GLOBAL LIVESTOCK CRSP

The Academic Model Providing Access To Healthcare (AMPATH) in Kenya

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HIV Nutrition Project (HNP)

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In sub-Saharan Africa, an estimated 28 million people are living with the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). In 2001, Moi University in Eldoret, Kenya joined with Kenya's second national referral hospital, Moi Teaching and Referral Hospital (MTRH) and Indiana University (IU) to establish the Academic Model Providing Access To Healthcare (AMPATH). AMPATH's missions were to (1) provide high-quality patient care; (2) educate patients and health care providers; and (3) establish a laboratory for clinical research in HIV/AIDS (http://medicine.iupui.edu/kenya/hiv.aids.html). Leveraging the power of an academic medical partnership, AMPATH has quickly become one of the largest and most comprehensive HIV/AIDS control systems in sub-Saharan Africa, providing a comprehensive system of care that has been described as a model of sustainable development (Tobias, 2006). Delivery of services occurs in the public sector through hospitals and health centers run by Kenya's Ministry of Health. AMPATH currently implements prevention activities that touch the lives of millions of persons in a wide geographic area. The research arm of AMPATH, created to facilitate and manage the international research agenda being generated by Kenyan and US faculty, includes the Global Livestock CRSP's HIV Nutrition Project (HNP), "Increasing Animal Source Foods in Diets of HIV-infected Kenyan Women and Their Children," which is a collaborative initiative between AMPATH and faculty from Moi University, Indiana University and the University of California, Los Angeles.

An Overview of AMPATH

AMPATH (the Academic Model Providing Access To Healthcare) is Kenya's most comprehensive initiative to combat HIV (human immunodeficiency virus) and is a working model of urban and rural HIV preventive and treatment services in the public sector. AMPATH cares for more than 79,000 HIV infected adults and children at 19 urban and rural clinical sites across western Kenya, provides anti-retroviral therapy (ART) to nearly half of these patients, and currently enrolls more than 2,000 new patients each month. AMPATH feeds up to 30,000 people weekly and provides antenatal services that aim to prevent mother to child transmission of HIV in nearly 35,000 pregnant women annually.

All eligible pregnant mothers in AMPATH's system are immediately referred for ART for prevention of mother to child transmission (pMTCT) and counseling on feeding options for the baby. After delivery, all mothers are counseled to exclusively breastfeed for six months and continue ART during breastfeeding for purposes of pMTCT. Mothers unable to exclusively breasteed due to severe breast disease, severe wasting, puerperal psychosis, severe maternal disease (AIDS), are counseled to provide their infants with formula only and the formula milk is provided at no cost to them. Innovative efforts have been implemented to ensure access to safe water. Achieving this rapid scale-up was a daunting task as AMPATH tackled the pandemic in the western region of Kenya, facing a series of obstacles. As an academic medical partnership, however, the program was able to craft effective responses to each of the following challenges:

Stigma. Team members discovered that the stigma associated with HIV/AIDS (acquired immunodeficiency syndrome) impeded access to care. However, the project's existing strong ties with village elders, opinion leaders, and health providers (based on community-based work unrelated to HIV in the previous decade) with visible success stories of early patients allowed researchers to largely overcome that barrier. Other measures to confront stigma and enable prevention included community mobilization and health education, more aggressive community-based testing, and policy change. Moi Teaching and Referral Hospital (MTRH) was a pace setter for adopting policy that enabled opt-out testing on all wards, predating by several years similar policy in the United States and in other sub-Saharan countries. Where partners once offered screening and were lucky if five people participated, they are now holding community-based rallies and testing nearly a thousand people in a day. AMPATH has transformed whispers of shame and stigma into a community-wide embrace of people living with HIV/AIDS (Voelker, 2004).

Hunger and poverty. Researchers found that, depending on location, between 20-50% of AMPATH's patients were hungry and lacked food. It was apparent that the physical limitations of living with the disease made it difficult for patients to work their small farms or take on outside jobs, leaving patients and their families impoverished and malnourished. In response, AMPATH initially created a demonstration farm on 10 acres of land donated by a local high school near one of the health centers. This farm, called the HAART and Harvest Initiative (HHI), had a dual purpose. It enabled farmers to learn how to increase their yields of crops, milk, and eggs, and the produce from the demonstration farm was distributed to our most needy patients. The farm had an unexpected benefit of slashing HIV stigma in the community.

Over time, as AMPATH expanded to other sites, the HAART and Harvest Initiative evolved into four high-tech, high-production farms plus three demonstration farms. These farms currently produce more than five tons of fresh produce weekly, all of which are distributed to the hungriest patients and their families. The United Nations World Food Program complements the fresh produce from HHI farms with donations of corn, beans, corn/soy blend, and cooking oil. AMPATH now provides food assistance to up to 30,000 people per week.

Food distribution is a formidable challenge. The daily measure of supply and demand must be translated into individual patient allocations which are to be picked up at specific distribution sites spread over western Kenya. Industrial engineers from Purdue University in the U.S. have joined with AMPATH to create the correct computerized nutrition information system capable of getting the right food to the right place at the right time. In addition, this complex component of the AMPATH food program requires trucks, storage warehouses, distribution centers, distribution workers and data clerks.

Micro-enterprise. AMPATH discovered that many patients lost their jobs due to the physical limitations of their illness or because of the stigma associated with being HIV-positive. The majority of initial patients were widowed by the disease and did not have the skills or capital necessary to support their families. Enabling these patients to earn a sustainable source of income was nearly as important as providing food assistance to achieve well-being and sustain or restore human dignity.

In response to this need, the partnership created the Family Preservation Initiative (FPI). Up and running at four of AMPATH's 19 clinic sites and currently expanding to three more sites, FPI aims to address patients' economic security needs through skills training, micro-credit, agri-business support, a fair-trade-certified crafts workshop and agricultural cooperatives.

Computerized medical records and research. The complicated and lifelong nature of HIV/AIDS care, monitoring patient adherence to ART, and the need for reliable research demands accurate and detailed record-keeping, a significant barrier to sustainable care in the developing world (Godlee, et al., 2004). Before the founding of AMPATH, Indiana and Moi Universities had already created the first-ever electronic medical records system in sub-Saharan Africa (Hannan, et al., 2000). Now, in collaboration with Partners in Health, this system has evolved into a share-ware electronic medical record system (MRS) called OpenMRS, a common framework upon which medical informatics efforts in developing countries can be built. OpenMRS is already being used by AMPATH, in HIV/AIDS clinics in Rwanda, and in a hospital in South Africa (Biondich, et al., 2005).

Research. A research arm of AMPATH was created to facilitate and manage the research agenda that such a complex clinical care system would inevitably encounter. Faculty members from Kenyan and U.S. collaborating institutions continue to have regular meetings to set out research priorities and discuss grant applications from the National Institute of Health and other research funding agencies. An institutional research and ethical committee was put in place at Moi University to review and approve international research.

Infrastructure. In many of AMPATH's sites, as the number of patients treated increased to thousands, team members found that the necessary amount of care could not be provided in existing facilities alone. The partnership thus built a number of additional facilities, including the AMPATH Centre of Excellence for HIV Care, Kenya's first facility solely dedicated to HIV. At this 80,000 square-foot facility in Eldoret, patient care is provided and medical school faculty, clinical officers and nursing staff are trained in providing comprehensive multidisciplinary care of HIV-infected patients. The Centre of Excellence for HIV Care also serves as a home for multiple research projects, a tuberculosis diagnostic laboratory, and an HIV reference laboratory.

Administrative support. Arguably one of the most critical challenges was to develop the administrative capacity to support the growth in manpower and to assure fiscal accountability in face of rapidly increasing budgets. AMPATH team members did this by creating a Research and Sponsored Programs Office (RSPO) administered jointly by Moi Teaching and Referral Hospital and the Moi University School of Medicine, housed in the AMPATH Center. Administrators from Indiana University's Research and Sponsored Program's office played a key role in this process. Philanthropic support coupled with in-kind support from IU enabled bilateral exchange and the eventual success of this endeavor.

Although many challenges remain for AMPATH, the partnership's efforts to confront the HIV/AIDS pandemic have been successful. AMPATH is Kenya's largest public sector HIV/AIDS program and has been designated by the Ministry of Health as the training site for providers in western Kenya. Treatment of AMPATH's patients has been shown to result in significant and persistent clinical and immunological benefit, with patients showing both weight and CD4 cell count increases on follow-up (Wools-Kaloustian, et al., 2006 and Nyandiko, et al., 2006).

Collaboration between AMPATH and the HNP

The HIV Nutrition Project - "Increasing Animal Source Foods in Diets of HIV-infected Kenyan Women and Their Children - (HNP) is conducted in collaboration with AMPATH and the Schools of Public Health and Medicine at Moi University, Eldoret, Kenya. The HNP study population is recruited from patients who are enrolled and receive care at the Turbo Rural Health Center, one of the clinics established in the AMPATH program. Several HNP outcome measures are obtained in conjunction with AMPATH clinic visits every three months. HNP staff work closely with the AMPATH clinical officer, outreach staff, and lab staff at the Turbo clinic regarding recruitment, enrollment, medical record access and follow up of patients. Some specimens are able to be processed in the clinic lab and others in the AMPATH Reference Laboratory, which is also well equipped with -20° and -70° freezers for sample storage. The leading statistician for AMPATH, Dr. Constantin Yiannoutsos, has been involved with AIDS research over 15 years and is the primary designated analyst performing statistical analyses and interpretation of the data collected throughout this project.

The collaboration benefits both the AMPATH and the HIV Nutrition Project. All AMPATH patients undergo baseline investigations which include a chest X-ray and key laboratory tests that are repeated every six months. Patients are also assessed medically every three months by a clinical officer. The HNP will have access to this data from the medical record system that is in place.

The AMPATH Research Office, established to assist investigators, is responsible for coordinating activities between international investigators and local Kenyan investigators as well as maintaining copies of all on-going research protocols. This office can assist through the budgeting process, the process of hiring staff, the institutional approval process, and setting schedules for visiting investigators. Office personnel can coordinate Human Subjects Protection Training and Good Clinical Practices Training for new research project staff. Standard Operating Procedures exist to assist investigators in understanding the processes of conducting research within AMPATH, involving students, and in publishing results. The HNP budget supports a percentage of this office staff as well as the employment and training of 33 Kenyan field staff who are carrying out the activities necessary for a successful nutrition intervention trial in rural Kenya. These individuals will become seasoned research assistants and able to participate with, as well as train, others in their specific area of expertise, thereby increasing capacity within the research arm of AMPATH. The HNP budget also provides resources for specimen handling, storage and analysis in the AMPATH Reference Laboratory.

Further Reading

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The GL-CRSP HIV Nutrition Project (HNP) is evaluating the effect of protein quality and micronutrients in meat on the health and nutritional well-being of women living with HIV in rural Kenya and the health and development of their children by means of randomized nutrition feeding intervention. The project is led by Dr. Judith Ernst, Indiana University. Email: jernst@iupui.edu.

The Global Livestock CRSP is comprised of multidisciplinary, collaborative projects focused on human nutrition, economic growth, environment and policy related to animal agriculture and linked by a global theme of risk in a changing environment. The program is active in East and West Africa, Central Asia and Latin America.

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