AIDSRelief Nigeria:
Strengthening local health networks for sustainable HIV care and treatment

AIDSRelief™

AIDSRelief, a five-member consortium funded since 2004 through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), supports rapid scale up of HIV care and treatment services for poor and underserved people in ten countries across Africa, the Caribbean and Latin America. The consortium brings together an experienced group of international experts working hand-in-hand with local partners to ensure that the necessary skills and systems are in place to support a quality care delivery system: Catholic Relief Services as prime grantee; the University of Maryland School of Medicine Institute of Human Virology as technical lead for clinical care and treatment; Futures Group International as lead agency for strategic information; IMA World Health and Catholic Medical Mission Board as implementing partners; and Children's AIDS Fund, a sixth organization that serves as a key sub-grantee operating sites in three countries. By building clinical capacity and regularly monitoring patient outcomes, AIDSRelief supports its partners in delivering high-quality, sustainable HIV care.

In support of country ownership of development programs across the world, PEPFAR mandated that all Track 1.0 grants eventually transition program efforts to a local partner by February 2012. Transition was consistent with the new emphasis in 2008's reauthorization of PEPFAR, and was rooted in AIDSRelief's existing sustainability plan.

Cover photo: *Tina Umar (left), a treatment support specialist, discusses a case with home-based care officer Agnes Onyilo. Both women work with patients enrolled at St. Gerard's Hospital in Kaduna. Photo by Karen Kasmauski for CRS.*

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Acronym List

ART	Antiretroviral therapy
ARV	Antiretroviral
CCFN	Catholic Caritas Foundation of Nigeria
CDC	U.S. Centers for Disease Control and Prevention
CHAN	Christian Health Association of Nigeria
CQI	Continuous quality improvement
CRS	Catholic Relief Services
CSADI	Community Support and Development Initiative (Nigeria)
DDIU	Data demand and information use
EDT	Electronic ARV Dispensing Tool
HAART	Highly active antiretroviral therapy
HRSA	Health Resources and Services Administration
IHV	(University of Maryland School of Medicine) Institute for Human Virology
LPTF	Local partner treatment facility
M&E	Monitoring and evaluation
MOH	Ministry of Health
MTCT	Mother-to-child transmission
NACA	National Agency for the Control of AIDS (Nigeria)
NASCP	National AIDS/STD Control Program
NGO	Nongovernmental organization
NTBLCP	National Tuberculosis and Leprosy Control Program
OVC	Orphans and vulnerable children
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PLO	Patient Level Outcomes
PMTCT	Prevention of mother-to-child transmission
SACA	State Agencies for the Control of AIDS
SCMS	Supply Chain Management System
SMOH	State Ministry of Health
STBLCP	State Tuberculosis and Leprosy Control Program
TSS	Treatment support specialist
WHO	World Health Organization

Introduction

HIV has ravaged sub-Saharan Africa for more than two decades, setting back a generation of progress made in life expectancy and maternal-child health, undermining economies, and pushing already fragile health systems to the brink. The prevalence of HIV in Nigeria has been much lower than many other African countries (steadily 3 to 4 percent since 1992[i]), but the country's share of the global burden is striking because Nigeria is Africa's most populous nation (158 million people[ii]).

Life-saving antiretroviral therapy (ART) became available and increasingly affordable in the early 2000s, but the first efforts to roll out treatment were inadequate and threatened to siphon material and human resources from the overall health system. Early providers assessed patient eligibility through clinical staging (as opposed to CD4 monitoring, which is dramatically more accurate) and only the sickest HIV patients received therapy. Patients deemed eligible received a prescription (that rarely followed standard treatment guidelines), traveled to distribution points for their medication (which they paid for out of pocket), and often faced drug stock-outs when they got there. Most sites did not offer any type of adherence support or clinical monitoring; the entire patient-provider interaction consisted of ticking a name off a list and handing over a box of pills. Unsurprisingly, many patients dropped out of treatment and morbidity remained high.

Working as the AIDSRelief country program in Nigeria since 2004, Catholic Relief Services (CRS), Futures Group, and the University of Maryland School of Medicine Institute for Human Virology (IHV) worked with Nigerian institutions to help turn this around. Rooted in AIDSRelief's commitment to help create a network of sustainable, locally owned facilities providing high-quality HIV care and treatment, nearly every program activity emphasized strengthening health systems. It is in that light that AIDSRelief developed this document in order to showcase the project's

contributions to strengthening health systems for HIV services in Nigeria and to make relevant information available to others seeking adaptable or replicable strategies.

In the eight years since AIDSRelief began, Nigeria has made great strides in its HIV response. Nationwide, 303,000 people were on treatment in 2009 (up from 13,000 in 2004) and 44,700 HIV-positive pregnant women received treatment to prevent mother-to-child transmission (PMTCT) of the virus (up from 1,050 in 2004).[iii] AIDSRelief's contribution to these statistics is noteworthy: by the end of 2011, AIDSRelief leveraged effective partnerships and needs-based capacity strengthening to expand ART to 47,000 people (on treatment as of September 2011) in Nigeria, including almost 8,400 pregnant women and nearly 4,000 children. By the end of 2011, AIDSRelief Nigeria had provided technical assistance and capacity strengthening to ensure high-quality clinical HIV services, strategic information management, and site management in 35 local partner treatment facilities and 48 satellite sites in 16 of Nigeria's 36 states. These improvements also served to strengthen the capacity of sites to operate more effectively and to provide better health care to all of their patients.

Background

AIDSRelief: Country Programs for a Global Response

Each AIDSRelief country program was designed and launched under the global AIDSRelief grant and built upon the AIDSRelief model of care (see box), but also adapted to that country's unique context and needs. The model posits that a strong system depends on the strength of each facility, its network, and its links with the public health sector and the community.

Because such a systems-wide understanding and approach is a fundamental shift for many institutions in resource-poor settings, AIDSRelief supports ongoing capacity strengthening and program quality improvement by providing direct

The AIDSRelief model of care has three pillars; in Nigeria, each corresponds to the expertise brought to the consortium by IHV, Futures, and CRS, respectively.

- **Medical.** HIV treatment delivery and the continual improvement of patient care must be evidence-based and medically driven. As HIV programs continue shifting from an emergency response to long-term care, it is imperative to assess treatment outcomes and provide technical support so that program scale-up does not come at the expense of service quality.

- **Strategic information.** To evaluate the successes or struggles of patients, facilities, and the program, comprehensive and timely access to clean, complete, and accurate data is a top priority. This focus on strategic information (SI) provides decision-makers at the country management and clinic level with quality data to make informed decisions.

- **Site management and institutional strengthening.** HIV care and treatment programs are most effective as part of well-managed facilities. The development of strong, facility-level administrative and management practices helps ensure that each site's efficient day-to-day operations further support excellent service delivery and patient outcomes.

assistance to partners in the development of financial, material, technical, and human resources. The AIDSRelief capacity strengthening approach for individuals and teams includes needs identification (through participatory assessments and information gathering tools); proven practices of adult learning such as didactic work, practical application, on-site trainings by

instructors who are respected experts and practitioners in their fields (as opposed to expert trainers), and accompaniment and mentorship; provision of necessary equipment and supplies; and ongoing capacity assessments to identify any additional needs. While AIDSRelief's medical focus was HIV care and treatment, much of the capacity strengthening positively impacted all services and encouraged integration. For example, a well-run, integrated pharmacy offers better services to all clients whether they need ARVs, basic antibiotics, or diabetes medication.

The AIDSRelief Capacity Strengthening Approach

Capacity strengthening is essential to any organization's functioning. It includes **capacity building**, which focuses on individuals or teams, enhancing or developing new knowledge, skills, and attitudes in order for people or teams to function better; **institutional strengthening**, focusing on an organization, enhancing or developing its systems and structures to function more effectively, work towards sustainability, and achieve goals; and **accompaniment**, which includes consistent coaching, mentoring, and supportive supervision and allows new skills to be mastered or new organizational systems to become standard operating procedures.

The Nigerian Health System & Local Partners

As in many resource-constrained countries, the Nigerian health system includes public facilities as well as those run by faith-based missions, nongovernmental organizations (NGOs), and private clinicians working for profit. Each group provides roughly one-third of the country's health care services. In Nigeria, these facilities are highly decentralized and independently run, although the central government creates policies for things such as provider education and standard treatment guidelines, and

funding for at least one specialty hospital in each state. State governments manage licensing of private facilities and sometimes provide funds or coordinate HIV services with private or faith-based institutions. AIDSRelief provided support to individual sites, state government agencies, and the central government.

Each AIDSRelief program identified local partners with the potential to eventually sustain high-quality care and support for people living with HIV in their country. These partners were either health facility owners, or existing organizations that represented facility owners and were committed to providing facilities with long-term support. Local transition partners in Nigeria were the Christian Health Association of Nigeria (CHAN) and the Catholic Caritas Foundation of Nigeria (CCFN, the official development agency of the Catholic Bishop's Conference of Nigeria).

A Systemic Approach to Quality Care

AIDSRelief's ultimate goal is excellent patient outcomes that can be sustained over time by a local partner, a goal that is dependent on a strong health system. With stronger health systems, local partners such as CHAN and CCFN can better maintain, sustain, and even expand the impact of the AIDSRelief program. Health systems strengthening is also a development priority for Nigeria and countless international donors. Most agencies agree on the overall theory, but differ somewhat in how they deconstruct and label the components of a functional health system. This document is structured around the World Health Organization's six building blocks of health systems strengthening (health service delivery, health workforce, health information systems, access to essential medicines, health systems financing, and leadership and governance) and community, which is widely regarded as the "seventh building block."
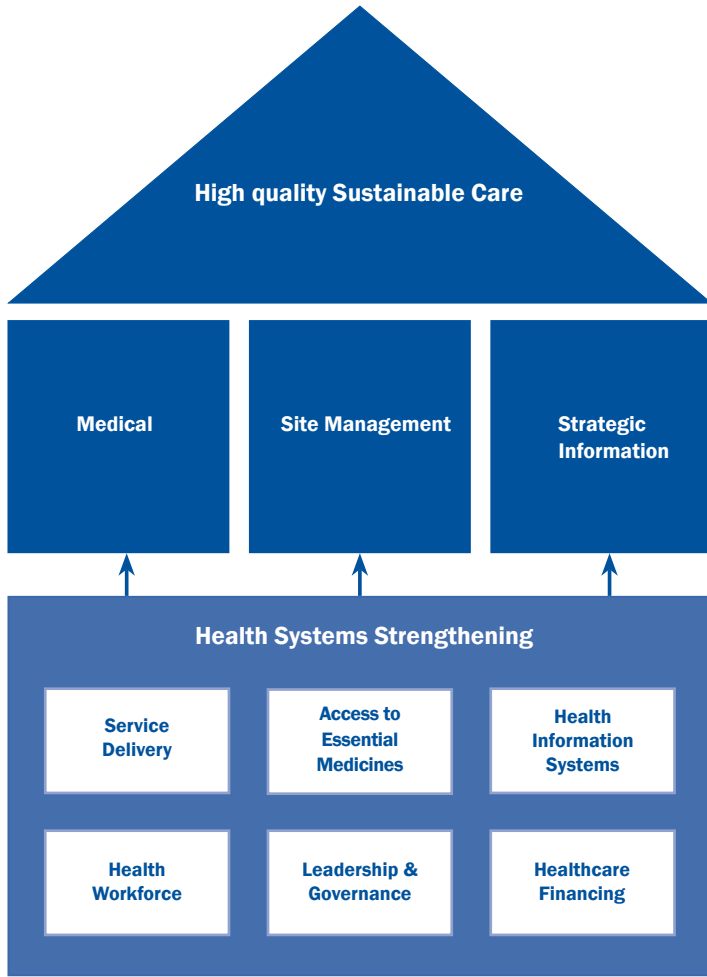
Figure 1: The AIDSRelief Model of Care

The AIDSRelief model of care is built on a foundation of health systems strengthening. The model posits that a strong system depends on the strength of each facility, its network, and its links with the public health sector and the community.

Block 1: Health Services Delivery

"Good health services are those which deliver effective, safe, quality personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources."

—WHO, *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*

In support of Government of Nigeria and PEPFAR goals, AIDSRelief delivered exceptional HIV care and support to more than 150,000 people, more than 47,000 of whom were on treatment as of September 2011. Patients on treatment in AIDSRelief-supported facilities have maintained very high viral suppression rates—for four years, viral suppression has remained steady at or above 85 percent,[1] indicating excellent adherence to treatment. Throughout the project, AIDSRelief reinforced the capacity of individual facilities and government entities to continue this life-saving work.

Service delivery improvements under AIDSRelief included enhancements to appointment and patient-flow systems, improved business models for patient management, and standard operating procedures for routine activities such as patient check-in or record management. Upgrades also included a paradigm shift to data-driven decision-making and continuous quality improvement. Long-term efficacy and sustainability of HIV treatment, care, and support depend on using these evidence-based strategies to guide service expansion and to continually improve patient care. To this end, providers need material resources such as adequate infrastructure and equipment and relevant, up-to-date skills and knowledge (discussed in the section about health workforce). Additionally, AIDSRelief's unique treatment model calls for providers to prepare and inform patients to make sound decisions for their health, and bolsters support for those decisions through patients' families.

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1 Viral suppression rates are as follows: 86.9 percent (2007, adults only), 87 percent (2008, adults only), 85 percent (2009, adults and children), and 86 percent (2010, adults and children). The results from 2011 were not yet available at the time of this writing.

Infrastructure & Equipment

Based on each facility's needs, AIDSRelief funded and managed refittings of the physical structure at each of the 35 sites, purchased essential equipment, and encouraged integration of HIV and non-HIV services when appropriate so that facilities could leverage the improvements for all patients. Facilities now have improvements such as infection control measures in laboratories and clinics, private areas for patients receiving HIV test results or adherence counseling, adequate space for co-located HIV and tuberculosis services, and more readily accessible CD4 and blood chemistry testing machines for monitoring patients. Because the refittings and equipment were based on specific needs, they have been used for their intended purposes and significantly improved the ability of each site's providers to serve patients. AIDSRelief also took care to ensure that replacement parts and people skilled to repair or maintain the equipment were available in Nigeria, and that facilities included funds for maintenance and repair in their annual operating budgets.

Treatment Preparation & Counseling

AIDSRelief's holistic treatment model is key to the program's excellent treatment outcomes. Before starting treatment, every patient participates in at least three structured counseling sessions to help them better understand the importance of adherence and the dedication required of and resources available to them as they embark on the life-long therapeutic regimen. Patients are strongly encouraged to have a "treatment buddy"—a friend, family member, or other confidant—to join them at these sessions. After initiating treatment, patients attend adherence counseling as part of their monthly prescription-refill visits and are further supported by home visits. These sessions are an opportunity for counselors to answer questions from patients and their families, identify potential adherence challenges and opportunities, and reinforce messages about effective treatment. All treatment support specialists—and many adherence counselors— are on ART themselves, providing a unique perspective to other patients. Furthermore, these counseling

and support roles help provide people living with HIV a chance to earn additional income. These approaches may be adaptable for other diseases that require diligent adherence and long-term care and treatment (e.g., tuberculosis, diabetes, hypertension).

Engaging Communities for Stronger Health Systems

Clinicians are only one of the many factors affecting a patient's health-related decision-making. A myriad of social factors influences how people act and the decisions they make with regard to their health. This is arguably truer of patients facing a complicated, often stigmatizing, chronic disease such as HIV. In response, the AIDSRelief treatment model calls for providers to proactively engage communities affected by HIV.

To this end, AIDSRelief worked with both community organizations and individual volunteers to engage communities affected by HIV. By engaging local authorities, influencers, religious leaders of all faiths, and other community members, they worked to combat stigma and misinformation, raise awareness about HIV and available services, maximize the impact of the treatment program, and help cultivate a supportive environment for people living with HIV.

Community volunteers encouraged formal and informal support groups to help patients overcome challenges to adherence and to find patients lost to follow-up or at risk for dropping out of treatment. They also provided individual support to patients in countless ways: in one example, a patient's husband had passed away and tradition required her to remain in the family's home during a mourning period. Because the period conflicted with the patient's scheduled ART visit, she called her community supporter who discreetly delivered the medication to her in her home, while also offering condolences and emotional support.

AIDSRelief also worked with community-based organizations serving orphans and other vulnerable children (OVC) affected by HIV. AIDSRelief funding and capacity strengthening (similar to the model employed at treatment sites) has helped them to provide a more comprehensive package of care to children and to improve the overall quality of services.

At St. Gerard's Hospital, a staff of nearly 60 serves 3,000 ART clients. Emily Donald is an adherence officer and treatment support specialist. Here she counsels Blessing Owan, who is expecting a baby. Photo by Karen Kasmauski for CRS.

A Family-Focused Approach

Family members often influence a patient's health-related behavior, but family members may also be infected or at risk for infection themselves. AIDSRelief counselors strive to bring as many family members as possible into counseling and testing so as to foster a supportive home environment for patients, determine the serostatus of family members, and enroll family members into care and treatment as appropriate. When multiple family members—particularly children and their caregivers, or couples—are infected, facilities strive to provide comprehensive care for affected family members together. Furthermore, HIV services can serve as an entry point to other care such as childhood immunizations or antenatal care.

Service Delivery:
The Role of Treatment Support Specialists

Under the AIDSRelief treatment model, many cadres of health care workers help ensure that patients receive excellent care and support at the clinic, in their communities, and in their homes. Treatment support specialists (TSS)—an integral part of this model—are facility employees who help patients manage their disease. These staff are living with HIV and on treatment themselves. The story of 42-year-old Ekundayo "Dayo" Oluwatoyin Benjamin is only one of the countless inspiring stories in this program.

Dayo learned that he was HIV-positive in 1999, but he rejected the death sentence that was commonplace at that time. For more than six years, Dayo ran a business/computer center (which doubled as his draftsman's office), barely earning enough to afford half of the medicine he needed. He never knew the names of his medicines, how to take them properly, or the importance of and strategies for adherence.

In 2006, Dayo came to St. Gerard's Hospital, an AIDSRelief-supported treatment site, in abysmal health. Dayo's CD4 count was desperately low, he had a respiratory infection, and he was losing his eyesight. He had many adverse reactions to the medications and doctors struggled to find the right treatment regimen for him. Dayo made progress medically, but hardships from outside of the clinic nearly defeated him.

Dayo faced deaths in his close family and had the entire contents of his computer center—his source of income—stolen. Without income, Dayo couldn't afford his home, enough food, or eye surgery to help his vision. He stopped going to the clinic for drug refills and began waiting for death. "I kept wondering why God did not just kill me," he says.

In July 2009, staff from AIDSRelief and St. Gerard's—including

treatment support specialists—conducted an intensive tracking exercise to locate patients like Dayo who had abandoned treatment and were lost to follow-up. They discovered him in a dilapidated building and brought him back into care. He had failed treatment and his CD4 count had plummeted. He was malnourished, riddled with opportunistic infections, and struggling with depression. The team of providers found an effective treatment regimen for Dayo and helped him develop strategies for adherence and his overall wellbeing. As he became healthier medically it was suggested that Dayo shadow a treatment support specialist. Dayo fully appreciated the importance of treatment support specialists, enjoyed the work, and soon became one himself. His vision improved to a point that allows him to conduct his work on his own. He is committed to helping others as he was himself helped. "God has blessed me through this program," he says.

AIDSRelief conducted Patient Level Outcomes (PLO) surveys through retrospective chart reviews and evaluation of patient data. AIDSRelief is the only program in Nigeria to have consistently conducted this level of program evaluation. Among other data, the PLO measures viral suppression in a sample of patients who were initiated on treatment at least nine months prior to the survey. (Viral suppression is the most reliable and effective clinical measure of an ART program's large-scale impact.) The program in Nigeria is also unique in that the 2010 and 2011 PLO surveys focused on special populations including adults on second-line treatment, pregnant women, and pediatric patients. Data gathered from these surveys can inform future patient care and have already influenced policy in some facilities.

Block 2: Health Workforce

"A well-performing health workforce is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e. there are sufficient staff, fairly distributed; they are competent, responsive and productive)."

—WHO, *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*

Clinical Skills & Knowledge

Even the best-equipped facility is lost without enough trained, competent staff and a supportive, enabling working environment. To make the most of physical and material improvements at each site, AIDSRelief clinical staff and site management staff worked with their counterparts at each facility to ensure that sites site had enough workers, and that those workers had or could acquire the necessary skills and resources—including supportive policies and practices like fair pay and opportunities for advancement—to do their job.

When AIDSRelief began work in Nigeria, antiretrovirals were uncommon and few providers had been trained to manage the complexities of long-term ART. Furthermore, providers were most familiar with treating acute infectious diseases; the long view required of providers and patients for chronic disease management was an uncommon concept. To raise competence and confidence among providers, AIDSRelief collaborated with state and central governments to develop national curricula and guidelines, to conduct on- and off-site training and mentoring, and to provide needs-based technical assistance and continuing medical education. AIDSRelief and facility teams identified technical assistance needs through formal site capacity assessments or data analysis, and less-formal communications or observations.

Consistent with AIDSRelief's capacity strengthening approach, providers and managers began with theoretical work, and then pairs of AIDSRelief and facility staff worked side-by-side to master the skills and systems required to do their jobs well. Regular site visits, assessments, mentoring, and supportive supervision allowed staff to maintain and enhance these skills. Improved staff capacity and ongoing technical assistance also can help address the challenge of staff attrition in health facilities, a substantial problem in Nigeria and most resource-limited environments. Ongoing capacity strengthening helps existing personnel work more effectively even when understaffed and helps new hires rapidly get up to speed when there is turnover. Furthermore, staff who do leave can carry these improved skills with them to other positions, thus cross-fertilizing the health system even in states or facilities where AIDSRelief never had a presence.

Through training and clinical mentoring, AIDSRelief assists health care workers in developing the skills they need to treat chronic illnesses such as HIV infection . Photo by Karen Kasmauski for CRS.

Working Collaboratively for Excellent Outcomes

Clinical and strategic information teams jointly learned to improve the quality of services at their sites by analyzing routine patient data, identifying challenges, and addressing those challenges. In one example, the 2010 PLO (see Figure 1) revealed that pediatric patients with more than one dedicated caregiver were doing better than those who had only one; in response, all pediatric patients in AIDSRelief-supported facilities are strongly encouraged to have both a primary and an alternate caregiver during treatment preparation and ongoing counseling.

Shifting responsibility for certain services from highly trained physicians and other specialists who are in short supply, to lesser-trained and more plentiful providers such as nurses or medical officers is an important tool in addressing health workforce shortages and under-resourced health systems. Task-shifting must be done responsibly, providing oversight and fail-safe systems to maintain quality patient care, and taking care to train the new cadre of staff with relevant skills and avoid overburdening them with too many responsibilities. When properly executed, task-shifting can make more providers available for treating patients, and free up specialists to care for complicated cases.

Table 1

Trainings	Physicians	Nurses	Other healthcare workers	Non healthcare workers	Total
ART care	398	450	444	68	1,360
non-ART care (HIV palliative care)	167	323	834	134	1,458
Total					2,818

Strengthening Health Systems through Nurse Refill Services

For the first several years of AIDSRelief, patients who came to a program-supported treatment site saw a physician and an adherence counselor at every visit, even if they were only picking up their monthly supply of medication. This helped ensure that thousands of new patients received expert care when they were at their most vulnerable (very ill or in the first several months of treatment). Because physicians are in short supply across Nigeria, this also often led to long wait-times and backlogged clinic records.

In response, AIDSRelief launched a pilot in 2009 to demonstrate that nurses could learn to safely provide ART refill services, absorbing some of physician caseload and decongesting clinics without compromising service quality. Now 12 clinics offer the service to eligible patients. The reduction in waiting times benefit all clients by making clinic visits an errand instead of an all-day affair taking them away from jobs and household responsibilities. If monthly clinic visits get in the way of other essential duties such as earning income or timely harvesting, patients begin to postpone or even skip visits and increase their risk of failing treatment or discontinuing care.

During a routine nurse refill visit, the trained nurse assesses the patient (referring to a physician if necessary) and dispenses pre-packaged ARV regimen and cotrimoxazole preventive therapy. A treatment support specialist conducts post-pharmacy adherence counseling as well. Murna Musa, a patient and treatment support specialist at St. Gerard's Hospital, notes that the nurse refill service "enables us to identify patient's treatment adherence challenges that can be referred to counselors early."

The 2009 pilot confirmed that shifting routine refill services from physicians to nurses reduced wait times, made patient flow in the clinic more efficient, and improved documentation. Nurses have improved their clinical decision-making skills and expanded their roles, and physicians gained time to focus on evaluating and stabilizing more-complex patients. The nurse refill program also alleviates health workforce shortages and contributes to patient satisfaction.

Block 3: Health Information Systems

"A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status."

—WHO, Everybody's Business: Strengthening Health Systems to Improve Health Outcomes

Health information systems serve four key functions: 1) data generation, 2) data compilation, 3) data analysis and synthesis, and 4) communication and use of data. Strong health information systems can revolutionize patient care and site management, change the face of resource allocation, and shift an entire country's response to an epidemic like HIV. Yet the foundation of data use—program data collection and reporting—can easily be misperceived as an administrative burden. AIDSRelief has strengthened health information systems through a three-pronged approach to strategic information: monitoring and evaluation (M&E), data demand and information use (DDIU) for continuous quality improvement (CQI), and health management information systems, involving the deployment and use of electronic medical records.

Creating a Culture of Data Use

Before receiving AIDSRelief support, most clinics lacked effective record-keeping systems for patient management and aggregation of data at the site level, and most facility staff did not differentiate between reporting and data use. This was also true of many clinicians and data managers at district and central levels.

AIDSRelief advocated for staff to have adequate time and resources to collect and analyze their data regularly, improving data quality and analyses. Strategic information experts also worked with facility staff in different ways to extract meaningful information from data, through statistical analysis. Together, these efforts and targeted capacity strengthening and technical

assistance helped create a culture of timely, data-driven information use that has transformed management and patient care. To help keep trained staff at facilities and to improve the effectiveness of information teams, AIDSRelief and supported facilities empowered and strengthened the capacity of staff to analyze and present data at monthly site-level meetings. M&E officers also participated. In many cases, information officers even identified clinical concerns that providers had not yet noted. These types of efforts have helped information staff take pride in their roles and improve patient care.

AIDSRelief emphasizes the application of that data in all facets of patient care and site management. At St. Gerard's, a pharamcist, a physician, and a program manager discuss the pricing of medicines. Photo by Karen Kasmauski for CRS.

To optimize data analysis and use, AIDSRelief emphasized the careful management and practical application of data in all facets of patient care and site management. By linking clinicians and data managers through combined trainings (formal and informal), assessments, evaluation meetings, and other activities for continuous quality improvement (CQI) and data demand and information use (DDIU), AIDSRelief helped create a structure and a culture within which clinicians and data managers now collaborate, see the value and interconnectedness of each

other's work, and can associate that work directly with patient outcomes, site management, and improved teamwork. These profound changes in how clinicians and data managers think about information reach far beyond HIV care and treatment. The skills and systems are relevant for primary health care, chronic disease management, and acute infectious disease interventions.

Data Use for Program Quality Improvement

Nigerian Christian Hospital, Nlagu, a rural mission hospital, has operated since 1955 but, in spite of serving upwards of 18,000 outpatients annually, lacked consistent and complete patient documentation. This severely compromised the quality of patient care and overall facility management. With technical support and supervision from AIDSRelief, the hospital restructured its medical records department and today can boast of a modern M&E unit complete with staff proficient in relevant software, and able to transform data into meaningful information and trends for evidence-based decision-making for HIV and non-HIV care.

Data can be a powerful tool. For example, a routine monthly report might reveal a facility-wide gap in cotrimoxazole prophylaxis among pre-ART patients. Further investigation could then determine possible explanations and responses: a pharmacy stock-out that could be resolved by supply chain management, or a provider who is unfamiliar with national guidelines can benefit from refresher training or mentoring. These analyses can—and should—be done at the site level, engaging those managers and clinicians who best know their context.

The Power of Paperless Clinics

One of AIDSRelief's key achievements was strengthening the capacity of facilities and their staff in using health information systems and M&E practices. All supported facilities underwent needs assessments, received equipment, and participated in trainings, mentoring, and supportive supervision. Because of their strong understanding and application of health information systems, three facilities operated paperless "eClinics" and two more were planning to begin eClinics at the time of writing.

Initially, the staff at Ahmadiyya Muslim Hospital in Kano did not understand the M&E systems and thought they were not useful, but they caught on quickly. Now, with a click of the mouse, data staff can tell you the number of patient visits scheduled for any day, highlight patients who have missed appointments, and schedule future appointments without having to manage reams of paper. In addition to helping providers and site managers work more efficiently, patients are pleased with the electronic systems. In particular, many are delighted to receive text messages reminding them of upcoming appointments or reaching out to them if they miss a clinic visit—data easily viewed through the computer system.

By the end of 2010, Ahmadiyya had gone entirely paperless—providers input patient information directly into the computers, improving efficiency and reducing error by eliminating the need to transfer patient information from paper forms to the database. By providing equipment and meaningful capacity strengthening, and capitalizing on the commitment of Ahmadiyya's dedicated staff, the eClinic is poised for long-term success.

Block 4: Access to Essential Medicines

"A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use."

—WHO, *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*

Access to medicines and commodities such as lab reagents or clean needles for drawing blood is the cornerstone of successful HIV care and treatment and requires a high functioning supply chain and competent, trained pharmacy staff. A reliable supply of ARVs and medications to prevent and combat opportunistic infections helps ensure adherence and excellent treatment outcomes, and keeps drug resistance at bay. Consistent and adequate laboratory supplies allow providers to identify and monitor patients infected with HIV and opportunistic infections. The availability of medicines and commodities also impacts care for countless other ailments, spurring AIDSRelief to encourage integration of HIV and non-HIV pharmacy management in all treatment sites.

Building strong supply chain, pharmacy and laboratory systems ensures that all patients receive the right medicine at the right time, regardless of their specific illness or condition. Photo by Karen Kasmauski for CRS.

Supply Chain Management

To keep stocks of medicines and commodities at appropriate levels centrally and at facilities, AIDSRelief placed quarterly orders with SCMS (medicines) and CRS (lab supplies).[2] In support of accurate ordering, AIDSRelief and facility staff worked together to create reporting templates that generate accurate forecasts based on the previous year's month-by-month usage, to establish electronic inventory systems, and to identify necessary infrastructure upgrades such as air-conditioning and shelving for storage areas. AIDSRelief also encouraged supported facilities to integrate the ARV pharmacy into the overall facility pharmacy to take advantage of structural and systemic improvements, further benefitting patients, the facility, and the overall health system.

> AIDSRelief pioneered key approaches and made use of relevant tools and resources developed by different organizations and projects. AIDSRelief-supported pharmacies used the Electronic ARV Dispensing Tool (EDT) to help monitor patient adherence and manage patient information. At the central level, the Quantimed and Pipeline tools are used to estimate program ARV requirements and supply planning respectively.

Skilled Pharmacy Staff

Pharmacists and other pharmacy staff are integral to broad and continuous access to essential medicines for HIV and other treatments. AIDSRelief helped pharmacy staff to improve their skills for proper forecasting, inventory, storage, and dispensing of medicines using industry standard approaches (such as

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2 SCMS coordinates pooled procurement across 19 PEPFAR-supported countries. SCMS was established under PEPFAR in 2005 to ensure the availability of essential products (perhaps most notably, HIV-related medicines) for programs in developing countries, and to strengthen national supply chain management systems. Pooled procurement streamlines the purchase and distribution of bulk commodities such as ARVs by bundling orders from multiple pharmacies, projects, and even countries.

analyses of the prior year's usage or morbidity rates to accurately estimate inventory needs). Pharmacists also play a key role in patient care and data analysis as they are well-positioned to notice issues such as potentially adverse drug interactions or an unexpected change in drug inventory that might indicate a need for refresher training in standard treatment guidelines or a shift in patient population.

In a setting like Nigeria with a shortage of health care providers and managers, it is common for staff to start in a position without the ideal qualifications. AIDSRelief technical teams struggled to adapt curriculums and trainings to the wide variety of skills and qualifications held by pharmacy managers. While challenging, these situations suit the AIDSRelief capacity strengthening approach exceptionally well. Need-based, side-by-side technical support and mentoring allow trainers to give different sites and facilities as much or as little assistance as they need to meet quality of care standards.

Efficient Pharmaceutical and Supply Chain Management for Excellent Patient Care

A critical component of AIDSRelief's health systems strengthening approach aimed to improve supply chain and pharmacy management at program-supported health facilities. AIDSRelief provided computerized systems, training, mentoring, and on-site supportive supervision to ensure that staff at each of the 34 sites knew how to best use these new systems for improved patient care and efficient supply chain management and pharmaceutical care.

To help all staff (including new members) do their jobs accurately and effectively, AIDSRelief and site managers implemented standard operating procedures to support optimal handling and dispensing of medicines and other commodities. Staff strictly followed "first-expiry-first-out" rules and used charts to track expiration dates, bin cards for monitoring inventory, and batch codes to organize and store commodities. AIDSRelief improved commodity storage space through needs-based building refittings

and equipment purchases, and helped prevent theft and fraud by putting security measures in place. In integrated pharmacies, this helps improve quality and availability of medicines for all patients and strengthens facility-wide access to essential medicines.

Staff who previously estimated all of their commodity needs developed skills in forecasting and drug quantification under AIDSRelief, helping to ensure commodity security. Health facilities now use electronic templates in Microsoft Access and Excel which have been designed specifically to capture patient information including commodity records. Additionally, accurate records and easy access to those records has helped providers spot adherence issues among individual patients, prevent dispensing errors, and even detect and correct prescription errors.

When asked about sustainability, former senior pharmacist and current program coordinator at St. Vincent's Hospital, Amara Nzeako says "The supply chain management system will continue to function because it is the only system that ensures continued availability of health commodities. It has been so effective and this has led to an improved quality of care and service."

Block 5: Health Systems Financing

"A good health financing system raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient."

—WHO, *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*

Sound financial management can help ensure that an organization devotes as much of its budget as possible in pursuit of its mission, and is critical to any organization's long-term sustainability. Furthermore, donors frequently have stringent rules about how recipient organizations handle funds, limiting future grants to those who cannot demonstrate accountability and transparency. Even organizations with well-intentioned and honest staff often struggle to maintain good financial management practices because they lack the training, staffing, or tools to do so.

Through the partnership with AIDSRelief, facilities recruited new finance and accounting staff when necessary, and all staff were provided training and technical assistance to teach or reinforce skills in basic finance and compliance, and Microsoft Excel. AIDSRelief also provided finance departments with computers, printers, and other equipment as necessary. Facilities developed and put in place standard operating procedures and industry best practices to systematize financial budgeting, forecasting, and monitoring activities. For example, purchases above a certain cost required a bid comparision, all expenditures were to be accompanied by a payment voucher, and the distirbution of funds and checks required additional verificiation. This intensive capacity strengthening with regard to site financial management has positioned facilities to take advantage of other funding opportunities. With improved current systems (including Quickbooks) and skills, these sites now can manage parallel funding streams and deliver detailed accounts to several donors at the click of a mouse.

Supportive Partnerships

Under AIDSRelief, transparent and accountable financial management at the site level was essential to efficiencies in patient care as well as organizational sustainability. To strengthen financial management at supported facilities, program team members started by acknowledging that the facilities already had systems—AIDSRelief was there to improve what already existed, not to start anew. Staff from each site were engaged from the beginning; the teams jointly conducted assessments with information gathering tools, analyzed the findings, and developed action plans to leverage strengths and address weaknesses in financial management systems at each site.

Angelina Zatiyok (center) has been a patient at St. Louis Hospital in Zonkwa since 2005. Prior to treatment she was very sick, but now her husband says "She so strong she can push a tree down." Photo by Karen Kasmauski for CRS.

Return on Investment

In keeping with AIDSRelief's evidence-based credo, site management staff further collaborated with their facility counterparts and clinical and information teams to routinely analyze financial reports and trends. This process was called "performance-based budgeting." By identifying spending patterns over time, sites learned to identify efficiencies as well as areas for

improvement—for example, a drop in reimbursements for home visit expenditures might indicate attrition among community support staff (a challenge to rapidly address) or that community support staff started to combine trips and see more patients per visit to an area (a management tactic to consider replicating).

Leveraging Resources

Infrastructure improvements made under AIDSRelief not only improved care for all patients, but also helped facilities earn money to support other services and recurrent costs such as utilities or generator fuel. For example, AIDSRelief laboratories received blood chemistry machines and related staff training primarily to monitor HIV-positive patients, but blood chemistry information is also critical for treating many other types of patients. HIV care is free to patients in Nigeria (supported by international funds such as PEPFAR), but other care is paid for out of pocket or by private insurance, so integrated pharmacies can charge patients (or insurance companies) for necessary tests and generate a revenue stream without the initial capital expenditure associated with buying new equipment. While AIDSRelief generally supported leveraging resources for the greatest impact, it also helped facilities to ensure that such situations were clearly defined and did not conflict with donor funding regulations.

Financial Management Ensuring Quality Patient Care

Financial management is an often-overlooked component of health and health systems; many people fail to see it as related to the quality of patient care. Local partner treatment facilities working with the AIDSRelief program in Nigeria would disagree.
As HIV care and treatment services were scaled-up under AIDSRelief, facilities saw dramatic increases in patient numbers and suddenly found themselves managing much larger budgets

and facing strict reporting requirements. For example, St. Vincent's Hospital in Kubwa went from only referring patients for treatment to having more than 2,000 patients on treatment in addition to the general patient population. Many financial departments simply lacked the absorptive capacity for this increased volume.

Sister Theresa Anosike, the Finance Manager of St. Vincent's Hopsital highlights how forecasting and budgeting directly impacts patient care by making it possible to distribute enough funds and in enough time to support outreach activities, home-based care and patient tracking, and purchase of necessary reagents and drugs for opportunistic infections.

Observing that the facilities were making good use of the Excel templates, AIDSRelief took the capacity building one step further and installed QuickBooks at all partner hospitals in the last two years of the program. Most facilities are currently using Quickbooks to track AIDSRelief finances while some facilities have expanded the use of this tool to the rest of the hospital because of how helpful it has been. The general feeling among staff is that the benefits of these new systems and operating proceedures far outweigh any inconveniences and they will continue to implement them after the end of the partnership with AIDSRelief.

Block 6: Leadership and Governance

"Leadership and governance involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system-design and accountability."
—WHO, *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*

Even in a highly decentralized environment like Nigeria, the central government has critical responsibilities such as development of standard treatment or curriculum guidelines. AIDSRelief technical staff worked very closely with Government of Nigeria counterparts to advocate for HIV-related guidelines and policies that reflect the best science and proven practices. Through years of participation in all HIV-related technical working groups, joint trainings, and overall good relationships, AIDSRelief has supported the central government to enhance and standardize care. In one profound example, AIDSRelief lobbied the National Nursing Council to include HIV care and treatment in nursing school curriculums. AIDSRelief technical staff helped develop the curriculum and teach the courses for pre-service nurses who then go on to apply their clinical skills during rotations at AIDSRelief-supported treatment facilities. Prior to this, nurses did not routinely receive any training in HIV in spite of the fact that a large proportion of their future patients would be HIV-positive.

AIDSRelief further encouraged leadership and governance at all levels of the health system by offering technical leadership and encouraging health facility staff to step into these technical leadership roles. For example, by bringing together clinicians of different cadres, information management staff, pharmacy staff and site management staff as equals in trainings and decision-making, each group of staff had the opportunity to grow as an expert in their field and to be recognized as such by their colleagues. Strategic information staff once relegated to data entry tasks alone are now valued members of the patient care team. Clinicians accustomed to viewing every budgeting exercise as a threat to adequate resources come to view the financial team as an ally in making patient care more efficient while maintaining top quality.

Advocating for the Best Care for Pregnant Women

Nigeria has the largest burden of mother-to-child transmission (MTCT) of HIV in the world with most transmission occurring during childbirth and breastfeeding. This is caused in part by a low testing rate of pregnant women, but also because the strategies used to prevent MTCT—namely single-dose nevirapine—have had significant limitations. Evidence from resource-rich countries demonstrated that HIV-positive pregnant women and their children had much better outcomes when they received highly active antitretroviral therapy (HAART) from early pregnancy through cessation of breastfeeding. (HAART helps prevent HIV transmission through breastfeeding, but also improves the health of women who many not otherwise be considered treatment eligible.) However, Nigeria's national PMTCT guidelines did not include HAART for pregnant women as a preferred regimen.

In 2007, AIDSRelief felt there was enough available scientific evidence for the efficacy of HAART in pregnant women and became the first and only implementing partner to use HAART in PMTCT regimens. Because this was contrary to national guidelines, AIDSRelief simultaneously advocated with both CDC and Nigeria's national PMTCT technical working group to update the national guidelines.

Initially these consultations met some resistance, but AIDSRelief continued to champion the change. This campaign culminated in the first National Maternal and Child Health Summit in Abuja (funded by AIDSRelief in 2010). At the summit, PMTCT experts from across Nigeria discussed pertinent issues including the choice of regimen for PMTCT. AIDSRelief was able to share evidence that program-supported patients receiving HAART had a transmission rate of less than two percent. This further strengthened the argument to use HAART to reduce vertical transmission of HIV and to improve care for pregnant women. As a result of these advocacy efforts with key people in leadership positions and government agencies HAART for all pregnant women was included in the final national PMTCT guidelines in 2010.

Conclusion

AIDSRelief was conceived of to ensure that people living with HIV could access high-quality care and treatment, and that local entities would be able to maintain these life-long services after the grant ended. Without strengthening the entire health system—service delivery, the workforce, information systems, access to essential medicines, financing, leadership and governance, and community—neither of these goals would be possible. Furthermore, by working with the entire system in mind and encouraging integration where appropriate, AIDSRelief helped ensure that the emergency response to HIV did not devastate other health services. In fact, AIDSRelief's roll-out and scale-up of quality care for people living with HIV helped facilities to better serve all of their clients and operate more efficiently and effectively.

Because of the intensive partnerships and capacity strengthening inherent in the program's design, facilities once supported by AIDSRelief are well-fortified and poised to expand and maintain the level of care that patients now expect and have always deserved. State and national policy such as medical curricula and treatment guidelines are current, and decision-makers at all levels believe in the power of evidence and their own experiences to continuously improve services and systems for superb patient outcomes and effective management.

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[i] http://www.unaids.org/en/dataanalysis/tools/aidsinfo/countryfactsheets/
[ii] http://data.worldbank.org/country/nigeria
[iii] http://www.unaids.org/en/dataanalysis/tools/aidsinfo/countryfactsheets/

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Catholic Relief Services
228 W. Lexington St.
Baltimore, Maryland
USA 21201-3443