Through Collaboration, IHV-Nigeria Battles AIDS Epidemic

BY SONIA ELABD

In April 2005, the Institute of Human Virology (IHV) at the University of Maryland Biotechnology Institute (UMBI), affiliated with the School of Medicine, announced the establishment of new programs in Nigeria. IHV activities in Nigeria, like IHV activities in the United States, are devoted to the care and treatment of HIV-infected individuals, research on HIV/AIDS and related diseases, and training on HIV/AIDS research and treatment-related matters.

The Nigerian operations, referred to as IHV-Nigeria, consist of administrative and laboratory facilities in Abuja, Nigeria's capital, and the state-of-the-art Plateau State Human Virology Research Center, built by the Nigerian government in the city of Jos, where IHV first began its collaboration with Nigeria. IHV-Nigeria coordinates the numerous IHV activities in helping to battle the raging HIV/AIDS epidemic in Nigeria, the most populous nation in Africa.

According to the Joint United Nations Programme on HIV/AIDS, Nigeria has the third largest number of people living with HIV in the world—estimated to be between 2.4 and 5.4 million people. During the last two decades, the number of infected individuals has continued to increase at a staggering rate because of several factors.

"In Nigeria, HIV is primarily spread through heterosexual transmission. Many people have multiple sexual partners, and polygamy is culturally accepted," says Alash'le Abimiku, MSc, PhD, a Nigerian-born virologist, and co-principal investigator (PI) of the program to develop IHV-Nigeria. "Condom use is low, and unprotected sex, especially among teens, is very common. Also, education about HIV was not adequate at the beginning of the epidemic. People would rather blame the mosquito than unprotected sex for the spread of HIV."

HIV prevalence levels are higher among women than men, and, in particular, among commercial sex workers. Abimiku says that many women are exposed to HIV without their awareness and often only learn that their partners were infected after those partners die. Despite their knowledge of the disease, women continue to place themselves at risk of infection because they are not empowered to negotiate for safe sex, says Abimiku.

Lack of access to treatment and care compounds the problem. The World Health Organization (WHO) speculates that at least 500,000 people in Nigeria need antiretroviral (ARV) therapy. Less than 20,000 people have received the treatment, according to a 2004 report published by WHO.

"Nigeria has a great medical capacity, with 15 medical schools in the country," says William Blattner, MD, a professor in the School of Medicine, and co-PI of the program. "Unfortunately, the health care system deteriorated in the 1990s because of political problems, which prevented resources from getting to people."

Even if resources could reach the necessary individuals, Nigeria had neither adequate laboratory facilities for testing and treatment nor trained personnel to conduct testing and counseling.

"The laboratory infrastructure was abysmal. There was no electricity, no clean water, and no temperature-controlled space to store medications," says Abimiku.

In Abuja, Nigeria, laboratory technician Petronilla Nwadike performs a CD4 count, a blood test that measures the immune system's strength after diagnosis of an HIV infection.

PHOTOGRAPH COURTESY OF INSTITUTE OF HUMAN VIROLOGY

IHV has worked to change those conditions and provide care and treatment to thousands of individuals by partnering with the Federal Ministry of Health in Nigeria; faith-based organizations, such as Catholic Relief Services; community-based organizations; the National AIDS Commission in Nigeria; and health care facilities.

Foreground: Dr. William Blattner (center) is pictured with Dr. Patrick Dakum (left), and Professor J. I. Brian-D Adinma, commissioner of health for Anambra State in Nigeria.

As part of President Bush's Emergency Plan for AIDS Relief—a $15 billion initiative to fight the spread of AIDS in 15 countries around the world—and with funding from the Centers for Disease Control and Prevention (CDC), IHV implemented Project ACTION (AIDS Care and Treatment in Nigeria) in 2004. The project, directed by John Farley, MD, MPH, an associate professor in the School of Medicine, aims to treat 15,000 Nigerians at six hospitals around the country by 2006, and has already made significant progress toward that goal. The IHV-Nigeria project is funded with $22 million from the CDC through March 2006.

In addition to helping improve laboratory facilities for testing and treatment, the IHV made recommendations to the Nigerian government on updating its guidelines regarding ARV therapy. The revised guidelines now reflect the latest information that IHV has obtained by monitoring the epidemic and studying drug resistance patterns.

Updating laboratory facilities has been just one part of building the capacity to test and treat infected individuals. IHV helped train doctors, nurses, and laboratory personnel on how to conduct HIV testing and provide treatment. Counselors also had to be trained to help dispel the stigma associated with HIV infection and educate infected individuals about the importance of adhering to their ARV therapy regimen.

"It has been a daunting challenge to bring a program like this to fruition," says Blattner, who is also director of the IHV Division of Epidemiology and Prevention. "But we're helping to repair the flawed infrastructure and change the culture of health care so that the patient experiences more continuity of care, rather than just going to the hospital on an emergency basis."

The clinical research mission of IHV-Nigeria complements and directly affects Project ACTION. "Expanding the IHV program to include care and treatment has been a benefit because the Nigerian people can see the direct results of the treatment," says Abimiku.

The research, funded by the CDC, the Harvard School of Public Health, and the Bill and Melinda Gates Foundation, builds on the extensive history the IHV has in Nigeria. In 1991, renowned scientist and IHV director Robert C. Gallo, MD, a co-discoverer of HIV, and Abimiku helped create Nigeria's first dedicated HIV laboratory. Incidentally, Abimiku worked with other Nigerian scientists to first identify the unique HIV subtype that is most prevalent in Nigeria and West Africa.

At the April 2005 announcement of IHV-Nigeria made in Annapolis, Md., Gallo, who is also a School of Medicine professor, said, "IHV is dedicated to the principle that research is essential to developing the best therapies, prevention strategies, and treatment and care approaches. IHV-Nigeria provides a platform for partnerships to effectively engage the best minds in solving research problems."

Research is currently under way to investigate mother-to-child-transmission of HIV, including how to prevent the virus from being transmitted to babies through breast milk and development of drug resistance in mothers on ARV therapy. Another research study is looking at HIV infection detection in adults to monitor the effects of the virus on infected individuals and how the disease progresses.

"This research we are conducting can change when therapy is started and determine the medications we use to treat patients," says Blattner.

Furthermore, Nigerian scientists have made progress in developing an HIV vaccine and studying the antiviral effects of some plant-based traditional medicines.

"Now that the research infrastructure is in place, it allows Nigerian scientists to be successful and provides outstanding opportunities for collaborative research," says Abimiku.

As part of the AIDS International Training and Research Program funded by the National Institutes of Health Fogarty International Center, IHV is also conducting intensive short-term training of Nigerian scientists in different aspects of HIV research. These scientists, after training in Baltimore, can return to Nigeria and partner with other researchers in Nigeria to expand treatment and access to care, prevent infection, and develop HIV vaccines.

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PHOTOGRAPH COURTESY OF INSTITUTE OF HUMAN VIROLOGY

"I am impressed with the quality of Nigerian professionals and colleagues we have worked with. It has been a pleasure and an honor working with them, particularly because of their high level of dedication to care and treatment," says Blattner.

IHV's presence in Nigeria provides additional opportunities for expansion of the program. For example, IHV plans to seek support for a state-of-the-art research facility.

"This facility will be very important for the Nigerians to use as leverage in their country for research, and allows us to expand the capacity to engage basic scientists from the U.S. to work with basic scientists from Nigeria that otherwise wouldn't be feasible," says Blattner.

The IHV hopes to form stronger alliances with the academic institutions with which it is now working to expand those efforts and explore new opportunities for working together. In summer 2005, medical and graduate students from the School of Medicine traveled to Nigeria to complete research and clinical rotations as part of their education. These rotations give students the opportunity to see patients with tuberculosis, malaria, and other diseases that they would not be able to experience in Baltimore.

Blattner says that in the future, IHV would like to establish a formal training program for students. Without close working relationships with the Nigerian government and organizations, institutions, and scientists, battling the epidemic would be an insurmountable effort. With their continued cooperation, IHV is well on its way to helping thousands of Nigerians who are suffering from HIV.

HIV/AIDS Research and Activities at University of Maryland, Baltimore

DENTAL SCHOOL

Louis DePaola, DDS, MS, professor, and Valli Meeks, DDS, MS, RDH, clinical instructor, run the Dental School's Plus Clinic, which provides dental care for HIV-positive patients. The clinic, one of the first in Baltimore to provide care to these patients, treats about 400 individuals every year.

SCHOOL OF LAW

Through the Health Care Delivery and Child Welfare Legal Issues Clinic, Professor Deborah Weimer, JD, teaches an AIDS clinic as part of the Clinical Law Program. The AIDS clinic was created in 1987 as one of the first in the United States. Through the clinic, students work closely with medical providers and social workers at the adult and pediatric HIV medical clinics to provide integrated legal services to people with HIV.

SCHOOL OF MEDICINE

At the Institute of Human Virology, researchers are engaged in research to develop a vaccine, prevent mother-to-child transmission of HIV in pregnant women, and develop new drugs for treatment.

Faculty in the schools of Medicine and Nursing work together at the Evelyn Jordan Center, affiliated with the IHV and the School of Medicine's division of consultation/liaison in the Department of Psychiatry, to provide health care, mental health, substance abuse counseling, and case management services to HIV-infected individuals in Baltimore.

SCHOOL OF NURSING

Barbara Smith, PhD, RN, FACSM, FAAN, associate dean for research, is investigating whether regular physical exercise and changes in diet in HIV-infected patients taking highly active antiretroviral therapy help combat the unintended effects of the medications, such as obesity and elevated total cholesterol levels.

As part of the Life Navigating Project, Keith Plowden, PhD, RN, assistant professor, is working with the Black Education AIDS Project in Baltimore to help African-American men who are HIV-positive or are at risk of becoming infected because of other high-risk behaviors, such as substance abuse. The aim of the project is to teach life skills to men at risk by using a case management model.

SCHOOL OF PHARMACY

The Office of Substance Abuse Studies, directed by Tony Tommasello, PhD, associate professor, is involved in ongoing research in collaboration with community partners to reduce the risk of spreading and acquiring HIV among at-risk individuals in Baltimore.

SCHOOL OF SOCIAL WORK

Working with the Family and Children's Services of Central Maryland, Caroline Burry, PhD, associate professor, is evaluating a case management program for families who are homeless and have a family member with newly diagnosed or newly disclosed HIV. The Back to Basics program, funded by the U.S. Department of Housing and Urban Development, provides basics needs, such as food, clothing, and shelter, for 150 families.

Llewellyn Cornelius, PhD, professor, is involved with community-based HIV prevention education and has also studied risk factors for HIV transmission in African-American and Latin American women.