Focus: KITSO AIDS Training Program

In 2001, President Festus Mogae introduced an unprecedented initiative to provide antiretroviral (ARV) therapy free of charge to AIDS patients in Botswana. At the time, 38.8% of the population was HIV-infected. The country’s already overburdened health system, however, lacked the training, infrastructure and personnel to train the nation’s healthcare workers to administer the life-saving new drugs. The Harvard School of Public Health AIDS Initiative, through its partnership with the Botswana government and support from the African Comprehensive HIV/AIDS Partnerships (ACHAP), developed a pilot training program in HIV/AIDS care and ARV therapy. The program named “KITSO,” the Setswana word for knowledge, set out to provide innovative, high quality, sustainable HIV/AIDS training, crafted specifically for Botswana’s health professionals.

Local clinicians and international HIV/AIDS experts collaborated to develop the baseline training course, AIDS Clinical Care Fundamentals. The course teaches healthcare providers how to give standardized comprehensive care and treatment in Botswana’s national ARV program, MASA. A participant in a 2003 AIDS Clinical Care Fundamentals course said, “The course has provided me with a large amount of ARV therapy information. I am confident that I will go back to the work place fully knowledgeable and being in a position to help patients on ARV therapy. Many of them were coming to our clinics and I did not know how to help them, but now I do.”

To date, the KITSO AIDS Training program has conducted 44 training courses in AIDS Clinical Care Fundamentals, as well as courses in Laboratory Fundamentals, Introduction to HIV, Biosafety & MASA, Medication Adherence Counseling, and Introduction to AIDS Clinical Care.

In early 2004, the Botswana Ministry of Health broadened the KITSO AIDS Training Program to include more partner organizations, including ACHAP, Baylor College of Medicine, BOTUSA, the Ministry of Health’s AIDS/STD Unit, and the University of Botswana. As the national ARV program expanded to more sites in the country, KITSO worked hand in hand with its partners to add more training sessions. KITSO faculty recently reached their goal to train core teams of healthcare professionals at each of the 32 national ARV administration sites. The program has instructed 2,941 participants, which include physicians, pharmacists, nurses, and pharmacy technicians in Botswana.

The KITSO faculty, once mainly comprised of international clinicians, now relies considerably on locally-based trainers. They have helped to refine the curriculum to meet the emerging needs of the Botswana healthcare system – making the program sustainable for the future.

The Honorable Joy Phumaphi, the former Minister of Health of Botswana, has spoken highly of the program. She said, “Knowledge, we are told, is power, and KITSO intends to equip participants with the appropriate tools to be more effective. KITSO not only represents the primary objective of sharing information and learning from one another, but the philosophy serves as an inspirational message to all those committed to caring for our families and communities who have been affected by the devastating spread of this epidemic.”

News & Events

New Publication AIDS in Asia

AIDS in Asia is a newly published comprehensive AIDS reference book for public health and medical professionals. Edited by Drs. Yichen Lu and Max Essex, this volume provides concrete information on the molecular epidemiology, diagnosis, treatment, care, prevention and impact of AIDS. The reference also provides an overview of the ongoing collaborative efforts involved in several nations in the worldwide war against AIDS. The countries and regions researched include Thailand, India, China, Japan, Hong Kong, Taiwan, Vietnam, Indonesia, Nepal, Cambodia, Myanmar, Malaysia, Pakistan, the Philippines, Laos, Sri Lanka, and Hawaii and the Pacific Islands. Order your copy through the HAI website at: http://aids.harvard.edu.

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Dr. Irene Koulinska was born in Bulgaria, but calls Mozambique her home. She saw the spreading plight of AIDS at home and soon understood her mission. Dr. Koulinska, a candidate for a 2005 Doctor of Science degree at the Harvard School of Public Health, will ultimately return to Mozambique to participate in and promote research to help change the tide of the epidemic.

**Spotlight:** What inspired you to work in HIV/AIDS?

IK: My interest in HIV started when I was in medical school in Mozambique. At that time I was able to witness the sharp rise of the epidemic in this country and the helplessness of the medical staff in providing treatment and care to the growing numbers of HIV-positive patients. The situation in the pediatrics wards was especially difficult. HIV diagnosis was not possible in infants younger than 18 months based on the available laboratory tests and no counseling was provided to mothers.

My interest in this new and devastating disease was natural under those circumstances and I joined the Immunology Department at the National Health Institute in Mozambique, which was the local leader in HIV-related research.

**Spotlight:** What are the aims of your research work?

IK: My work at the Harvard School of Public Health and HAI is in the context of a collaboration between our department and the department of nutrition, which focuses on mother-to-child transmission (MTCT) of HIV-1 in a large cohort established in Tanzania. Initially, I analyzed genomes of recombinant viruses from HIV-1 infected infants in an attempt to identify genetic determinants for vertical transmission. Currently, my focus is on virus-related risk factors for HIV-1 transmission by breastfeeding.

We found that some viral subtypes are transmitted earlier than others and that intersubtype recombinant viruses were more likely to be transmitted to the infant through their mothers’ milk in comparison to non-recombinant parental subtypes. Such differences are important in deciding the best timing to initiate ARV drug therapy in the mother in order to decrease the rates of MTCT.

We are also trying to determine whether free virus or infected cells are more efficiently transmitted through the infant mucosa at different stages of lactation. Further knowledge on the mechanism of breast milk HIV-1 transmission would be important in vaccine and drug design.

**Spotlight:** What is the most challenging aspect of your research?

IK: Switching from clinical work and serological assays to molecular biology techniques was a significant change for me, but fortunately my advisor, Prof. Max Essex, and other researchers in the department provided great help and guidance in this process.

There have been many technical challenges such as the cloning of full-length HIV-1 genomes and the amplification of virus from human milk, where its concentration is very low. Other issues include providing answers of practical importance in controlling the epidemic in the developing world. Formulating hypotheses to be answered by studies nested within the existing cohort in Tanzania are also concerns.

The best resource for tackling these issues is the constant interaction with a large team of researchers with different backgrounds and nationalities. All of these perspectives help make sure we find the most comprehensive solutions.

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Multivitamin Supplements Delay Progression of HIV Among Women

HIV-infected pregnant women in Tanzania taking a daily regimen of multivitamins significantly delayed the progress of the AIDS virus. The results are from a recent study by the Harvard School of Public Health and Muhimbili University College of Sciences in Dar es Salaam, Tanzania. Published in the July issue of the New England Journal of Medicine, the study, “A Randomized Trial of Multivitamin Supplements and HIV Disease Progression and Mortality,” also suggests a new low-cost means for health care providers to delay the initiation of expensive ARV drug therapy.

The double-blind, placebo-controlled trial examined the effect of micronutrient supplements on 1,078 HIV-infected pregnant women. Researchers evaluated the risks of clinical disease progression, HIV-related complications, CD4+ cell counts, and viral load. The women received a daily dose of one of four regimens: vitamin A alone, multivitamins excluding A (with vitamins C, E, and B complex), multivitamins containing vitamin A, or a placebo. All women received standard doses of antenatal folic acid and iron. All children received the six-monthly doses of vitamin A, which was in accordance with the Tanzanian standard of care.

Researchers found that participants following the regimen were less likely to rapidly progress to the WHO stage 4 or die from AIDS-related causes. Participants also had higher CD4 immune cell counts, lower viral loads and reduced complications of HIV infection including difficulty in swallowing, oral thrush, oral ulcers, diarrhea and fatigue.

Dr. Wafaie Fawzi, the lead author and associate professor of nutrition and epidemiology at Harvard School of Public Health, said, “Our findings should encourage the use of multivitamin supplements as supportive care to those infected with HIV. As ARV therapy becomes available in less developed countries many HIV-infected persons will be identified who do not meet the international guidelines for initiation of therapy. Our data suggest that multivitamins delay the onset of disease and thus extend the time until such therapy is necessary.” Dr. Fawzi added, “Multivitamin supplementation is inexpensive, $15 per person per year. Introducing these supplements would enhance compliance with monitoring prior to clinical eligibility for ARV drugs, preserve these drugs for later stages of the disease, avert adverse events associated with them, and result in better quality of life among HIV infected persons and significant treatment-related cost savings.” The study was supported by the National Institute of Child Health and Human Development and the Foggarty International Center of the National Institutes of Health.

Research & Intervention Programs

Studying the Cost-effectiveness of HAART

Botswana currently provides the second-largest free ARV treatment program in the world treating over 24,000 Botswanan citizens. In operating the successful program, however, government officials, along with researchers at the Botswana–Harvard School of Public Health AIDS Initiative Partnership for HIV Research and Education, realized that effective treatment would involve more than distribution of low-cost ARV medications. Given limited resources, the team saw that efficiency (i.e. treating the maximum number of HIV-infected citizens given the governmental budget constraints) and sustainability were important issues.

In response to these concerns, HAI researchers initiated the Cost-Effectiveness of Highly Active Antiretroviral Therapy (HAART) in Botswana study in 2003. In Phase I of the study, researchers evaluated the government HAART program based on the cost of treating 10,000 people over a ten year period. Using a population disease progression rate derived from published data, the estimated program cost amounted to US$87.8 million. The preliminary data from Phase I indicated that the program would almost double the average years lived from 4.36 years to 7.47 years. Every year of life gained would only cost the Botswana government US$1,705 per person.

Researchers are now entering Phase II of the study. They are collecting directly observed healthcare resource use data and disease progression rates of HIV-1C infected individuals to more correctly depict the reality of HIV/AIDS and its impact on health care resources in Botswana.

The Study of Hope

Researchers for the Tshipo study, the first large-scale research study of ARV therapy in Botswana, are quickly nearing their goal of full enrollment of 650 by December 2004. The current enrollment of the 596 study participants was aided by an active community education board. The board helped inform the public about the purpose and goals of the study.

On October 25, the Tshipo study hosted a visit by the board members of its funder, “Secure the Future,” a Bristol Myers Squib program. The program works with individuals, institutions and governments to find sustainable solutions for communities suffering from the HIV/AIDS epidemic. Board members also toured the National HIV Reference Laboratory, the central facility for scientific research and training, built through a partnership with “Secure the Future,” the Botswana government and HAI.

To learn more about these programs, visit http://aids.harvard.edu/programs.
First Economic Evaluation Roundtable in Southern Africa

The Enhancing Care Initiative-KZN PLUS, in association with HAI and the Health Economics and HIV/AIDS Research Division, University of KwaZulu-Natal, hosted the first Economic Evaluation Roundtable. The meeting was held at the Nelson R. Mandela School of Medicine, in Durban on September 22, 2004. Southern African health experts and public health specialists involved in economic evaluations of ARV programs, examined their role in informing policy decisions. This is particularly important since ARV programs are being introduced and expanded in resource-scarce settings.

Participants reviewed the state of health economics research at the beginning of large-scale ARV programs in the region. They identified appropriate methodologies for economic evaluations of ARV programs in the context of limited data and resource constraints. They also set research priorities which included expanding data points to capture the costs associated with treatment failures and switches, and considering costs for provision of equal access to healthcare. Dr. Marionette Holmes of HAI, presented the methodology and challenges associated with economically evaluating the Botswana HAART program. Dr. Holmes stated, “As countries in sub-Saharan Africa provide critical care and treatment to their citizens, highly efficient allocation of already strained national resources becomes paramount. We are confident our analyses will recommend the most cost-effective strategies in ultimately helping those who need it most.”

News & Events

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