

# WORLDWIDE WELLNESS

## The Fogarty International Center and global health

By Jan Tegler

Established four decades after the Ransdell Act of 1930 created the National Institutes of Health (NIH), the Fogarty International Center (FIC) is named for Rep. John Edward Fogarty (1913-1967), the Rhode Island congressman (1940-1967) frequently referred to as “champion of better health for the nation.”

Throughout his career, Fogarty was an advocate for international health research to reduce suffering and foster peace and prosperity globally. He was also an ardent supporter of the NIH. Over his 16-year tenure as chair of the Appropriations Subcommittee with responsibility for health funding, the budget for NIH grew from \$37 million in 1949 to \$1.24 billion in 1967.

It was following Fogarty’s untimely passing on Jan. 10, 1967, at the age of 54 (he suffered a lethal heart attack while being sworn in for his 14th term in office) that President Lyndon B. Johnson issued an executive order creating the John E. Fogarty International Center for Advanced Study in the Health Sciences.

Today, the mission of FIC reflects the vision of its namesake, supporting and facilitating global health research conducted by U.S. and international investigators, building partnerships between health research institutions in the United States and abroad, and training the next generation of scientists to address global health needs. Over the last four decades, nearly 5,000 scientists worldwide have received significant research training through Fogarty programs.

FIC funds some 400 research and training projects involving more than 100 U.S. universities. In turn, American scientists collaborate with colleagues in foreign countries, primarily in the developing world. FIC also brings together the world’s top scientific minds to address critical global health research problems such as polio eradication, the impact of climate change on disease outbreaks, and strengthening research capacity in Africa.

The center supports global health research and training programs that improve health and generate data and concepts to guide national and international global health policies – including analyses of social, ethical, and economic issues – via four divisions. For an understanding of each and how they facilitate wellness worldwide, let’s take a look at recent FIC news.

### DIVISION OF INTERNATIONAL TRAINING AND RESEARCH (DITR)

On Nov. 7, 2012, Winston-Salem, N.C.’s Wake Forest Baptist Medical Center (an integrated academic medical center comprised of the clinical structure and consumer brand Wake Forest Baptist Health and medical education and research components of Wake Forest University School of Medicine) announced its participation in a cooperative effort with the Johns Hopkins School of Medicine and the Nitte University/K.S. Hegde Medical Academy/A.B. Shetty Memorial Institute of Dental Sciences in Mangalore, India, to launch a genetics center for the study of genetic differences in populations related to how they convert certain dietary fats known as polyunsaturated fatty acids (PUFAs).

The collaboration is being supported with a two-year, \$200,000 grant from FIC. The funding will be used to set up training mechanisms for investigators and Ph.D. candidates from the three partnering institutions, which are all making in-kind contributions of staff, labs, and equipment. The long-term objective is to create the technical and intellectual infrastructure to carry out a larger project to analyze DNA and circulating fatty acids in major population centers in India.

The grant and the work it supports are a perfect example of DITR’s mission – the training of health researchers at home and abroad. The division administers research grants, training grants, and fellowship programs at sites in more than 100 countries. Training programs address health challenges including: infectious disease (e.g., HIV/AIDS, tuberculosis, and malaria); chronic conditions (e.g., cancer, heart disease, and diabetes); population health; informatics; genetics; and clinical, operational, and health services.

Health research in the 21st century is increasingly a team effort. Interdisciplinary research groups have been prime movers



**NIH Director Francis S. Collins, M.D., Ph.D., learns about one participant's experience in the Fogarty International Center's Scholars and Fellows program. Such programs help the center achieve its mission of training health researchers at home and abroad.**

in the development of low-cost diagnostics and cost-efficient ways to prevent and treat disease. Research groups are best suited to address global health issues when the teams are multinational and sensitive to local culture and context.

Fogarty programs build the research pipeline. Nearly a quarter of FIC awards are made directly to research institutions in the developing world. The remaining grants, like the aforementioned, support scientists at U.S. institutions who collaborate with colleagues abroad. About one-third of Fogarty's grants focus on scientific discovery, and two-thirds support research training.

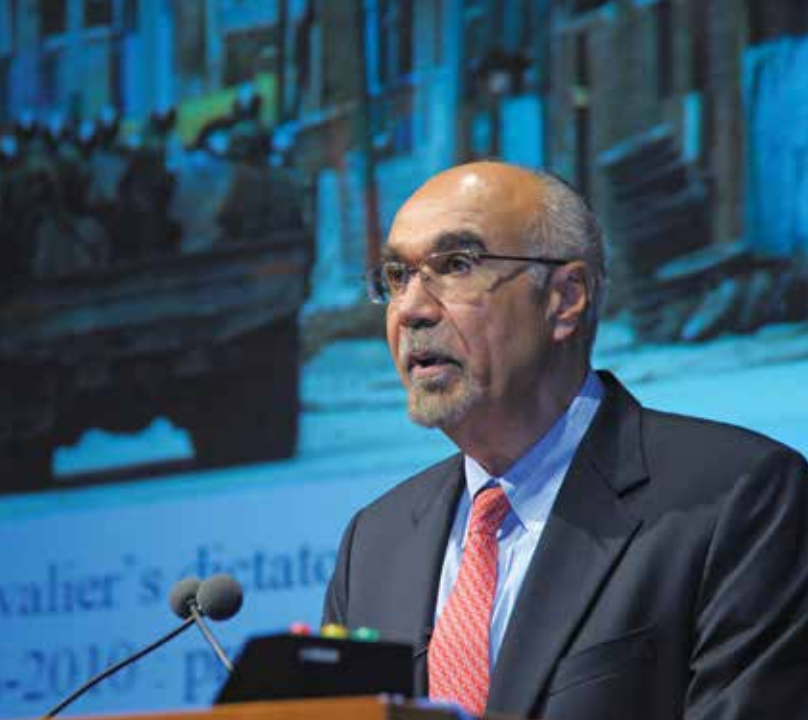
#### **DIVISION OF INTERNATIONAL SCIENCE POLICY, PLANNING AND EVALUATION (DISPPE)**

Last fall, FIC's bimonthly *Global Health Matters* newsletter featured a story on the 25th anniversary of the center's AIDS International Training and Research Program (AITRP). In celebration of the successful program, FIC gathered together

AITRP program directors and former trainees from regions including South America and Africa to discuss the effort's achievements and review challenges that remain.

Prompted by the devastating HIV/AIDS epidemic, AITRP began as an experiment in 1987 to see if it was possible to train a generation of developing country scientists capable of leading world-class research efforts in their home countries. FIC leaders grasped the importance of empowering local experts to study how the disease was being transmitted in their cultures and how best to tailor approaches to halt it.

Two-and-a-half decades later, AITRP has played a vital role in preparing as many as 2,000 developing country researchers to contribute to landmark discoveries in the HIV/AIDS field. Alumni returned home and passed on what they learned to expanded numbers of additional trainees. Relationships among those involved in the program, including the U.S. partners, have continued. Many former trainees are now policymakers themselves, not only in the HIV/AIDS arena but also in global or public health institutions.



**Left:** Longtime FIC grantee Jean “Bill” Pape, M.D., visited NIH in 2010 to report that HIV/AIDS research at GHESKIO (the Haitian Group for the Study of Kaposi’s Sarcoma and Opportunistic Infections), a research and training center for HIV/AIDS in Haiti, had resumed, just months after the devastating earthquake that struck in January. Pape is a senior AITRP collaborator. **Right:** FIC Director Roger I. Glass, M.D., Ph.D., spoke at the first annual U.S.-Russia Scientific Forum. The purpose of the event, held in Moscow, was to explore research collaborations in areas of common interest. The center’s Division of International Relations works to develop partnerships with U.S. and foreign scientists and institutions.

FIC’s understanding of the success of AITRP and its other programs is enabled by a stable of in-house assessors and advisers – DISPPE. The division provides strategic guidance to Fogarty’s director on the development, analysis, and evaluation of Fogarty’s programs and on international science policy issues. An evaluation officer implements program assessments across Fogarty via a DISPPE-developed Framework for Evaluation.

The division also incorporates a bioethicist to support the development of sound international bioethics policy and global ethical review capacity. DISPPE is a co-founder/funder of the Global Forum on Bioethics in Research, which provides a unique platform for stakeholders in health research in the developing world to engage in dialogue about their ethical concerns. It also provides bioethics research training grants to help domestic and foreign institutions to develop training programs in bioethics related to performing research in developing countries.

DISPPE also tracks activities of international funding agencies and research trends in global health. The division advises Fogarty’s director on legislative and partnership matters and manages the center’s involvement in the Disease Control Priorities Project – an ongoing effort to assess disease control priorities and produce evidence-based analysis and resource materials to inform health policymaking in developing countries.

Finally, DISPPE plays an important role in developing public-private partnerships as a means for Fogarty to accomplish its

public health mission through the development of synergistic relationships with outside entities.

#### DIVISION OF INTERNATIONAL RELATIONS (DIR)

The Division of International Relations is FIC’s liaison with the world. Responsible for identifying and developing new partnerships between U.S. scientists, institutions, and counterparts abroad to advance research and training in the biomedical and behavioral sciences, DIR works on behalf of the center and the whole of NIH.

Division staff connect NIH with global health agencies and officials in seven regions including East Asia and the Pacific, Europe, the Middle East/North Africa, Sub-Saharan Africa, South Asia, the Western Hemisphere region, and Russia/Eurasia/Arctic Affairs. In addition to seeking out opportunities for collaboration with foreign science funding agencies, DIR pursues partnerships with the U.S. Department of State, U.S. technical agencies, and international organizations.

The U.S. Agency for International Development (USAID) and NIH’s new grant program – Partnerships for Enhanced Engagement in Research (PEER) Health – jointly announced by the agencies last July, is a good illustration of the kind of partnerships DIR helps FIC foster. FIC and the National Institute of Child Health and Human Development (NICHD) staff consulted with USAID to formulate the program.

PEER grants are aimed at helping to end preventable child deaths in developing countries. The program is open to



*Aedes aegypti*, a mosquito that is a vector for several tropical fevers including dengue. Through RAPIDD, a program managed by FIC's Division of International Epidemiology and Population Studies, Shweta Bansal, Ph.D., has worked with mathematical models to determine how dengue spreads within Iquitos, a large Peruvian city.

applicants from the 24 low-income countries that account for 80 percent of the under-age-5 child deaths or low-income countries that have a Global Health Initiative (GHI) strategy in place.

Developing country researchers must have an NIH-funded research partner to be eligible, and the projects must align with country health priorities and demonstrate scientific merit. Each award will provide up to \$450,000 over three years to support collaborations that address research-to-practice barriers, while building professional capacity and more closely linking USAID missions with local health and research institutions. The number of awards is subject to the availability of funds.

The PEER Health Child Survival program is supported by USAID's new Center for Accelerating Innovation and Impact within the Global Health Bureau, and the Office of Science & Technology in the Policy, Planning, and Learning Bureau. The NICHD at NIH will support the review of proposals.

#### DIVISION OF INTERNATIONAL EPIDEMIOLOGY AND POPULATION STUDIES (DIEPS)

In late 2011, a story in FIC's *Global Health Matters* newsletter detailed the work of Shweta Bansal, Ph.D., a computational mathematician who conducts research focused on human ecology and behavior, investigating how humans interact with social and natural environments and how that impacts and is impacted by infectious disease transmission.

Bansal constructs network models to create a backbone to show how infectious disease spreads. Her models reveal patterns of human or animal interaction that allow researchers to recommend points of intervention. The research can assist policymakers in making the right choices that can prevent the spread of disease and save lives.

The Indian-born American is a postdoctoral research fellow with the Research and Policy for Infectious Disease Dynamics program – RAPIDD. RAPIDD is managed by DIEPS and the U.S. Department of Homeland Security, which provides funding. The

effort is designed to improve standards in infectious disease modeling to better inform policy decisions.

It's one of three major programs DIEPS oversees, along with MAL-ED (a five-year multi-site project to investigate the linkages between malnutrition and intestinal infections and their effects on children in the developing world) and the Multinational Influenza Seasonal Mortality Study (MISMS). MISMS is an international collaborative effort to analyze national and global mortality patterns associated with influenza virus circulation.

Bansal's work exemplifies well the role of DIEPS at NIH – conducting research in epidemiology and mathematical modeling of infectious diseases. Primary concentrations include cross-national studies of mortality patterns with special emphasis on influenza-associated disease, malaria, and other vector-borne and vaccine-preventable diseases. Outcomes of DIEPS research and other activities are changes in public health policies and practices to decrease disease burdens.

Bansal's research covers both direct and vector-borne disease transmission. Throughout 2011 she modeled data on dengue collected over a decade in Iquitos, the largest city in the Peruvian rainforest and home to swarms of *Aedes aegypti*, a mosquito that is a vector for several tropical fevers. Her goal is to extend the network models used to understand patterns of direct transmission to vector-borne diseases, so that the movement patterns of individuals can be overlaid with the vector to reveal how dengue is spread within the community. This involves using detailed location data including GPS coordinates.

Quoted in the newsletter, Bansal explained, "This is to understand the data and think about where the greatest risk of transmission is and where we might focus our intervention." With the data collected over 10 years, Peruvian health authorities can allocate limited spraying resources.

The RAPIDD program also focuses on zoonosis, or the spread of disease from nonhuman animals to humans. Bansal has spent considerable time thinking about livestock diseases, specifically foot-and-mouth disease, which are of concern to Homeland Security officials, and how they might jump to other species.

Now a part of the faculty at Georgetown University's Biology Department, Bansal remains a RAPIDD faculty affiliate. She says RAPIDD was "very much a blessing" for her postdoctoral work. "It focuses on bringing the right expertise together on the mathematical side, the biological side, and the public health side and thinking at a fundamental level about infectious disease dynamics."