



Fogarty study shows poor-quality malaria drugs causing drug resistance p. 4

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

Fogarty director joins US health delegation to Burma

As part of the warming of relations between the U.S. and Burma, Fogarty Director Dr. Roger I. Glass recently traveled to Rangoon to represent the U.S. at an international science meeting and to discuss possible research collaborations with the country's health minister.

"The Burmese are very enthusiastic about engaging with the U.S. scientific community to advance their research efforts in HIV/AIDS, malaria, dengue, and maternal and child health in particular," observed Glass. "I was very impressed with the caliber of scientists I met and look forward to establishing research and training collaborations with them."

In his role as lead U.S. health representative, Glass participated in the meeting of ASEAN's Committee on Science and Technology. He proposed that Fogarty and its federal partners host an influenza workshop in the region later this year, which was met with enthusiasm.

He also discussed ways to increase collaboration in research with the country's health minister, Dr. Pe Thet Khin, a U.K.-trained pediatrician. While in Burma, Glass visited the Department of Medical Research and met with former Fogarty trainees, many of whom received advanced instruction in infectious diseases research under an AIDS training grant to UCLA. "It was remarkable that the rotavirus surveillance set up in Burma more than a decade

Courtesy of U.S. State Department



Fogarty Director Dr. Roger I. Glass visited Burma recently to discuss possible research collaborations with the country's health minister, Dr. Pe Thet Khin.

ago is still providing meaningful and timely data on the burden of disease," noted Glass.

His three-day visit coincided with an announcement by Secretary of State Hillary Rodham Clinton to end sanctions against Burma, take steps to permit American investment there and appoint a U.S. ambassador to the country, the first since 1990.

Fogarty seeks input to update its strategic plan

Fogarty is requesting input from its grantees, the broader global health research community and the general public, as the Center prepares to revise its strategic plan, last updated in 2008. The goal of the planning process is to identify current and future needs and directions for global health research and research training.

The Center is seeking advice on the specific gaps, needs and opportunities it should address in the next five to 10 years in the broad areas of global health research and research training. Comments and suggestions may be submitted by email to FICStratPlan@mail.nih.gov until June 30, 2012.

FOCUS



U.S. economic impact

- Global health research funding benefits the U.S. economy
- Supporting biotech jobs in New York
- Driving innovation in California

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Leprosy's tragic past recalled in NIH exhibit

On a beautiful location in the Hawaiian archipelago, one settlement has a ghastly past: Kalaupapa's residents were stranded there because they had Hansen's disease, also known as leprosy. Their chilling story is relayed in the NIH's National Library of Medicine multimedia exhibition, "Native Voices: Native Peoples' Concepts of Health and Illness."

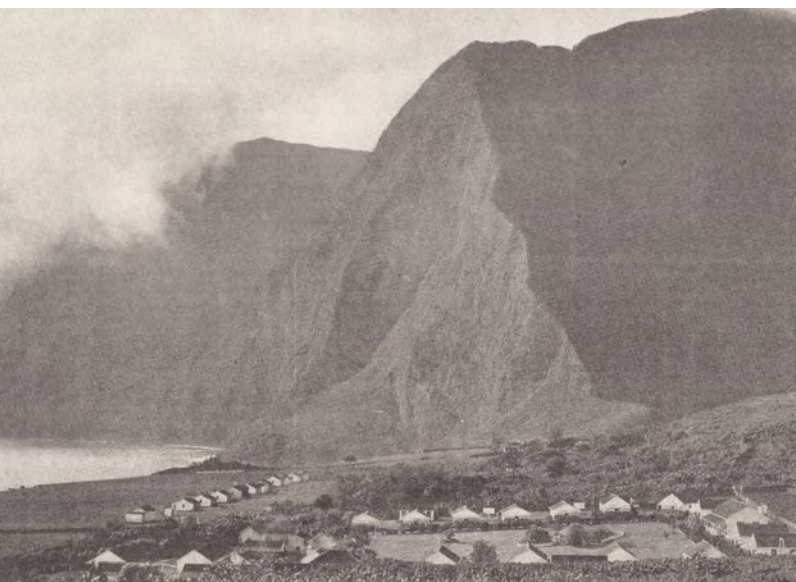
The feared and then-untreatable disease arrived in Hawaii with merchant sailors in the 1840s. "The disease became epidemic. There arose a fear that perhaps Hawaii would become a bastion of leprosy," according to Dr. S. Kalani Brady, a professor and physician in Hawaii who treats the islands' remaining Hansen's disease patients. This fear spurred the authorities to take harsh action.

Starting in 1866, they processed as criminals anyone suspected of having a telltale skin blemish. First, the person was arrested and examined, naked, by a circle of experts. Those convicted were boated to the Kalaupapa settlement on Molokai Island. They could not escape past the 3,000-foot-high cliffs separating them from the rest of the island or the shark-infested ocean and were left to spend the rest of their curtailed lives void of medical support, rule of law or any further contact with family.

Firsthand accounts preserved by the Kalaupapa National Historical Park reveal how people felt about being sent to this remote place, and of the conditions they faced.

"One of the worst things about this illness is what was done to me as a young boy," recalled one resident. "First, I was sent away from my family. That was hard. I was so sad to go to Kalaupapa. They told me right out that I would die here, that I would never see my family again. I heard them

Beginning in 1866, more than 8,000 Hawaiians with leprosy were confined on the island of Molokai, where they could not escape due to the high cliffs on one side and shark-infested ocean on the other.



Courtesy of National Park Service Archives



Young Hawaiian boys with leprosy were banished to the remote island settlement of Kalaupapa, away from their families and friends.

say this phrase, something I will never forget. 'This is your last place. This is where you are going to stay, and die.' That's what they told me. I was a thirteen-year-old kid."

The residents had some relief, however, when in 1873 missionaries began to move to the island and offer care. U.S. health authorities launched a concerted, scientific attack on leprosy, from the early 1900s, Brady noted, but growing the bacteria was difficult until researchers identified armadillos as suitable hosts. In the 1940s, sulfone drugs were found to be effective against the disease, but some patients remained confined in Kalaupapa until 1969. By then, more than 8,000 patients had been banished there. The site has been preserved as Kalaupapa National Historical Park and 20 Hansen's disease patients voluntarily live in the area.

The "Native Voices" exhibition content is available online and at the NLM's museum on the NIH campus through autumn 2013. The Kalaupapa story illustrates the devastating impact of external contact on Native Hawaiian health, the exhibit notes, but also illustrates how advances in medical knowledge can overcome ignorance.

Leprosy today

Leprosy, also known as Hansen's disease, has been successfully treated since the middle of the last century, but is still not eliminated. Caused by *Mycobacterium leprae*, pockets persist in some African countries, Brazil, India and Nepal. The WHO recorded nearly 230,000 new diagnoses in 2010. It is the unlucky few who develop the disease. About 95 percent of people infected with *M. leprae* do not develop leprosy because their immune system fights off the infection. The bacteria enter the body via the skin or more often the respiratory tract, spreading from human, armadillo or some primate vectors. The incubation before symptoms show can be as short as a few weeks or as long as 20 years.

RESOURCES

Online exhibit: www.nlm.nih.gov/nativevoices

Videocast: <http://bit.ly/LBkzvY>

Website: www.nps.gov/kala/historyculture/words.htm

Courtesy of Carl W. Bell, Baylor University Electronic Library

Genetic link discovered in tropical foot disease

A genetic variant makes some people more likely to develop podoconiosis, a tropical disease that causes foot and leg disfigurement, according to a recent study. Researchers identified four genes associated with the disease, which is triggered by walking barefoot on red clay soil that contains microscopic mineral shards from volcanoes. These shards penetrate the feet and—only in some people but often within families—induce an immune reaction of inflammation and painful, spreading lumps.

Identifying who has these genes and is therefore at elevated risk should accelerate preventive and treatment measures, the scientists said. Their study, published in the *New England Journal of Medicine*, was supported in part by the Wellcome Trust and the NIH's National Human Genome Research Institute (NHGRI).

Podoconiosis, also known as non-filarial elephantiasis, was recently designated a neglected tropical disease by the WHO. Its victims develop swelling in their feet, ankles and eventually legs. Along with the disfigurement comes social stigma and economic consequences. The only known way to prevent podoconiosis is to wear closed shoes from early childhood.

The researchers studied a population in a high-prevalence area in rural Ethiopia, where they estimated that siblings of an affected person were five times more likely to develop symptoms than people in the general population. The team collected saliva samples from 194 patients and from 203 controls—healthy members of families with podoconiosis cases and individuals from the general population—and conducted genomic association tests.

The four genetic variants found to be associated with podoconiosis are in a class of genes involved in T-cell-mediated inflammation. In this particular disease, mineral particles rather than pathogens might trigger the chain of responses. Immune cells in the lower limb lymphatic system engulf the shards, triggering inflammation, which is followed by fibrosis and obstruction of the vessels.

NIH researchers included Drs. Fasil Tekola Ayele, Charles N. Rotimi and Adebawale A. Adeyemo, all at NHGRI's Center for Research on Genomics and Global Health.

The authors said their study provides a research model for other fibrosing diseases, such as filariasis and pneumoconiosis, and for complex gene-environment inflammatory diseases, which are often poorly understood. They added that studies of podoconiosis patients in other parts of the world might reveal additional genes involved in disease susceptibility.

Courtesy of Dr. Fasil Ayele, NHGRI/NIH



NIH scientists have discovered a genetic link to podoconiosis, a disease that causes swelling and disfigurement in some people, after extended exposure to volcanic soil.

“This is an excellent example of how genomics can further our understanding on how to prevent terrible diseases that have a genetic basis,” Rotimi said. “Through our H3Africa initiative, we hope to build capacity in genomics throughout Africa so that scientists can discover genetic links for other diseases.”

Human Heredity and Health in Africa (H3Africa) aims to enhance the ability of African scientists to use cutting-edge research approaches to study the genes and environment behind common diseases and, ultimately, to improve health in African populations. H3Africa is supported by the NIH Common Fund and the U.K.-based Wellcome Trust. The first grants are expected to be awarded later in 2012.

Podoconiosis prevalence

The WHO says Ethiopia has the highest prevalence of podoconiosis, with an estimated 1 million of the world's 4 million cases, followed by Cameroon, with 500,000. The disease occurs in several other African countries, Central and South America, and India. In populations where the soil contains irritant shards, the prevalence is 5 to 10 percent, according to the WHO.

The economic consequences of lost work days are severe, for instance costing Ethiopia more than \$200 million annually. Stigmatization of those affected is pronounced. The disease can be avoided by wearing shoes consistently from a young age. Other preventive steps include washing feet daily with soap, using moisturizer, raising the legs and doing specific exercises. If swelling develops, compression bandages provide relief, the WHO says.

RESOURCES

Report: <http://1.usa.gov/MV8Hqc>

WHO designation: <http://bit.ly/JLCMUS>

H3Africa: <http://h3africa.org/funding.cfm>

Poor quality and fake malaria drugs pose threat

Poor quality antimalarial drugs lead to drug resistance and inadequate treatment that pose an urgent health threat, according to a Fogarty study published recently in *The Lancet Infectious Diseases* journal. Emergence of malaria strains that are resistant to artemisinin drugs on the Thailand-Cambodia border make it imperative to improve the drug supply, stressed the authors.

“Poor quality antimalarial drugs are very likely to jeopardize the unprecedented progress and investments in control and elimination of malaria made in the past decade,” according to Gaurvika M. L. Nayyar, a Fogarty scientist and lead author on the paper.

By studying survey data of the malaria drugs available across Southeast Asia and sub-Saharan Africa, researchers found that from 20 to 42 percent are either poor quality or fake. Poor quality samples were classified as falsified, substandard or degraded. Falsified drugs were fraudulently manufactured with fake packaging and usually no or wrong active ingredient. Substandard products were poorly manufactured with inadequate or too much active ingredient. Degraded supplies are good quality drugs that have been compromised by substandard storage.



Photo by Karlisha Khind, courtesy of PhotoShare

About one-third of malaria drugs tested in Southeast Asia were found to be fakes, according to a Fogarty study.

provided data on 2,634 malaria drug samples. Of these, more than one third failed on the basis of chemical analysis and about 20 percent were found to be fakes. Only Burkina Faso provided data on packaging analysis, with about a 35 percent failure rate.

Most of the world's 655,000 to 1.2 million deaths from malaria each year are preventable—if patients receive authentic drugs in appropriate dosages, early enough.

Multicountry surveys from seven Southeast Asian countries included data on 1,437 samples of malaria drugs. About one third failed chemical analysis, nearly half were not correctly packaged and 36 percent were fakes. 21 countries in sub-Saharan Africa



Photo by Arturo Sanabria, courtesy of PhotoShare

A Fogarty survey showed many African countries have insufficient resources to monitor the quality of antimalarial drugs.

In regions where malaria is prevalent, antimalarial drugs are widely distributed and self-prescribed, incorrectly or correctly. The study found there are insufficient facilities to monitor the quality of antimalarial drugs and poor consumer and health worker knowledge about the therapies. In addition, there is a lack of regulatory oversight of manufacturing and little punitive action for counterfeiters, the paper's authors contend.

No reliable global estimates are available on the extent of poor quality antimalarial drugs because there are no internationally accepted definitions of different types of inadequate drugs, no standard testing protocols or drug content requirements and no recognized international forum to provide technical and scientific oversight, the study reported.

A 2010 WHO survey highlighted the hurdles African medicine regulatory authorities face in tackling the problem. Agencies lack sustainable funding, face chronic staff shortages, and have few or no operational resources.

Improved monitoring of malarial drugs will help spotlight the urgent need for action, according to the study. One group working on this is the Worldwide Antimalarial Resistance Network, which is developing an online method to provide data on poor quality drugs.

Artemisinin derivatives are the most effective drugs against malaria, which is why scientists are so concerned about reports from western Cambodia that there are signs of resistance or tolerance to them. Modeling analyses suggest underdosing of patients, through poor quality or fake drugs, can play an important part in the spread of drug resistance.

“These findings are a wake-up call demanding a series of interventions to better define and eliminate both criminal production and poor manufacturing of antimalarial drugs,” Nayyar stated.

RESOURCES

News release: <http://1.usa.gov/LiBy5y>

Full article: <http://bit.ly/L2AHYp>

Worldwide Antimalarial Resistance Network: www.wwarn.org

MARY WOOLLEY



Global health research funding not only brings humanitarian benefits but is also a powerful driver of U.S. economic activity. One organization that tracks this phenomenon is Research!America, the nation's largest not-for-profit advocacy organization committed to making medical and health research a higher national priority. Mary Woolley, who has led the group since 1990, spoke with Global Health Matters on this topic.

Why is the U.S. global health research investment important to our domestic economy?

Like the federal investment in R&D targeting domestic diseases, global health R&D creates new jobs and new businesses in the U.S., benefiting local economies and increasing federal revenues to reduce the deficit. More than 211,000 jobs are supported by global health R&D in New Jersey alone. Across the U.S., private pharmaceutical, biotech and medical device companies are working on global health solutions—whether it is GeoVax in Georgia, Emergent Biosolutions in Maryland or Cepheid in California. Public-private partnerships, like the International AIDS Vaccine Initiative in New York or PATH in Washington state are creating domestic jobs and economic activity as they help solve some of the world's most pressing public health concerns. Not only is global health research important to our economy now, this investment will continue to contribute to a sustainable, knowledge-based economy that keeps the U.S. competitive and innovative.

What do you mean by innovation?

Innovation can happen in the blink of an eye or—when it comes to research and development—may surface over time. In terms of global health R&D, it can mean a breakthrough in federally funded basic science that enables private sector development of a new diagnostic, vaccine or drug, or the discovery that a product developed for one use has critical applications in another arena. For example, there's the tuberculosis drug BCG that is now the primary treatment for bladder cancer or the failed cancer therapy drug AZT that is now treating HIV/AIDS patients. Global health R&D innovation requires both public and private sector support: public sector dollars to finance the basic science that lays the groundwork for further discovery and private sector dollars to develop and commercialize global health products.

RESOURCES

Milestones in Global Health R&D: <http://bit.ly/K29eAz>

State-based fact sheets: <http://bit.ly/JDVwJg>

How does research training contribute to U.S. global competitiveness?

Our nation needs to cultivate leaders in all areas of innovation, including global health, to maintain our competitiveness in an increasingly globalized world. Many young scientists from abroad conduct research in the U.S., but we need to be able to retain the talent we attract and the students we cultivate here. Global health threats in the developing world are expanding to include diseases that were previously associated primarily with developed countries, and conversely, diseases that were previously confined to developing countries are emerging here in the U.S. The Fogarty International Center is playing a key role in ensuring that our nation can remain fully engaged in addressing global health threats, which advances our health, our economy and our humanitarian values.

How do Americans view global health research and the U.S. leadership role in science?

Research!America has commissioned recent polling in a number of different states across the country, and consistently Americans view global health research favorably, because of both its health and economic impacts. However, there is concern that our global competitive edge is slipping: According to a national poll we commissioned in March 2012, more than half (58 percent) of Americans do not believe the U.S. will be a world leader in science and technology in the year 2020. There is a clear disconnect between what Americans believe our nation should do and what they believe is actually happening.

What is the risk of stagnant or decreased funding for global health research?

The risk is certainly real, but we must fight to ensure that our nation's investment in global health R&D reflects the pressing need for more global health solutions and the positive impact of R&D on our economy. Compassion and pragmatism should drive Americans to advocate for this research, and Research!America—along with the Gates Foundation, the Global Health Technologies Coalition and other global health partners—is working hard to raise the profile of this critical issue.

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US economy benefits from global health research

U.S. global health research funding not only produces humanitarian benefits, improving and saving millions of lives worldwide, but also generates significant domestic economic activity and spurs scientific innovation. For every U.S. dollar spent on global health research and development, 64 cents go directly to domestic-based researchers and product developers, generating jobs, research and technological capacity, and additional investment, according to health advocacy groups.

Since federal research dollars are often heavily leveraged with matching funds, these grants and contracts are catalytic, fueling discoveries that help U.S. scientists remain global leaders in biomedical research. The NIH—the world’s largest government health research organization—plays a major role, developing scientific expertise and building research capacity that drive the economy.

“Research and development must remain a national priority for our country, to keep healthy the thriving U.S. research enterprise that saves lives and spurs new businesses and jobs throughout the country.”

— MARY WOOLLEY, Research!America, CEO

“Investment in the NIH continues to bring new ways to cure disease, alleviate suffering, and prevent illness. Furthermore, it generates new economic activity and employment in the communities that receive its funds,” NIH Director Dr. Francis S. Collins stated in congressional testimony.

Federal research investment offers significant return

As an example, Collins cited data that shows every \$1 of NIH health research funding, including for global health, returns \$2.21 in goods and services in just one year. In

Photo by Linda A. Cicero/Stanford News Service



NIH funding boosts California’s economy by supporting scientists’ salaries and research projects, such as those conducted in this Stanford University Medical School dermatology lab.

addition, every NIH grant creates an average of seven high-quality jobs, according to an analysis by FamiliesUSA.

Global health improvements generated by the U.S. research investment continue to mount. The U.S. contributed to 24 of the 45 new global health products developed worldwide between 2000 and 2010, according to Global Health Technologies Coalition (GHTC) in its recent report, “Saving Lives and Creating Impact.”

Among these products are a more effective diagnostic test for tuberculosis, a new vaccine to ward off meningitis and the next generation of HIV therapies. Today, the pipeline of 365 products in development is the largest ever.

The NIH’s new National Center for Advancing Translational Sciences is working to speed progress in bringing additional drugs to patients, by establishing a new collaboration between researchers and pharmaceutical companies. The companies will share their data on 20 compounds that didn’t work against their target diseases but might against different targets. A past example is the drug azidothymidine, which was ineffective against cancer but useful against HIV.

Public support is strong for global health research

U.S. citizens recognize that their country benefits from progress made against global diseases, such as HIV/AIDS, according to polls conducted by Research!America. Furthermore, a majority believes that the domestic economy also profits from global health research funding, not least in generating products, capacity and expertise that keep their country competitive in the world economy.

“Americans see science as a solution ... to our economic woes and health challenges,” said Research!America President and CEO Mary Woolley. In a recent poll, 78

The stories in this section were written by Cathy Kristiansen

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percent of respondents said that for the sake of their country's economic competitiveness and prosperity, it's important the U.S. continues to lead in the sciences. A related poll showed half of respondents said they would be willing to pay \$1 per week more in taxes if they knew it would go to medical research.

"Public support stems in part from awareness and local pride, from knowing that life-saving medical discoveries are emerging right here close to home," said Woolley. "It also comes from knowing that federal and state tax dollars are flowing into one's own communities, creating jobs and economic activity, private sector investment and business activity."

Interestingly, less than one penny of every U.S. health dollar goes toward global health research and development, according to Research!America.

Every state benefits from federal research

All U.S. states receive federal grants and contracts for health research, with the bulk coming from the NIH.

2011 NIH research funding	
SELECTED STATES	NIH FUNDING
California	\$3,535,284,000
New York	\$2,041,382,000
Maryland	\$1,687,676,000
Illinois	\$779,187,000
Georgia	\$463,293,000
New Jersey	\$250,728,000

Source: Research!America

California, the largest recipient of federal research funds, has a robust global health sector that contributes significantly to the state economy. About \$3.3 billion in NIH grants and contracts supported more than 62,000 jobs in the state in 2010, according to United for Medical Research.

"Investments in the biomedical infrastructure, in scientists' ideas and in workforce training are essential to drive the innovation that will spur America's economic recovery and future growth."

— DR. FRANCIS S. COLLINS, NIH Director

New York's economy benefits from Fogarty support

Fogarty's research training funds are just a small portion of the NIH dollars awarded to New York organizations but they can have a significant impact. Longtime Fogarty grantee, Dr. Jack A. DeHovitz of State University (SUNY) of New York Downstate Medical Center, has used his grants to train scores of scientists in techniques needed to combat the spread of sexually transmitted diseases in developing countries.

In order to prevent and treat diseases such as hepatitis and HIV/AIDS, he has taught researchers how to conduct diagnostic tests, analyze risk factors for transmission and assess the attitudes and behavior of adolescents, including condom use.

"Fogarty has funded AIDS research training for an area that critically needed it, that is, Central and Eastern Europe, which has the most rapidly rising epidemic now. We have been able to train more than 80 trainees who have gone back to provide key leadership in the nine or 10 countries in that region that have been devastated by the disease," DeHovitz said.

He noted that New York state's economy has benefitted from his grant funds in several direct ways, including faculty and staff salaries; university fees; supplies, travel and conference costs; and trainee stipends and accommodation.

DeHovitz stressed that any federal budget cuts would have "a dramatic impact," even within his own institution, where the ongoing training of eight to 10 global health scientists would end.

Overall, health research funds benefit New York in many ways:

- New York received more than \$2 billion in NIH grants in 2011, which supported 33,193 jobs. More than half went to New York City universities and nonprofit research centers, according to United for Medical Research Center for an Urban Future.
- New York is home to seven of the top 50 American research universities and two of the top 25 medical research universities, according to the Center for Measuring University Performance, 2010.
- The state gives a 9 percent corporate tax break to investment in research and development facilities, according to Empire State Development; R&D Credit Coalition, 2010.

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NIH grants and contracts supported more than 62,000 jobs in the state in 2010, according to United for Medical Research.

“We need public funding for the basic research, we need private investment in the execution of that research and we need world cooperation in all of the research,” Rep. Brian Bilbray, R-CA, said in a Research!America release.

Another state receiving substantial NIH funds is New York, with \$2 billion supporting more than 33,000 of the 80,000 life sciences jobs in 2011. The state houses seven of the top 50 American research universities and two of the top 25 medical universities. New York City alone has the largest bioscience workforce in the nation, according to data presented by Research!America.

Rep. Nita M. Lowey, D-NY, noted that her state leverages each federal dollar from global health funding at a 4-to-1 ratio, “stretching each taxpayer dollar even farther.” Investing in global health, she said, “is not only the right thing to do, it’s the smart thing to do.”

NIH’s home state, Maryland, contains 50 research-intensive federal institutes and centers that have helped foster about 500 bioscience companies, according to 2010 state data.

Federal funding drives scientific innovations in California, including advances in developing human heart cells made by Dr. Oscar Abilez and his multidisciplinary team at Stanford University.



Photo by Rhonda Baer, courtesy NCI/NIH



Researchers put health dollars to work at the NIH campus in Bethesda, bringing economic benefit to Maryland.

“Maryland’s life sciences industry continues to be one of our strongest economic drivers, creating high-paying jobs even in tough times and helping to feed, fuel and heal our planet with life-saving discoveries. Together, we can unlock our future potential, while offering moral leadership in an increasingly connected world,” Gov. Martin O’Malley commented.

“By providing global health research training opportunities for early career U.S. scientists, we are building the next generation of global health leaders and ensuring America will remain at the forefront of scientific discoveries.”

— DR. ROGER I. GLASS, Fogarty Director

Funding cuts could reduce US competitiveness

The enormous investment in global health research and other biomedical areas has propelled the U.S. to its world leadership position. Citizens are overwhelmingly supportive, with 91 percent of Research!America poll respondents saying it is important for the U.S. to maintain its world leadership role in science and innovation.

“Research and development must remain a national priority for our country, to keep healthy the thriving U.S. research enterprise that saves lives and spurs new businesses and jobs throughout the country,” said Woolley, whose group urges more global health funding, including for NIH.

Norbert von der Groeben/Stanford School of Medicine

NIH funding helps drive innovation in California

Fogarty funding is helping to drive technology development at a number of California institutions, including Stanford University, which has a Fogarty Framework Innovation award, among other grants.

Principal Investigator Dr. Michele Barry says the funding supports her state's economy in a number of ways. Grants help pay for staff positions and the training of students and fellows, as well as make possible scientific workshops, meetings and travel. Her institution leverages its federal funds, drawing additional support from foundations and private donors. In addition, Stanford collaborates with the private sector on research projects and contracts small volume manufacturers to produce its cutting-edge global health-related products.

One of Barry's programs uses Fogarty funding to support teams of faculty, postdocs, fellows or students to investigate how new medical technology might solve a global health problem. A device currently in development would help children survive pneumonia—the biggest killer of those under age five.



Photo by David Janika

In severe cases, fluid build-up in the lungs hampers breathing. The prototype, named AdaptAir, aims to ensure that breathing machines work as they should. Because the adapter typically used in developing countries comes in one standard size that doesn't always fit well, the pressurized air can escape where the tube attaches to the baby's nose. AdaptAir converts generic nasal prongs into a securely fitting, customized nasal tube interface.

Building a cadre of scientists with excellent research skills who are comfortable working in an international context is critical, noted Fogarty Director Dr. Roger I. Glass. "By providing global health research training opportunities for early career U.S. scientists, we are building the next generation of global health leaders and ensuring America will remain at the forefront of scientific discoveries," he said.

However, concern about the U.S. budget deficit makes it unlikely NIH funding will increase or even remain constant. Unless Congress revisits the issue of widespread spending cuts, set to begin in January 2013, the NIH faces an 8 percent drop in its fiscal 2013 budget.

Collins has warned about the drawbacks of cutting NIH funding, not least the risk of diminishing U.S. competitiveness.

www.fic.nih.gov



Photo by Carey Lee

Stanford University uses research funds to develop low-cost solutions for global health problems, such as this gadget that prevents air leakage from breathing machines used to treat babies suffering from pneumonia.

Other ways in which health research funds generate economic activity in the state include:

- The global health sector supports about 350,000 high-quality jobs and generated \$19.7 billion in wages, according to UC Global Health Institute (UCGHI) 2007 data.
- About 600 private, for-profit companies are engaged in global health activities and their employees earn an average salary of \$71,500, according to UCGHI.
- California's academic community plays a significant role in global health, generating at least \$4 billion in business activity and employing more than 12,000 people, UCGHI data show.
- Global health-related business contributes significantly to taxes, accounting for an estimated \$8 billion, or 7 percent, of the \$114.7 billion in total taxes in 2007, UCGHI reported.

"Investments in the biomedical infrastructure, in scientists' ideas, and in workforce training are essential to drive the innovation that will spur America's economic recovery and future growth," he said. "Because of increasing foreign research funding and flat funding for the NIH, the NIH is becoming an increasingly smaller funder of biomedical research relative to our competitors."

RESOURCES

Research!America polls: <http://bit.ly/Mfhapp>

State-based fact sheets: <http://bit.ly/JDVwJg>

Global Health Technologies Coalition report:
<http://bit.ly/KZjugO>

Dr. Collins testimony: <http://1.usa.gov/KurHdm>

Planning to meet future global health needs



Capacity building is a long-term process. It's often years or even decades before we see the tangible results from our trainees in terms of the scientific discoveries they are able to make, and the multiplier effect as they, in turn, train additional researchers.

That's one reason it's vital that we at Fogarty periodically spend some time listening to our stakeholders to assess the current research and training gaps and make projections about the kinds of knowledge, skills and subject matter expertise that will be essential for global health researchers five or 10 years from now.

We last revised our strategic plan in 2008, when we comprehensively reviewed the landscape for global health research and training and developed a set of goals. While much has been accomplished over the last five years, many challenges remain. And, of course, some circumstances have changed. We view this round of strategic planning as an opportunity to review and refresh our goals, without making a major change in direction.

We'd like to capitalize on the tsunami of interest in global health we're witnessing on campuses across the U.S. We've revamped our Fogarty Fellows and Scholars program to focus more attention on providing postdocs with a foreign research experience. We also must recruit participants with expertise in diabetes, mental health, oncology and other fields if we are to build the next generation of global health leaders needed to prevent and treat the rising tide of chronic, non-communicable illnesses.

Advances in communications technology are also of great interest to us and the global health community. How can we better integrate information communications technology into our programs? mHealth receives a lot of attention but there is little evidence to indicate how it can be implemented to improve health. Is this something we can help tackle? Many of our grantees have developed distance learning components for their research training programs. Are there ways we can coordinate and promote

these resources to maximize their impact and reduce redundancies?

The world's emerging economies—such as Brazil, Russia, India and China—now have highly developed biomedical enterprises that present new opportunities. These countries have reached the stage where they're able to become equal research partners with NIH, with each side paying its own way but working together and sharing expertise to speed discoveries. Another new collaboration is our Medical Education Partnership Initiative, which is intended to strengthen sub-Saharan Africa's medical schools. All the participants are linked together so they can leverage resources and exchange best practices. How can we strengthen the MEPI network and attract new partners to bring additional expertise and support?

At Fogarty, we strive to be a catalyst, drawing attention to a critical issue or unmet need, providing seed money that will mobilize others to join in. We like to think we add value by making connections, facilitating international collaborations and bringing a variety of players with mutual interests together to solve a problem. What are some of the issues we should address in the future?

We also believe Fogarty plays a vital role as a convener, bringing the best scientific minds to bear on a particular topic. For instance, over the past few years we have assembled the world's experts to grapple with tough issues such as polio eradication and artemisinin resistance that threatens our progress against malaria. Our epidemiology division provides timely analysis and modeling of influenza, malaria and other disease topics. What are the critical research gaps they should study next?

These are all important and complex issues to address. I welcome your thoughts and suggestions to help guide us in our planning so that, together, we can meet the challenges ahead.

Please send your comments and suggestions by June 30 to FICStratPlan@mail.nih.gov.

RESOURCES

Notice of RFI: <http://1.usa.gov/KZ8u2J>

Current Fogarty strategic plan: <http://bit.ly/JwcJjb>



Former Fogarty advisor to lead World Bank

Former Fogarty Advisory Board member, Dr. Jim Yong Kim, has been selected as the next World Bank president. Kim, a health expert and anthropologist who has spent much of his career working to help those in poverty, begins his five-year post on July 1. He served on the Fogarty board from 2007 until 2009, when he became Dartmouth College president. He was previously on the faculty at Harvard Medical School and chaired WHO's Department of HIV/AIDS.



Foege awarded Presidential Medal of Freedom

The White House has announced Dr. Bill Foege will be awarded the U.S. Presidential Medal of Freedom for his leadership in ending smallpox. Foege is a senior fellow at the Bill & Melinda Gates Foundation and previously led the CDC. The Medal of Freedom is America's highest civilian honor, presented to individuals who have made especially meritorious contributions to the security or national interests of the U.S., to world peace, or other significant endeavors.



Gibbons named new director of NHLBI

Cardiologist Dr. Gary H. Gibbons has been named the new director of the National Heart, Lung and Blood Institute. He comes to NIH from the Morehouse School of Medicine in Atlanta, where he directed the Cardiovascular Research Institute and chaired the physiology department. His institute is renowned for scientific discoveries related to the cardiovascular health of minority populations. Gibbons graduated from Harvard Medical School and completed his residency and cardiology fellowship at the Brigham and Women's Hospital in Boston.



Prakash leads NEI's international programs

Dr. John Prakash is the new Associate Director for International Program Activities at the NIH's National Eye Institute. With 25 years of experience in global health research and development, Prakash has managed clinical research programs on five continents. Most recently, he was chief operating officer and principal scientist for Amar International. Previously, he led international clinical project teams at Pfizer. He earned a Ph.D. in microbiology from the University of Illinois, and completed both a postdoctoral fellowship in biotechnology and an MBA in pharmaceutical management and marketing at UCLA.



Morse to receive Volwiler award

Fogarty grantee Dr. Gene D. Morse will receive the 2012 Volwiler Research Achievement Award, honoring his outstanding research and contributions to clinical/translational pharmacology and pharmaceutical sciences. A professor at the University of Buffalo, Morse will receive the award from the American Association of Colleges of Pharmacy in July. He received Fogarty funding for his HIV/AIDS work and capacity-building with the University of Zimbabwe.

NIH launches stem cell center website

The NIH Center for Regenerative Medicine has launched a website to provide information regarding its efforts to support the clinical translation of stem cell-based technologies and develop widely available resources to be used as standards in stem cell research.

Website: <http://crm.nih.gov>

USAID offers free online courses

USAID is offering free online courses that cover more than 50 global health-related topics of interest to people new in the field or wishing to refresh their knowledge. The series of one- to two-hour courses blends up-to-date technical and programmatic content written by experts.

Website: www.globalhealthlearning.org

ESSENCE publishes report on research costing

A new best practice document offers five recommendations for researchers and funders that aim to make overhead allocation easier and more consistent. The report was produced by the ESSENCE on Health Initiative, a collaborative framework including Fogarty, designed to enable a scale-up in global research capacity.

Report: <http://bit.ly/MsidB6>

WHO releases study on diseases, poverty

WHO has released a study on how research can help break the disease-poverty cycle, titled "Global Report for Research on Infectious Diseases of Poverty." It contains information on three themes: environment, climate change and social factors; health systems research; and innovations and new technologies.

Report: <http://bit.ly/JiSkAQ>

World Bank opens access

The World Bank has launched a new open access policy, created an online knowledge repository and adopted a set of new copyright licenses to make its research as widely available as possible.

Website: <https://openknowledge.worldbank.org>

Mapping Africa's research ethics capacity

The Council of Health Research Development has launched a web platform called "Mapping African Research Ethics Capacity," so stakeholders can share research ethics data in real time and track the geographical distribution of research ethics committees in Africa.

Website: <http://bit.ly/JIN8vh>

Funding Opportunities

Funding Opportunity Announcement	Details	Deadline
Fogarty HIV Research Training Program for Low- and Middle-Income Country Institutions (D43)	http://1.usa.gov/H11H9y	July 24, 2012
Limited Competition: Planning Grant for Fogarty HIV Research Training Program for Low- and Middle-Income Country Institutions (D71)	http://1.usa.gov/GXAS2j	July 24, 2012
Training Programs for Critical HIV Research Infrastructure for Low- and Middle-Income Country Institutions (G11)	http://1.usa.gov/HktC17	July 24, 2012
Limited Competition: Framework Programs for Global Health Innovation (D43)	http://1.usa.gov/JYqonE	December 14, 2012
Limited Competition: Brain Disorders in the Developing World: Research Across the Lifespan (R01) - Non-AIDS	http://1.usa.gov/L6UUfk	February 14, 2013
Brain Disorders in the Developing World: Research Across the Lifespan (R21) - Non-AIDS	http://1.usa.gov/JjpxKs	February 14, 2013

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

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Fogarty changes country eligibility for research training programs

Fogarty recently issued an NIH Guide notice announcing the Center is changing eligibility requirements for applicants to its research training programs, as of January 2013. Fogarty will no longer accept competing applications for training activities (D71 and D43 grants) in upper-middle-income countries (UMICs) that are also members of the Group of Twenty, or G20, the organization of the world's major advanced and emerging economies.

The new criteria will affect eligibility for: Argentina, Brazil, China, Mexico, Russia, Turkey and the upper-middle-income European Union member countries of Bulgaria, Latvia, Lithuania and Romania. An exception is being made for South Africa, given the continuing HIV/AIDS epidemic, in addition to the vital role training programs centered there have in increasing scientific capacity throughout the region.

"Since we began funding capacity building projects in low- and middle-income countries 25 years ago, the landscape has changed considerably. We are pleased to see the markedly improved research environments that have developed in a number of countries where we have supported activities," said Fogarty Director Dr. Roger I. Glass.

This change does not preclude involvement of G20 UMICs as partners in Fogarty research training programs where the goal is to train scientists from eligible LMICs and to build research capacity at the LMIC institutions.

This policy change applies only to new or re-competing applications for Fogarty training activities submitted after January 2013 and does not affect current grants. This does not change eligibility for Fogarty research programs nor does it apply to grant programs for any other component of the NIH.

For more information: <http://1.usa.gov/MBadOh>

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