Achieving Universal Treatment Access: The Experience in Rural Malawi

August 8, 2008 By Tim Horn

Universal access to antiretroviral (ARV) therapy is feasible even in the most rural areas of in low- and middle-income countries by using a simple and standardized approach to care, according to a report out of the rural Thyolo district of Malawi reviewed at the XVII International AIDS Conference by Moses Massaquoi, MD, of Medecins Sans Frontieres. However, a second presentation at the conference by researchers associated with a University or North Carolina (UNC) research project in Lilongwe, Malawi, indicates that high-level drug resistance is a major concern among patients no longer responding to their first ARV regimen and may greatly impede their ability to benefit from subsequent regimens.

HIV prevalence is high in Malawi, a republic of nearly 13 million in southeast Africa. One in five adults is infected with the virus, and there are more than 90,000 AIDS-related deaths each year.

In urban centers of low- and middle-income countries, HIV-positive people tend to have greater access to care—and treatment—because there is usually a greater number of hospital, clinics and trained health care providers. Care and treatment can be harder to come by in rural areas, where a sizeable percentage of the world's HIV-positive people reside, due to a shortage of trained medical staff, clinics and other resources.

In the Thyolo district, with its population of about 600,000, nearly 1 in 10 adults and children are infected with HIV. Fifteen to 20 percent of those are in immediate need of ARV therapy.

Simple, standard protocols have been put into place to achieve universal access to care and treatment in Malawi, including its rural districts. These include initiating universal HIV testing, using cheap and readily available single first-line ARV regimen for all HIV-positive people in need of treatment (Triomune, a generic tablet containing nevirapine, stavudine and lamivudine), and monitoring patients every three months.

ARV therapy is also decentralized, meaning that treatment is made available in rural clinics—not just urban hospitals—thereby preventing the need to travel long distances on a regular basis to procure medications.

Finally, there is the novel concept of task-shifting—assigning non-medical and nurses the responsibility of distributing ARVs, and educating patients about their safe and effective use,

notably in areas where HIV-trained physicians are not available. Mossaquoi explained that, in 2004, physicians were primarily response for the distribution of ARVs. However, there are fewer than 100 HIV-trained physicians in Malawi—a country where at least 400 are needed to effectively care for the 170,000 patients in immediate need of ARVs.

Thus, In 2007, based on a successful tuberculosis treatment model, the task of distributing medications in rural areas, and educating patients about their safe and effective use, is being supplemented with the help of non-medical and nursing members of rural communities.

These standardized and simplified approaches to HIV treatment have proved successful in the Thyolo district, underscoring what is possible in all regions of low- and middle-income countries. By 2007, the universal access target of providing treatment to those who need it was met. Of the 13,702 patients in Thyolo who have received treatment since April 2003, 77 percent remain in care. Only 11 percent have died and 12 percent have experienced problems with treatment adherence. Less than 1 percent have discontinued their treatment program altogether.

According to Dr. Massaquoi, task-shifting essentially quadrupled the number of individuals initiating ARV therapy since 2004.

The cost of universal access in Thyolo has been estimated at $2.75 million per 10,000 patients—about $4.50 per resident per year.

A major challenge to universal ARV access is the evolution of drug-resistant HIV. In the United States and other industrialized nations, viral load testing is employed regularly to determine if a patient is no longer responding effectively to treatment, characterized by a rebound in viral load. In Malawi and other poor countries, viral load testing—and often CD4 cell count testing—is not routinely available, thus many patients remain on a treatment regimen that is no longer keeping viral load undetectable and, thus, accumulating additional genetic mutations and, ultimately, high-level drug-resistance.

This was the case in the presentation by UNC's Mina Hosseinipour, MD. According to a study conducted on blood samples collected from Malawian HIV-positive patients receiving HIV treatment, 94 samples from 96 patients failing Triomune showed high rates of drug resistance. Resistance to lamivudine was present in 81 percent. High-level resistance to both of the first-generation non-nucleoside reverse transcriptase inhibitors available in Malawi—nevirapine and efavirenz—was documented in 93 percent. And 17 percent of patients had high-levels of nucleoside reverse transcriptase inhibitor cross resistance.

According to Dr. Hosseinipour's report, between 22 and 50 percent of patients had no fully active drugs in the recommended second-line NRTI backbone.

These troublesome data, Dr. Hosseinipour commented, underscore the need to not only maintain universal access to ARVs, but to greatly improve upon the monitoring of patients on therapy to reduce the risk of treatment-limiting drug resistance.