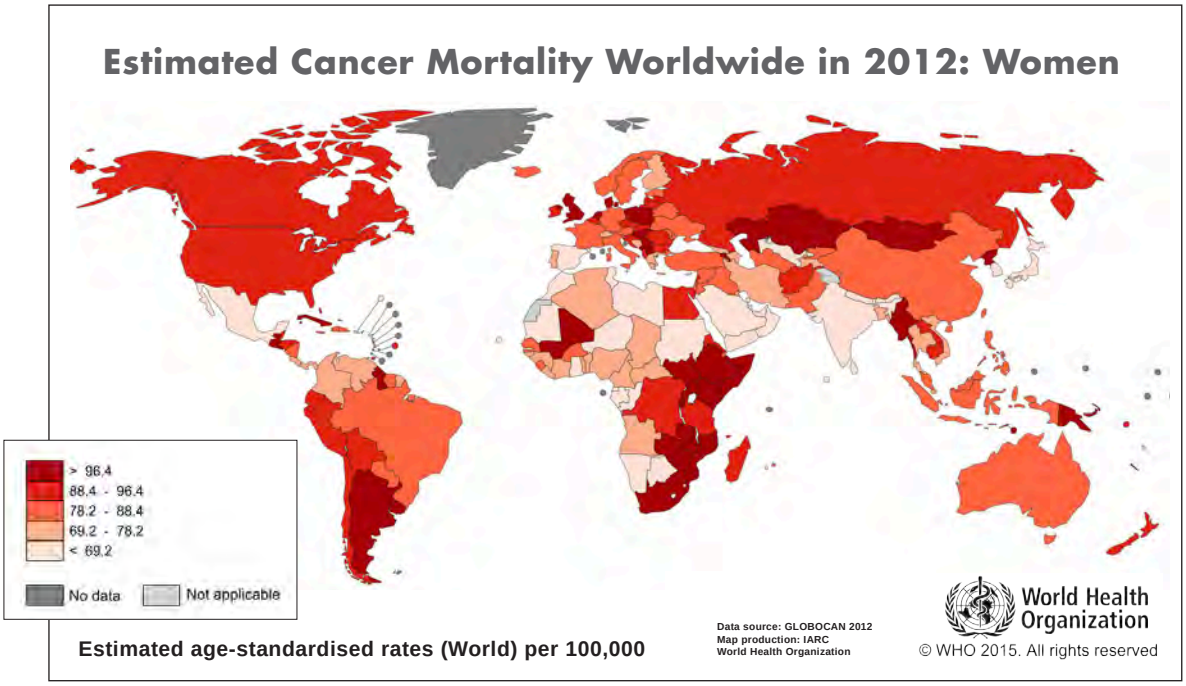
With her Fogarty International Research Scientist Development Award (IRSDA), Dr. Tomi Akinyemiju of the University of Kentucky is investigating whether the three-fold increase in breast cancer incidence in Nigeria over the past 40 years is linked to higher rates of obesity, hypertension and diabetes.

In Zambia, a project supported by Fogarty and the National Cancer Institute (NCI) used low-cost visual inspection with acetic acid, mobile technology and task-shifting to screen more than 100,000 women for cervical cancer. Seven women per 1,000 were found to have invasive cervical cancer. Women with HIV were more likely to show signs of precancer or cancer than those without the virus.

Reverse innovation

Scientists in Uganda have been able to study large cohorts of individuals with cancers that are relatively rare in the United States but common in East Africa, including Kaposi Sarcoma, Burkitt Lymphoma and triple negative breast cancer. "The burden of disease and types of diseases in Uganda afford us an opportunity for reverse innovation—to see whether a diagnostic or therapeutic intervention developed in LMICs could also be used to treat patients in the U.S. more effectively," said Dr. Corey Casper of the University of Washington and Fred Hutchison Cancer Research Center, which partnered with the Uganda Cancer Institute to train hundreds of physician-scientists, nurses, lab technicians and other cancer care-providers with Fogarty support.

Casper has also been gaining insight into immunotherapy by investigating tumor-infiltrating lymphocytes in cervical cancer in Ugandan patients, with funding from NCI. "We couldn't do this research in the U.S.," said Casper. "It's only possible because of the high prevalence of HIV and cervical cancer in Uganda, which allows us to study the relationship between the immune system and cancer in- depth."



NIH and Fogarty catalyzed cancer research in Malawi

A decade ago, Malawians with cancer had little hope of receiving meaningful treatment. Even a diagnosis could take more than six months, with only a single pathology lab to process specimens in the entire country. There was almost no capacity to conduct cancer research, despite the high-prevalence of HIV/AIDS and growing number of patients with related malignancies such as Kaposi's sarcoma (KS) and cervical cancer.

That began to change in 2010, when Malawi received a five-year Medical Education Partnership Award (MEPI) that was administered by Fogarty, and provided $1.9 million from the NIH and the President's Emergency Plan for AIDS Relief (PEPFAR). The grant supported a dedicated cancer clinic, strengthened cancer registries, and enabled specialized training in oncology nursing, cancer diagnosis, epidemiology, chemotherapy preparation and dosing, and palliative care. Two functional pathology labs were established and relevant training provided, reducing specimen processing time to two weeks. The country's health ministry endorsed the effort, acknowledging the significance of the problem, including cancer in its strategic plan and pledging to improve cancer care across the board.

Photo courtesy of Dr. Satish Gopal

Fogarty funding helped establish cancer research in Malawi, according to the University of North Carolina's Dr. Satish Gopal (left).

These fledgling efforts received a boost in 2012, with the arrival of University of North Carolina (UNC) oncologist and scientist Dr. Satish Gopal. Armed with both a Fogarty Fellowship grant and a larger, five-year research award, funded by Fogarty and the National Cancer Institute (NCI), Gopal's aim was to help catalyze the nascent cancer research culture in Malawi.

Aided by his Malawian partners and a steady stream of Fogarty Fellows, Gopal said research productivity quickly began to rise, resulting in publications on various aspects of HIV-related malignancies. Two years later, he and his partners successfully competed for a $3.7 million NCI award, co-funded by Fogarty, to establish the UNC-Malawi Cancer Consortium and continue to develop research capacity and conduct studies of KS and lymphoma.

His Malawian co-Principal Investigator, Dr. Sam Phiri, had earlier used Fogarty support to "leapfrog" in his career, progressing from trainee in 2000, to an established researcher with mentees of his own. The director of the Lighthouse Trust, Malawi's largest HIV care organization, Phiri earned a master's degree in sexually transmitted diseases and a Ph.D. in clinical epidemiology through a Fogarty program. The original cohort he established, including about 5,000 people living with HIV, is now mature, he said, and provides a valuable platform for studies of cancer and other noncommunicable diseases.

The Malawi research consortium has been extremely productive, publishing dozens of papers on KS, lymphoma, cervical and breast cancer, among others. "The excitement and enthusiasm emanating from our program have attracted exceptional young talent, which provides a strong foundation for future sustainability," Gopal said.

Malawi has become a key contributor to every NCI research network in Africa and the consortium is at the cutting edge of cancer research in low-income countries. For instance, the intersection of cancer and the immune system is an area of major global interest, given recent successes with cancer immunotherapy, which makes Malawi's research on HIV and cancer of great potential significance. There is also a growing emphasis in high-resource settings to lower the intensity of chemotherapy and better target treatments to improve outcomes at lower levels of toxicity. With the economic and resource constraints in Malawi, opportunities exist to make significant advances there that aren't possible in the U.S., where established, high-intensity standards of care are difficult to change, Gopal said. "It's understanding the realities of treating cancer in sub-Saharan Africa (SSA), taking new promising therapies and looking for opportunities to apply them in ethical, well-designed studies."

While the work is complex in SSA, much can be accomplished there to improve cancer treatment everywhere, Gopal said. "There are opportunities for that part of the world to make contributions to cancer, science and understanding, while at the same time improving care and outcomes for African patients. Those aren't mutually exclusive agendas."

OPINION

Implementing clean cookstoves is ongoing challenge

Cooking the family meal poses an enormous health risk for women and children in the poorest parts of the world. Exposure to household air pollution is estimated to cause about 3 million premature deaths each year. Despite decades of many well-intentioned efforts and millions of dollars invested in clean cookstoves, it's difficult to make meaningful progress, as many program implementers have discovered. Each low-resource setting has its own unique issues, fuel options, transportation logistics, maintenance requirements and so on. But, just as important, each culture, and perhaps even each household, has its own cooking tradition, preferences and ingrained behavior. As we all know, change is hard.

A new NIH-led study provides lessons learned on clean cookstove implementation.

Since 2010, Fogarty and our NIH partners have been collaborating on global efforts to try to find new ways to solve this problem—to encourage the efficient uptake of clean fuels and cookstoves and provide scientific evidence that they actually improve health. Neither has proved easily accomplished. We hope to add to the body of knowledge on the former with a new NIH-led publication that sheds some light on the various challenges and successes of clean cooking efforts in 13 countries across sub-Saharan Africa, Asia and Latin America. The Clean Cooking Implementation Science Network (ISN), supported by NIH and partners, has published an overview article and 11 case studies evaluating the status of implementation programs deploying a range of clean cooking solutions to meet household energy needs. These reports provide lessons learned that will inform others planning similar initiatives and provide advice for ongoing programs attempting to scale up their efforts.

The investigators used an established framework—known as Reach, Effectiveness, Adoption, Implementation, Maintenance, or RE-AIM—to examine various aspects of the projects. Five involve stoves powered by liquefied petroleum gas (LPG), two use ethanol, two use biogas digesters and stoves, and two focus on compressed biomass fuels consisting of pellets and briquettes. Each evaluation sheds light on best practices, as well as impediments to progress, which advance our understanding of the complexities of clean fuel implementation in various contexts and among different populations.

In addition, we're excited NIH is proceeding with a major multi-country trial to determine if LPG stoves can be effectively adopted in low-resource settings and if they improve air quality sufficiently to provide measurable health benefits. The five-year, $30.5 million study is being funded by NIH, with support from the Bill and Melinda Gates Foundation. Trial sites include India, Rwanda, Guatemala and Peru. Pregnant women are being recruited at each location and they and their infants will be followed until the children are one year old. Mothers will be evaluated to see if they suffer hypertension during pregnancy, while children will be examined to determine birth weight, growth and development progress, incidence of pneumonia and other health measures.

Though our progress may be slow, we are confident the research we support is adding to the global body of knowledge that will eventually help us reach our goal—providing clean and safe cooking solutions to all households, no matter where they are located.

RESOURCE

http://bit.ly/ESDcookstoves

PEOPLE

Global health leader Mahmound is mourned

Dr. Adel Mahmoud, an infectious diseases expert who was an advisor to Fogarty, the NIH, WHO and other organizations, died in June. A Princeton University professor, Mahmoud previously led Merck Vaccines, where he oversaw development of vaccines to prevent rotavirus infection, cancer-causing HPV, shingles and the combination measles, mumps, rubella and chickenpox vaccine.

Malaria researcher Doumbo has died

Internationally recognized malaria researcher and longtime Fogarty collaborator Dr. Ogobora Doumbo has died. Doumbo chaired the Department of Epidemiology and Parasitic Diseases at Mali's University of Bamako and co-founded and directed the Malaria Research and Training Center. He was involved in several malaria drug and vaccine trials.

U.S. State Department names science envoys

Five distinguished scientists are the newest members of the U.S. Department of State Science Envoy Program. Fogarty advisory board member Dr. Rebecca Richards-Kortum, of Rice University, is Science Envoy for Health Security. She will focus on opportunities for U.S. collaboration in Africa.

Dr. Michael Osterholm, who directs the Center for Infectious Disease Research and Policy at the University of Minnesota, and has been a Fogarty collaborator, is Science Envoy for Health Security. To combat biological threats, he'll work with priority countries on infectious disease preparedness and antimicrobial stewardship.

As Science Envoy for Innovation, chemical engineer Dr. Robert S. Langer, Jr., will concentrate on novel approaches in biomaterials, drug delivery systems, nanotechnology and tissue engineering. An Institute Professor at the Massachusetts Institute of Technology, Langer has received more than 220 major awards.

Dr. James Schauer, who directs Wisconsin's public and environmental health lab at the University of Wisconsin-Madison is Science Envoy for Air Quality. In this role, he will highlight American scientific strategies and technologies for mitigating poor air quality with a focus on South Asia.

A former astronaut and NASA administrator, Charles Frank Bolden, Jr. (USMC-Ret.) is Science Envoy for Space. Bolden, who flew four space shuttle missions including the first joint U.S.-Russian mission, will focus on space exploration and commercial opportunities.

Global HEALTH Briefs

Teenage girls bear brunt of AIDS epidemic

Teenage girls are at the center of the HIV crisis, according to a new UNICEF report. Last year 130,000 children and adolescents 19 and under died from AIDS, while 430,000 were newly infected. The majority of those were girls. While deaths among other ages have dropped, deaths among adolescents have not.
Full report: http://bit.ly/UnicefGirls

NIAID provides public tools for researchers

Scientists around the globe are accessing public resources supported by the National Institute of Allergy and Infectious Diseases to speed research by facilitating compilation and analyses of large data sets. Each of the six Bioinformatics Resource Centers has a particular focus, such as bacterial species, viral families, pathogens and disease vectors.
News article: http://bit.ly/NIAIDbio

PAHO study: research drives health

Research for health is the linchpin of effective and efficient health systems in the Americas, according to a special publication by the Pan American Health Organization (PAHO) and the BMJ. The articles offer a variety of perspectives on developments and challenges of implementing PAHO's research policy.
Journal articles: http://bit.ly/PAHObmj

WHO launches PrEP implementation app

The WHO has developed an implementation tool to provide mobile access to practical advice for the introduction and use of oral pre-exposure medication to prevent HIV infection. Designed for use by health workers, it's available for free download in the Apple and Google Play stores.
Website: https://hivoralprep.org

Website ranks country preparedness

With many parts of the world unprepared to face an epidemic, a new website is analyzing each country's ability to identify, stop and prevent infectious diseases, and providing a readiness score. PreventEpidemics.org offers detailed data on a country's preparedness strengths and gaps.
Website: https://preventepidemics.org

ESSENCE celebrates 10th anniversary

The TDR-hosted ESSENCE on Health Research initiative to harmonize and increase the impact of funding for health research and research capacity recently marked its 10th anniversary by reflecting on top achievements and publishing lessons learned about working in low-resource settings.
News article: http://bit.ly/Essence10

Funding Opportunity Announcement	Details	Deadline
Infrastructure Development Training Programs for Critical HIV Research at LMIC Institutions (G11)	http://bit.ly/FOGg11	Aug 23, 2018
Planning Grant for Fogarty HIV Research Training Program for LMIC Institutions (D71)	http://bit.ly/FOGD71	Aug 23, 2018
Fogarty HIV Research Training Program for LMIC Institutions (D43 Clinical Trial Optional)	http://bit.ly/HIVRTD43	Aug 23, 2018
Mobile Health: Technology and Outcomes in LMICs (R21 Clinical Trial Optional)	http://bit.ly/mhealthr21	Aug 31, 2018
Emerging Global Leader Award - Career Development (K43)	http://bit.ly/GlobalLeaderOp	Nov 7, 2018
Global Brain and Nervous System Disorders Research across the Lifespan (R21 Clinical Trial Optional) (R01 Clinical Trial Optional)	http://bit.ly/globalbrainR21 http://bit.ly/globalbrainR01	Nov 7, 2018 Nov 7, 2018
International Research Scientist Development Award (IRSDA) (K01) Independent Clinical Trial Required Independent Clinical Trial Not Allowed	http://bit.ly/IRSDAct http://bit.ly/IRSDAnoct	Mar 7, 2019 Mar 7, 2019
Planning for Noncommunicable Diseases and Disorders Research Training Programs in LMICs (D71)	http://bit.ly/NCDlifespan	Mar 14, 2019

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

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Collins encourages new Fogarty Fellows and Scholars

Photo by Marleen Van den Neste for Fogarty

NIH Director Dr. Francis S. Collins gave inspiring remarks to the 2018 Fogarty Scholars and Fellows during their weeklong orientation in Bethesda. The program provides participants with a year or more of hands-on, mentored research in a low- or middle-income country.

Since its inception in 2004, the program has supported over 900 participants in at least 30 countries, who have published more than 1,200 peer-reviewed papers in a wide variety of infectious and noncommunicable disease areas. Fellows have included veterinarians, engineers, cardiologists, nephrologists, oncologists and in this year's class, the first architect and lawyer.

Originally supported by a single private donation, the program now receives funding from 17 NIH Institutes, Centers and Offices.

RESOURCE

http://bit.ly/FogartyFS