

OPINION

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

We have much to learn from research in Haiti



Although Haiti is a small country, it's home to cutting edge research that benefits us all. A number of diseases that currently threaten small numbers of Americans are quite prevalent in Haiti, which provides scientists working there with a unique opportunity to accelerate progress on diseases important to Haitians and Americans alike.

I had the pleasure recently of visiting grantees Jean (Bill) Pape, Warren Johnson, and Dan Fitzgerald from GHESKIO, the Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections and Cornell. I met their Fogarty trainees, young Haitians and Americans, who presented their research—each addressing a major public health challenge of our time. Some of their projects, reported here, demonstrate the immense value of both their training and their research, and the fertile research environment that GHESKIO supports.

GHESKIO was originally formed in 1982 to combat HIV/AIDS, as it emerged in Haiti. In the decades since, its scientists have been at the forefront of research studying how to most effectively prevent and treat the disease. More recently, GHESKIO and partner Cornell University became engaged in research on other Haitian priorities, such as tuberculosis, cholera, and infections with chikungunya, dengue and Zika viruses. The country has the highest rate of TB in the Western Hemisphere, with 22,000 new cases per year. TB will soon pass HIV as a leading cause of death worldwide killing 1.5 million annually.

Why should Americans care about research in Haiti and what could Fogarty trainees do to address these global problems? For TB, we have been using many of the same drugs for decades and are now confronting growing numbers of people with multidrug-resistant (MDR) strains—estimated at nearly 500,000 cases around the world. In the U.S., the cost of treating a patient with MDR-TB is about \$150,000.

Developing more affordable drugs for MDR-TB could take decades and cost hundreds of millions of dollars. In Haiti, one American Fogarty fellow, Dr. Kathy Walsh,

is conducting a randomized trial of a drug called Nitazoxanide (NTZ). This broad-spectrum anti-parasitic agent was developed in 1975 and is safe and inexpensive. Scientists have discovered that NTZ is active against the pathogen that causes TB, so this repurposed drug could provide a totally new treatment at minimal cost, in a short time. What a powerful breakthrough and what an introduction to research!

Since the 2010 earthquake, the concentration of Haitians living in slums has allowed TB to spread more easily, especially to children. Regimens to treat TB in adults were established decades ago but neither dosage, effectiveness, nor toxicity has independently been established for children. Dr. Vanessa Rouzier, another Fogarty trainee is developing the scientific basis for a pediatric regimen for TB, particularly important in a setting where malnutrition and adverse events complicate treatment.

In 2010, another deadly disease, cholera, occurred for the first time in Haiti in the aftermath of the earthquake. Now, six years later with more than 800,000 cases and 9,000 deaths, the epidemic remains out of control, despite attempts to improve water and sanitation. New vaccines show hope for prevention and recent studies involving Dr. Karine Severe, another Fogarty trainee, have established the effectiveness of vaccines to clear cholera from a large field site in Port-au-Prince, results that could unleash the future use of cholera vaccines worldwide.

Finally, chikungunya—which causes fever and joint pain—is coming to the U.S. from the Caribbean and abroad. There is no cure for this debilitating illness but Dr. Jean Rony Jeremie, a Fogarty trainee, is helping to test a candidate vaccine, supported by the NIH's National Institute of Allergy and Infectious Diseases. By studying this vaccine in populations where it is common—such as Haiti, where 70 percent have tested positive already—they will establish the safety and efficacy of this new product. Haiti is rich in opportunities for early-career scientists to make discoveries that will change the practice of treating and preventing diseases and, in GHESKIO, has an institution capable of supporting excellence in research and training. People everywhere, including in the U.S., will benefit from these advances.

RESOURCE

Website: www.gheskio.org