

Researchers to monitor resistance to HIV drugs in Africa

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Infectious diseases researchers from the University of Pittsburgh School of Medicine are leading a five-year, \$5 million initiative to monitor drug resistance during the rollout of HIV prevention drugs in sub-Saharan Africa.

A cooperative agreement awarded by the U.S. Agency for International Development (USAID), will allow experts in the Infectious Diseases Division of the School of Medicine at Pitt to conduct laboratory research and develop evidence-based policy guidance for monitoring drug resistance during the large-scale rollout of drugs and microbicides that prevent HIV infection.

"HIV/AIDS is an epidemic in sub-Saharan Africa and, until now, we've been really focused on treating people who already have the disease. But to stem the epidemic, we also need to prevent new infections," said Urvi Parikh, Ph.D., assistant professor of medicine at Pitt and senior project advisor. "It is truly amazing to turn years of research in HIV prevention into action helping people in the real world."

Roughly 25 million people have HIV in sub-Saharan Africa, accounting for nearly 70 percent of the global total.

Pre-exposure prophylaxis (PrEP) and antiretroviral (ARV)-based microbicides help prevent new HIV infections through a regimen of daily pills, a monthly vaginal ring that slowly releases medication or a medicated gel used before and after sex.

A concern with widespread use of PrEP and ARV-based microbicides is that if a person becomes infected while on PrEP or microbicides, a strain of HIV could arise that resists drugs needed for treatment in the future. The resistant strain could then be spread to others.

The Pitt-led team is starting the project by analyzing laboratory data and previous research to create computer models and simulations that will balance the cost and inconvenience of testing with the risk of resistance to provide optimal testing recommendations, whether once a month, once every few months or once a year.

These findings will be presented to stakeholders in Africa, including the community leaders, doctors and health policy professionals who will be involved in implementing the prophylactic treatment effort.

In the third year, the team will provide finalized recommendations for HIV testing and then work with USAID and other groups, including the World Health Organization (WHO) and the United Nations Programme on HIV/AIDS, to implement recommendations in regions where PrEP and microbicides are distributed.

Finally, the team will train local clinics in using low-cost tests to detect drug resistance so data can continue to be collected and guide future HIV prevention initiatives.

"Through this carefully crafted, step-by-step process, we'll be able to provide critical data to develop cost-effective and appropriate HIV diagnostic and resistance testing and monitoring plans. As a result, we should be able to stay on top of any [drug resistance](#) that arises from antiretrovirals implemented for HIV prevention," said John W. Mellors, M.D., chief of Pitt's Division of Infectious Diseases and project director.

Provided by University of Pittsburgh Schools of the Health Sciences

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