



FROM EMERGENCY TO SUSTAINABILITY

EIGHT YEARS OF SCALING UP HIV PREVENTION,  
CARE, AND TREATMENT SERVICES AND SAVING LIVES

# **PROJECT HEART END-OF-PROJECT REPORT: FROM EMERGENCY TO SUSTAINABILITY**

EIGHT YEARS OF SCALING UP HIV PREVENTION, CARE, AND TREATMENT SERVICES AND SAVING LIVES

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**Note to the Reader:** Project HEART was implemented from February 23, 2004–February 22, 2011 and was divided into eight project years. Each project year began on February 23 and ended on February 22 of the following year. The following report describes activities and data based on the project years. For this reason, activities and data in this document are reported on a February-to-February calendar rather than a January-to-December calendar.

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## LIST OF ABBREVIATIONS AND ACRONYMS

AGPAHI	Ariel Glaser Pediatric AIDS Healthcare Initiative	M&E	Monitoring and Evaluation
AHF	AIDS Healthcare Foundation	MOH	Ministry of Health
AIDS	Acquired Immune Deficiency Syndrome	MTCT	Mother-to-Child Transmission (of HIV)
ANC	Antenatal Care	NGO	Nongovernmental Organization
ART	Antiretroviral Therapy	NIMART	Nurse-initiated and managed ART
ARV	Antiretroviral	NVP	Nevirapine
ASPIRE	AIDS Services, Prevention, Intervention, Research, and Education	OCVAT	Organizational Capacity and Viability Assessment Tool
AZT	Zidovudine	OI	Opportunistic Infection
BIPAI	Baylor International Pediatric AIDS Initiative	PATH	Program for Appropriate Technology in Health
CBO	Community-Based Organization	PBF	Performance-Based Financing
CCFCC	Child-Centered Family Care Clinic	PCR	Polymerase Chain Reaction
CDC	Centers for Disease Control and Prevention	PEPFAR	President's Emergency Plan for AIDS Relief
CIDRZ	Center for Infectious Disease Research in Zambia	PITC	Provider-Initiated Testing and Counseling
CTX	Cotrimoxazole	PLWHA	People Living with HIV/AIDS
DBS	Dried Blood Spot	PMTCT	Prevention of Mother-to-Child Transmission
DOH	Department of Health	PPP	Public Private Partnership
DQA	Data Quality Assessment	Project HEART	Project to Help Expand Antiretroviral Therapy to Children and Families
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation	PY	Project Year (of HEART)
EID	Early Infant Diagnosis	QI	Quality Improvement
ERS	Electronic Record System	SCMS	Supply Chain Management Systems
FBO	Faith-Based Organization	SCP	Site Capacity Profile
GLASER	Global AIDS System for Evaluation and Reporting	SMS	Short Message Service
GWU	George Washington University School of Public Health and Health Services	SOGB	Société Grand Bereby
HBC	Home-Based Care	TB	Tuberculosis
HCW	Health Care Worker	UAC	University of Abidjan-Cocody
HIV	Human Immunodeficiency Virus	TOT	Training of Trainers
HMIS	Health Management Information System	UCSF	University of California at San Francisco
HSS	Health Systems Strengthening	UNAIDS	Joint United Nations Programme on HIV/AIDS
IATT	Interagency Task Team	UNICEF	United Nations Children's Fund
IYCF	Infant and Young Child Feeding	USAID	U.S. Agency for International Development
JSI	John Snow, Inc.	USG	U.S. Government
KCMC	Kilimanjaro Christian Medical Center	VCT	Voluntary Counseling and Testing
MCH	Maternal and Child Health	WFP	World Food Programme
		WHO	World Health Organization

## EXECUTIVE SUMMARY

Through the leadership and support of the President's Emergency Plan for AIDS Relief (PEPFAR) and the U.S. Centers for Disease Control and Prevention, the Elizabeth Glaser Pediatric AIDS Foundation is honored to have led Project HEART (**H**elp **E**xpand **A**ntiretroviral **T**herapy to children and families), an eight-year initiative to extend life-saving treatment to millions of people living with HIV. Project HEART was part of the PEPFAR Track 1.0 treatment initiative to rapidly scale up antiretroviral therapy (ART) through existing organizations implementing prevention of mother-to-child transmission of HIV (PMTCT) programs. Project HEART was launched in 2004 in Côte d'Ivoire, South Africa, Tanzania, and Zambia, and in 2006 in Mozambique. Through the project, more than 1 million men, women, and children received HIV care and support, more than 2.5 million pregnant women received HIV counseling and testing, and more than half a million people started ART. In 2010, 1 out of every 10 PEPFAR-supported ART patients in sub-Saharan Africa received their treatment through Project HEART.

Aligned with PEPFAR's long-term strategy to strengthen the capacity and ownership of host-country governments and local partners to lead the provision of HIV services, Project HEART focused on strengthening existing systems with approaches tailored to the individual needs of each country and context. Starting in 2009, sustainably transitioning care and treatment activities to local partners by February 2012 became a core mandate and goal of Project HEART.

Working with and through a network of more than 215 international and local partners and under the leadership and management of the Foundation, Project HEART worked to strengthen the health systems in Côte d'Ivoire, Mozambique, South Africa, Tanzania, and Zambia to improve service delivery of HIV prevention, care, and treatment services. This included:

- Supporting service delivery of HIV prevention, care, and treatment services at more than 510 ART sites and 1,053 PMTCT sites throughout the five countries;
- Building the clinical, managerial, financial, and administrative capacity of local health providers and partners to more effectively provide HIV services;

**“Project HEART really has changed not just how many people have been reached, but how people think about the fact that we can end the epidemic. Project HEART specifically set targets, but went on to exceed them tenfold. Those are tremendous accomplishments at a time when there were considerable voices that said “it can't be done.”**

Charles Lyons, President and Chief Executive Officer, EGPAF

- Strengthening program and data quality by improving data collection processes and systems, patient flow, better integrated client-focused services, and health staff training on data collection and use;
- Improving the technological and physical infrastructure of health facilities through facility renovations, installation of necessary clinical and laboratory equipment, and introduction of technologies to improve supply chains, increase connectivity, and reduce turnaround time for lab results;
- Providing sub-awards to local partners and the ministries of health (MOHs) at the district and provincial/regional levels, in coordination with capacity building in financial management, administration, and human resources to decentralize responsibility, decision making, and capacity within the health system to offer HIV services.

In addition to program implementation, Project HEART supported program evaluations to measure impact, pilot new interventions, and assess program progress. Through participation in various technical working groups in country, Project HEART influenced changes in relevant policies, such as provider-initiated counseling and testing, task shifting, and development of health cards to facilitate the identification of HIV-positive patients to improve patient care. Project HEART's innovative approaches—most notably, the district approach, scale up performance-based financing, and the piloting of new, easy-to-use technology to increase access to HIV services and better respond to patient



PHOTO: OLIVIER ASSELIN

needs—have transformed the health system in some countries, serving as best practices later authorized and disseminated by MOHs and other implementing partners.

### CHALLENGES AND LESSONS LEARNED

After eight years of program implementation across five countries, significant successes and crucial lessons have come out of Project HEART. Most important, Project HEART, along with the work of the other Track 1.0 partners, has demonstrated that quality HIV/AIDS prevention, care, and treatment services can be scaled rapidly and effectively in close coordination with host-country governments. In addition, targeted technical and operational capacity-building support to local partners is both effective and necessary for ensuring the sustainable provision of high-quality services.

The key programmatic challenges and lessons learned during Project HEART include the following:

- Adult enrollment in care and treatment has been rapid. The enrollment of children, especially the youngest children, into both care and treatment has been much more challenging, starting with the identification of HIV-positive children and infants. *The adoption of the 2010 World Health Organization guidelines, which recommend immediate initiation of treatment for confirmed HIV-positive infants and children, is necessary to achieve maximum access*

*to treatment and to save the lives of the most vulnerable persons in need of treatment.* Continued access to medical training and mentorship will enable clinicians to feel confident in treating children.

- Retention in care and treatment is one of the biggest challenges for mature care and treatment programs. The retention challenge occurs across the continuum of care, from prevention to treatment. *Improving retention and reducing the number of patients lost to follow-up requires addressing patient, provider, and health system barriers to care.* Peer and community approaches must complement facility and clinical solutions to address this issue. Maximizing the use of new technologies, such as Short Message Service printers to deliver laboratory results and point-of-care diagnostics to further increase access to testing and treatment linked with PMTCT services, will continue to reduce new infections and improve retention.
- *Care and treatment program quality requires continuous self-assessment, adjustment, and improvement at the site and system level.* National quality improvement programs are expanding and need to be championed at all levels of the health system. High-volume sites and overburdened staff are challenged by the quantity of data and reports required and formalized. Site-level data manager positions are infrequently an official cadre within the health system, which contributes to variable data quality at each site. The chronic nature of HIV care requires the



PHOTO: JON HRUSA

tracking of patients and individual patient monitoring, which is new for most primary health-care systems in resource-limited settings. Data quality assurance will need to become part of the standards for a robust care and treatment program.

- *Health system strengthening should be approached comprehensively, focusing on supporting decentralization and building managerial, technical, operational, and administrative capacity at multiple levels within the health systems.* Through sub-awards provided by Project HEART, local partners, including the MOHs at the provincial/regional and district levels and nongovernmental organizations, had increased opportunity and authority to respond to the needs of their patients. As local partners increasingly receive direct and indirect U.S. government support, continuing to develop and strengthen the capacity of health staff and health systems in financial management, procurement, human resources management, and administration is equally as important as ensuring quality programs and will further build local ownership.

## FUTURE DIRECTIONS

At the end of eight years, Project HEART ultimately demonstrated that with meaningful investments to build capacity, taking comprehensive HIV services to scale is feasible and sustainable.

As the transition to local partners accelerated and local partners assumed greater responsibility for HIV program management, there was and continues to be a crucial need to augment the financial, operational, and administrative management capacity of public health authorities to maintain the current scale of services.

The Elizabeth Glaser Pediatric AIDS Foundation looks forward to working with its local partners to expand and improve the HIV prevention, care, and treatment services critical to achieve a generation free of HIV.

### PROJECT HEART: LEADING THE WAY IN HIV PREVENTION, CARE, AND TREATMENT PROGRAMS

In 2003, the President's Emergency Plan for AIDS Relief (PEPFAR), authorized by the U.S. Congress under the United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act, provided an unprecedented injection of funding to combat HIV in the 15 countries most affected by HIV, most of them in sub-Saharan Africa. Widely heralded as a watershed moment, the launch of PEPFAR signaled both the political will and the financial commitment to addressing the global AIDS pandemic and was the first initiative of its kind with clearly articulated targets linking inputs to performance. As part of the rapid response to the HIV emergency, PEPFAR launched the Track 1.0 treatment mechanism, forming the largest single treatment program awarded by PEPFAR and administered by the U.S. Centers for Disease Control and Prevention (CDC) Global AIDS Program and the HIV/AIDS Bureau at the Health Resources and Services Administration. The Elizabeth Glaser Pediatric AIDS Foundation (the Foundation) is honored to have served as a Track 1.0 antiretroviral therapy care and treatment partner, along with AIDSRelief (Catholic Relief Services Consortium), the Harvard School of Public Health, and the International Center for AIDS Care and Treatment Programs at the Mailman School of Public Health at Columbia University. Since 2004, under the Track 1.0 mechanism, partners have initiated more than 1.4 million patients on treatment in sub-Saharan Africa and the Caribbean.

Building on the Foundation's existing prevention of mother-to-child transmission (PMTCT) initiatives<sup>1</sup> and with the support and leadership of the CDC and PEPFAR through Track 1.0, in 2004, the Foundation launched Project HEART, an eight-year initiative to scale up access to HIV prevention, care, and treatment services in Côte d'Ivoire, Mozambique, South Africa, Tanzania, and Zambia. Project HEART is a highly collaborative effort, driven and managed by the Foundation with significant contributions from more than 215 partners worldwide. Key partners are described in Table 1. As a result of this collaboration, through September 2011, Project HEART provided ART to more than 560,000 patients, provided care and support to over 1 million patients, and tested and counseled more than 2.5 million pregnant women. By September 2010, 9.7 percent of all PEPFAR-supported patients currently on ART worldwide received their treatment through a Project HEART partner and site.

**"In the early years, it required a huge amount of energy to supervise as many people on care and treatment as possible. It was an emergency mentality. Yet expectations and targets were overwhelmingly exceeded every year. Now to be in a position of looking at sustainability and country ownership is a huge change in the course of eight years."**

Susan Strasser,  
Country Director, EGPAF/Zambia

In the spirit of a cooperative agreement, CDC played an important role in the success of Project HEART and collaborated closely with the Foundation to achieve results. CDC strongly encouraged rapid expansion from the outset. Recognizing the importance of accurately capturing and monitoring the results, CDC provided a clear vision for monitoring and reporting, through the development of a standardized quarterly monitoring and reporting framework for all Track 1.0 partners. This occurred prior to the existence of standardized PEPFAR indicators for treatment. CDC provided technical assistance around reporting and analysis through feedback to the Foundation directly, as well as at partner meetings. In 2009, CDC conducted a data quality assessment at select sites in select countries. These assessments led to improved understanding of data quality issues, and as a result, systems and approaches to improving data quality were enhanced, as documented in this report. Under Project HEART, the Foundation also collaborated closely with CDC on program evaluations, such as the National ART Evaluation in Côte d'Ivoire. CDC also encouraged the analysis of the outcomes and retention achieved across the Track 1.0 partners.

Throughout the life of the project, CDC conducted clinical site visits and offered helpful feedback for program improvements for PMTCT, care and treatment programming, as well as across health systems in areas such as monitoring and evaluation (M&E), quality improvement (QI), and laboratory systems. CDC fostered the exchange of ideas across organizations through annual Track 1.0 treatment meetings that included other agencies and partners involved in HIV prevention, care, and treatment. From 2009 to 2011, CDC also provided intensive input to the transition of the programs. The transition technical assistance (TA) ranged from strategy to implementation and monitoring.

**TABLE 1. COLLABORATION THROUGH PROJECT HEART:  
THE ROLE OF CDC, MINISTRIES OF HEALTH, THE FOUNDATION AND PARTNERS**

<p><b>The Centers for Disease Control and Prevention</b></p>	<ul style="list-style-type: none"> <li>• Donor/manager of Cooperative Agreement</li> <li>• Substantial involvement</li> <li>• Grant management</li> <li>• Technical and scientific assistance and oversight</li> </ul>
<p><b>Ministries of Health in Côte d'Ivoire, Mozambique, South Africa, Tanzania, and Zambia</b></p>	<ul style="list-style-type: none"> <li>• Setting national and local health policies</li> <li>• Implementation of national and local health policies</li> <li>• Service delivery implementation</li> <li>• Supply chain management</li> <li>• Technical assistance and oversight of services</li> <li>• Management of MOH staff and health facilities</li> <li>• Data collection, reporting, and analysis</li> <li>• Program evaluation</li> <li>• Coordination with PEPFAR, U.S. government, and CDC</li> </ul>
<p><b>The Elizabeth Glaser Pediatric AIDS Foundation</b></p>	<ul style="list-style-type: none"> <li>• Overall project management</li> <li>• Technical assistance</li> <li>• Training for local health staff</li> <li>• Supportive supervision</li> <li>• Clinical mentoring</li> <li>• Development of tools and standard operating procedures</li> <li>• Administer sub-awards to more than 215 global and local partners</li> <li>• Data collection and data management</li> <li>• Program evaluation, including data quality assessments</li> <li>• Procurements, including renovations and drug supply and equipment procurement as needed</li> </ul>
<p><b>Global Partners UCSF/ASPIRE, JSI, BIPAI</b></p>	<ul style="list-style-type: none"> <li>• Technical assistance</li> <li>• Clinical mentoring</li> <li>• Training</li> <li>• Development of job aids, tools, and standard operating procedures</li> </ul>
<p><b>Additional international and local NGO and university partners (variable by partner)</b></p>	<ul style="list-style-type: none"> <li>• Service delivery</li> <li>• Laboratory services</li> <li>• Technical assistance</li> <li>• Training for local health staff</li> <li>• Development of job aids, tools, and standard operating procedures</li> </ul>

## PROJECT HEART: FROM EMERGENCY TO SUSTAINABILITY

CDC participated in Track 1.0 partner-led, quarterly transition meetings to share and address challenges to transition encountered along the way. As a culmination of the Track 1.0 experience, CDC developed five standards for quality care and treatment programs that are intended to enhance the long-term sustainability of PEPFAR programs and transition the responsibilities to ministries of health (MOHs) and other local partners.

As a result of significant annual increases in funding from CDC and excellent project performance, the Foundation eclipsed project targets for patient enrollment established at the outset of the project, reaching 15 times more patients with ART than originally planned and steadily improving program quality as local health systems benefited from sustained investments through PEPFAR funding. These achievements have been possible through the strong relationships cultivated with the MOHs in each of the five countries where Project HEART works, as well as Project HEART global partners John Snow Inc. (JSI), Baylor College of

Medicine International Pediatric AIDS Initiative (BIPAI), and the University of California at San Francisco/ASPIRE (UCSF), who provided extensive technical assistance throughout the project.

Project HEART can be defined by two phases: 2004–2009 and 2009–2012. Phase one focused on increasing access to comprehensive care and treatment services to those in urgent need, and the second phase focused on continuing the provision of services while accelerating capacity building of local partners and transitioning activities to local partners. As an essential component of this transition, Project HEART supported the creation of four local affiliate nongovernmental organizations (NGOs), legally registered with bylaws and fully functional governing bodies, to gradually assume responsibility for direct implementation of HIV clinical support activities. Three of those local affiliate NGOs have secured independent U.S. government funding.

**FIGURE 1. COUNTRIES IN WHICH PROJECT HEART WAS IMPLEMENTED AND TOTAL NUMBER OF SITES SUPPORTED BY COUNTRY**



Project HEART supported comprehensive HIV prevention, care, and treatment services in 1,053 PMTCT sites and 510 ART sites in five of the countries most affected by HIV in sub-Saharan Africa. By September 2011, Project HEART had achieved the following:

- Enrolled 1,029,014 HIV-positive people in care, of which 79,677 (7.7 percent) were children.
- Initiated 569,637 HIV-positive people onto ART, of which 47,154 (8.3 percent) were children, reaching over 100 percent of the target.
- Provided HIV counseling to 2,862,682 pregnant women and tested 2,507,621 pregnant women for HIV (through June 2011).

### EVOLUTION OF FIVE COUNTRY PROGRAMS AND KEY ACCOMPLISHMENTS

Project HEART's success spanned five countries with wide variations in HIV prevalence, health system capacity, and socio-cultural norms. HIV prevalence ranged from 17.8 percent in South Africa to 3.4 percent in Côte d'Ivoire, and within Mozambique from 5.6 percent in the north of the country to 17.8 percent in the south. South Africa was the only country supported by Project HEART with a health worker-to-population ratio that met 2006 World Health Organization (WHO) standards.<sup>2</sup> Even in South Africa there was wide variation in the distribution of health workers across districts. These differences demanded a flexible approach that was customized to local needs. Project HEART's success in part stemmed from cross-fertilization that occurred across these diverse contexts, enriching program implementation and coalescing in a global strategy that prioritized local capacity building based on needs articulated by the MOH and other national partners.

Of the sites that received support from Project HEART, 71 percent of PMTCT sites and 43 percent of ART sites were located in hard-to-reach areas, which are geographically remote with poor infrastructure, connectivity, and transport. In Mozambique and Tanzania, three-quarters of supported sites were considered rural.<sup>3</sup> By expanding support to lower level health facilities located far from provincial and district centers, Project HEART demonstrated that providing HIV prevention, care, and treatment services in hard-to-reach populations was viable and necessary to avert more infections and mitigate the adverse impact HIV inflicted on these communities.

By working through experienced partners with requisite capacity in country, and later through directly enhancing local capacity of the MOH and civil society, Project HEART efficiently scaled up support and expanded its geographic scope. Building on proven track records implementing large-scale PMTCT programs, these large sub-partners at the start of the project included ACONDA, a large NGO in Côte d'Ivoire; three care and treatment sites in South Africa (McCord Hospital/Sinikithemba Clinic, Africa Centre/Hlabisa Hospital, and Port Shepstone/Murchison Hospital in KwaZulu-Natal Province); Axios Foundation in Tanzania; and the University of Alabama at Birmingham and the Centre for Infectious Disease Research (UAB/CIDRZ) in Zambia.<sup>4</sup> As partners in Côte d'Ivoire, Tanzania, and South Africa achieved greater autonomy and received direct donor funding, the Foundation focused on providing direct technical assistance to the MOHs in these countries. Key accomplishments achieved in each Project HEART country are as follows:

- Project HEART/Côte d'Ivoire was the largest PEPFAR HIV clinical partner in the country, with a presence in half of the districts and in 60 percent of the national treatment programs.
- In Mozambique, Project HEART was the second largest PEPFAR HIV clinical partner in the country, contributing to 30 percent of PEPFAR targets for individuals enrolled in ART.
- During the last year of Project HEART, South Africa enrolled an average of 10,000 new patients for ART each quarter. Of the 116,108 currently on treatment by September 2011, 11.0 percent were children—the highest proportion of all Project HEART countries.
- In addition to a strong tuberculosis (TB)/HIV program, in which 88 percent of patients accessing HIV care were screened for TB during the April–June 2011 quarter, Project HEART/Tanzania conceptualized and implemented the district approach which was the launching pad for scale-up of ART services that was later replicated in other countries.
- Of all the patients supported across the five countries where Project HEART worked, Project HEART/Zambia accounted for the highest number of patients, with a total of 297,843 cumulatively enrolled in care and 196,122 patients cumulatively initiated on treatment. The number of children enrolled in ART through Project HEART accounted for half of the children enrolled in the country.

### PHASE I: RAPID EXPANSION OF COMPREHENSIVE HIV PREVENTION, CARE, AND TREATMENT SERVICES

As originally conceived, Project HEART proposed to reach 7,000 patients in year one and 35,000 patients by year five through support of HIV prevention, care, and treatment services in four tertiary facilities.<sup>5</sup> By the end of the first year, Project HEART had exceeded the original five-year targets in all countries. At the end of the first five years, Project HEART had exceeded by eight times its life-of-project goal to initiate 310,000 adults on ART (310,000 ever initiated on ART). By September 2011, Project HEART cumulatively enrolled over one million (1,029,014) people into care, including more than half a million (569,637) people onto ART, of which 79,677 (7.7 percent) and 47,154 (8.3 percent), respectively, were children. To support operations, Project HEART worked through one central office in the capital of each country and multiple field offices in the focus provinces or regions to accommodate the growth in scale and scope of the project, reflecting the expansion to more rural settings.

#### START-UP AND SCALE-UP

Project HEART started in an era when providing lifelong treatment to people living with HIV in high-prevalence countries was groundbreaking. Prior to the advent of PEPFAR, HIV clinical care was primarily restricted to a few well-resourced clinics and large reference hospitals in urban areas. Building on existing Foundation-supported PMTCT programs, Project HEART benefited from an established operations infrastructure, learned from on-the-ground experience in taking PMTCT to scale, and strived to narrow the gaps between prevention, care, and treatment, linking eligible individuals to treatment. The overarching goal of Project HEART was to integrate affordable, family-centered, quality HIV prevention, care, and treatment services into existing health-care facilities. As originally envisioned, Project HEART's principal focus was to improve the quality of clinical care provided to patients. Later, the goals were modified to include reinforcing health systems to support drug procurement and logistics; strengthening laboratory capacity; providing training and professional development for health workers in HIV care and treatment; addressing community mobilization and behavior change; and monitoring and evaluating programmatic outcomes (see "Thirteen Program Components of Project HEART" figure on page 15). Refined over time, these modifications to Project HEART's objectives reflected the evolution from guaranteeing

#### HISTORY AND MISSION OF THE FOUNDATION

Established in 1988 by Elizabeth Glaser, the Foundation is a beacon for pediatric HIV. Prompted by the tragedy of the childhood death of Elizabeth Glaser's daughter Ariel, the organization initially focused on research and advocacy for pediatric formulations for ART to treat children in the United States. Over time, the Foundation expanded its mission to include program implementation in resource-limited settings.

#### MISSION

The Elizabeth Glaser Pediatric AIDS Foundation seeks to prevent pediatric HIV infection and to eradicate pediatric AIDS through research, advocacy, and prevention and treatment programs.

the provision of comprehensive HIV clinical services to the consolidation and integration of program components, and finally to local ownership and management of HIV programming.

To rapidly start up the project, from 2004 to 2006, the Foundation and its implementing partners directly procured and supervised storage and distribution of antiretrovirals (ARVs) to ensure a timely and uninterrupted supply to meet the overwhelming demand for treatment. Once this system was in place, and as supply chain management systems (SCMS) assumed responsibility for securing ARV drug supply, the focus of Project HEART shifted to improving the quality of service delivery at health facilities through provision of a comprehensive package of care, which ranged from prevention to psychosocial support services. The relationship among clinical outcomes, available ancillary services, and the underlying health system demanded that technical support go beyond the health facilities and encompass the broader health system and community. Yet, the capacity of health systems to directly implement and manage comprehensive care services at such a scale was increasingly strained by high patient volumes. To overcome this challenge, Project HEART used an integrated, patient-centered approach to help the MOH deliver a continuum of HIV clinical services and to more effectively link maternal and child health (MCH), PMTCT, TB/HIV, clinical care, and other prevention and psychosocial support services.

Continued expansion to additional sites and district-level capacity building from 2004 to 2008 defined the second phase of Project HEART in 2009-2011. The case of Tanzania, where ART sites

increased from 4 in 2004 to more than 165 in 2011, demonstrated that building the capacity of district and regional health departments to plan, deliver, and monitor clinical services was key to supporting more peripheral health centers and thereby reaching substantially more individuals. Seeing the results in Tanzania, other Project HEART countries followed suit and viewed district, provincial, and regional health departments as the entry point for scaling up PMTCT and care and treatment services. In 2009, the Foundation solidified its commitment to fostering local ownership and embarked on the transition of the current portfolio of responsibilities to national governments, civil society, and local affiliate organizations.

### HEALTH SYSTEMS STRENGTHENING

At all tiers of the health system, Project HEART aligned with government priorities and reinforced existing capacity to achieve program goals and, by extension, promote long-term sustainability of these programs. Commended by the MOHs, this approach was central to nurturing strong and enduring relationships with government agencies and key stakeholders, because the Foundation was viewed as a true partner and catalyst. As described below, the model implemented by Project HEART was designed to optimize the functioning of all six building blocks of health systems strengthening (HSS) as defined by the WHO.

### PROGRAM MODEL AND IMPLEMENTATION STRATEGIES

Working with and through a network of more than 215 international and local partners and under the leadership and management of the Foundation, Project HEART worked to strengthen the health systems in Côte d'Ivoire, Mozambique, South Africa, Tanzania, and Zambia to improve service delivery of HIV prevention, care, and treatment services. To achieve the goals of the project, each partner had unique and important responsibilities. The Foundation provided overall direction and management of the project, as well as targeted programmatic and operational technical assistance to health staff and local partners. Utilizing funds and technical assistance from the Foundation, local partners, including the MOHs and NGOs, provided HIV prevention, care, and treatment services to patients at health facilities. Within each of the five countries where Project HEART worked, the operating model was adapted to suit local context. The most prevalent approaches included the following:

- **The district approach**, which was pioneered in Tanzania and later adapted in other countries to varying degrees, assumes

### FIGURE 2. THIRTEEN PROGRAM COMPONENTS OF PROJECT HEART

- Voluntary counseling and testing
- Antiretroviral prophylaxis chosen by the site for PMTCT
- Community mobilization efforts
- Drugs to treat opportunistic infections
- Prevention with Positives
- Training of personnel
- Hiring of counselors and laboratory technicians
- Upgrades of physical infrastructure, including laboratory facilities, clinical care space, and counseling rooms
- Development of management information systems
- Strengthening of maternal and child health services
- Integration of PMTCT into existing maternal and child health and family planning services
- Counseling on infant feeding options
- Additional care and support for people living with HIV/AIDS, including post-test support groups and peer education

that the district is the locus of decision making for service delivery and program planning. Aided by a sub-award to provide direct funding to the district, Project HEART staff worked with the district health management team to develop work plans, budgets, and data collection plans. The district teams were multidisciplinary, consisting of a medical doctor and/or a district director, as well as the focal points for PMTCT, laboratory, pharmacy, and community support. District staff were responsible for mentoring lower level health facilities and implementing activities and trainings to upgrade their skills. This approach fostered local ownership and built the capacity of district teams to supervise the health network within the district, allowing them to gain experience in managing U.S. government (USG) funds; in some countries, this was the districts' first experience managing any funding at all.

- **Performance-based financing (PBF)**, which was adopted from the Foundation's work in Rwanda and implemented in Côte d'Ivoire and Mozambique, provided incentives for health workers to improve performance through systematic measurement of predefined indicators and payments based on results. Payments were linked to performance on

## PROJECT HEART: FROM EMERGENCY TO SUSTAINABILITY

**TABLE 2. PROJECT HEART AND WHO BUILDING BLOCKS FOR HEALTH SYSTEMS STRENGTHENING**

<b>BUILDING BLOCK</b>	<b>PROJECT HEART CONTRIBUTION</b>
<b>Leadership and Governance</b>	Through participation in national-level technical working groups and local capacity building, Project HEART staff influenced national policies, training curricula, and guidelines based on findings from the field and contributed to development of health-sector strategic plans at national, regional, and district levels.
<b>Health Information Systems</b>	Project HEART relied on existing reporting forms and tools and databases to obtain project data, and when necessary advocated for revision of nationally endorsed tools in order to generate richer information on HIV services. Project HEART efforts also built the capacity of health-care workers in the use of these tools through training, mentorship, and supportive supervision in data collection, reporting, and use of data for program planning and decision making.
<b>Health Financing</b>	An integral component of Project HEART, implemented later at health facilities, was innovative financing mechanisms through sub-grants or performance-based financing to supplement government funding and motivate district and provincial health departments to play a more proactive role in the planning, management, and monitoring of services.
<b>Health Workforce</b>	Despite severe health worker shortages in most Project HEART countries, project staff provided training, mentoring, and supportive supervision in close collaboration with the MOH. In most instances, Project HEART staff were not based at health facilities, but rather provided technical assistance and mentoring through scheduled site visits together with MOH staff. Salary support, provided directly or via sub-grants, funded cadres of health workers who could be absorbed into the health system and within the salary scale stipulated by the MOH. To increase the pool of qualified health professionals, Project HEART reached over 25,000 health workers with preservice trainings as well as in-service and on-the-job trainings to enhance the skills and knowledge.
<b>Service Delivery</b>	Project HEART enhanced the capacity of the health system to deliver a comprehensive package of high-quality HIV clinical services in accordance with globally and nationally accepted standards of care. Training and mentoring health staff and public health managers to more effectively manage HIV programs and efficiently allocate resources while maintaining quality of services was a central component of the project.
<b>Medical Products and Technologies</b>	Given the overwhelming need to strengthen the supply chain management system in all countries, a common bottleneck to testing and treating patients, Project HEART shifted focus from drug procurement to providing technical assistance to national supply chain systems and departments to address stock-outs of tests, drugs, and reagents. This included participation in national forums to change policy, create or update of databases for more reliable drug forecasting, and train pharmacy and lab staff as well as equip 105 laboratories to manage HIV clinical services.

predefined indicators, which were based on data reviewed by a multidisciplinary committee for accuracy and credibility.

- **Decentralized/integrated health networks** supported HIV prevention, care, and treatment at lower level health centers linked to a central health center or a hub and complemented the district approach. Similar to the district approach, the aim of this approach is to increase and improve the services available to patients at smaller, more localized sites through training of health facility staff and infrastructure improvements. Through the district approach, the recipients of direct technical assistance and capacity building efforts by Foundation staff were district-level health staff. However, through the decentralized/integrated health network approach, the Foundation provided direct technical assistance to health staff at lower level sites in an effort to decongest reference hospitals and district health facilities. With supportive supervision provided by Foundation staff, district health departments established stronger networks of care and referred complicated cases to district health facilities as needed.

### PROGRAM RESULTS AND SUCCESSES: EXPANDING HIV PREVENTION, CARE, AND TREATMENT SERVICES IN MULTIPLE COUNTRIES

Establishing a continuum of care that links people living with HIV to essential health services while minimizing loss to follow-up was the centerpiece of Project HEART's model. Effective chronic care management ensured that patients remain continually engaged in the health system and receive adequate follow-up care throughout their lives. The key components of clinical care and HSS implemented by Project HEART included PMTCT; adult care and treatment; pediatric care and treatment; TB/HIV integration; community and psychosocial support services; training, mentoring, and capacity building; infrastructure improvement and SCMS; monitoring and evaluation; and quality improvement.

### PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

Recent evidence shows that PMTCT using combination therapy for HIV-infected pregnant women can reduce transmission to less than 2 percent, making it one of the most effective prevention strategies.<sup>6</sup> Project HEART scaled up PMTCT services in Côte d'Ivoire, Mozambique, South Africa and Zambia<sup>7</sup> by providing a minimum package of services, a defined set of standard services, using a family-centered approach. Initially, PMTCT was primarily offered at larger, well-equipped health facilities. However, over time, Project HEART provided the material and technical

### FIGURE 3. PERFORMANCE-BASED FINANCING (PBF) IN CÔTE D'IVOIRE: RESULTS AND LESSONS LEARNED

- In Côte d'Ivoire, the PBF program grew from four awardees in 2006 to 32 health facilities in 2011, using 20 indicators linked to Project HEART and PEPFAR programmatic priorities. Focused on private, NGO, and faith-based organization health facilities, the PBF approach has proven effective in increasing the uptake of PMTCT services and enhancing the accountability of the sub-awardees.
- An analysis comparing sites implementing PBF to sites not implementing PBF revealed that sites implementing PBF had consistently higher levels of uptake. There were substantial increases in the percentage of infants on ARVs (a 63 percent increase for public sites) and women on ARVs (a 31 percent increase for public sites).
- Health facilities implementing PBF accounted for a significant portion of Project HEART's results:
  - 8 percent of PMTCT sites accounted for 26 percent of results, and 24 percent of ART sites accounted for 38 percent of results between January and June 2010.
  - 10 percent of volunteer counseling and testing (VCT) sites accounted for 60 percent of VCT results between January and March 2011.

Ghanotakis E, Attiah J, Ntumbanzondo M, et al. International AIDS Society, 2010.

support to initiate PMTCT services in rural areas at lower level health facilities, facilitating an unprecedented expansion of PMTCT services. Project HEART trained staff, renovated health facilities, and ensured adequate laboratory capacity to deliver PMTCT to the most underserved populations. This investment produced remarkable results, proving that PMTCT is a viable and indispensable intervention that can reverse the tide of the epidemic, if taken to scale.

By the end of June 2011, more than 2,800,000 pregnant women were counseled and more than 2,500,000 were tested, of which more than 350,000 pregnant women and more than 220,000 infants received ARV prophylaxis. Testing in antenatal care (ANC) and labor and delivery increased from 80 percent in project year one (PY1) to 86 percent in PY7, facilitated largely by national policy changes in Project HEART countries that promoted opt-out testing in ANC and maternity wards, as well as provider-initiated testing and counseling (PITC) in general. HIV testing in



PHOTO: JAMES PURSEY

#### **FIGURE 4. EFFECTIVE INTEGRATION LEADS TO INCREASED UPTAKE OF ART FOR PREGNANT WOMEN IN ZAMBIA**

Based on the findings of a pilot study funded by the Center for Infectious Disease Research in Zambia (CIDRZ) and implemented in eight public-sector clinics in Lusaka district, the Foundation and CIDRZ evaluated whether the initiation of ART services provided in ANC increased the percentage of women receiving services compared to referring eligible women to the ART clinic. Under this model, a medical officer determined eligibility based on CD4 results and prescribed ART, while a nurse provided ANC and peer educators provided health education services and counseling. Generally, women enrolled on the day they returned for their CD4 results continued to receive ART services in ANC until six weeks postpartum. Results showed that the proportion of eligible women initiating ART doubled at health-integrated ANC and ART services. As CIDRZ expanded this model to other sites, similar improvements were seen. These included:

- An increase in the number of HIV-positive pregnant women enrolled in ART, from 10 percent in June 2009 to 29 percent six months later; and
- Of the women enrolled in ART services, 95 percent initiated ART during their pregnancy, compared to 65 percent previously.

Inspired by this success, the integration of MCH and ART services at these sites has become standard practice countrywide.

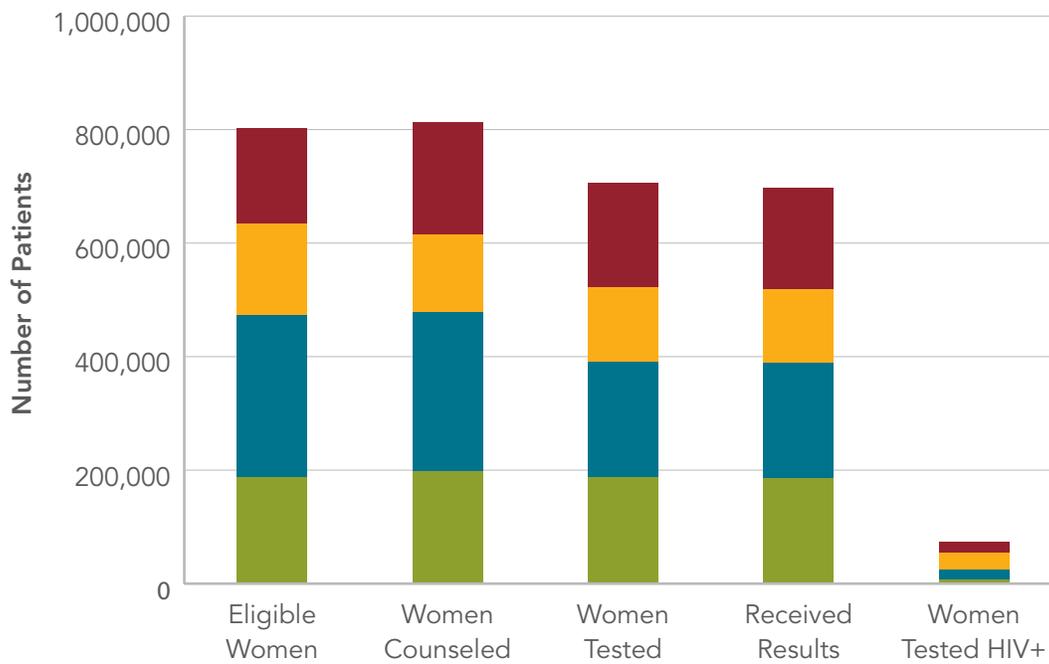
Sources: Killam WP, Tambatamba BC, Chintu, N, et al., 2010; Giphart, A, 2011.

ANC has become routine as PMTCT expanded to primary health-care facilities and more health staff trained to provide counseling, including lay counselors and peer educators, thereby alleviating overworked nurses. By the end of June 2011, more than 75 percent of HIV-infected pregnant women in Côte d'Ivoire, Mozambique, South Africa, and Zambia received ARV prophylaxis.<sup>8</sup> Compared to the average uptake in the region, which was 45 percent in 2008, this accomplishment is impressive.<sup>9</sup>

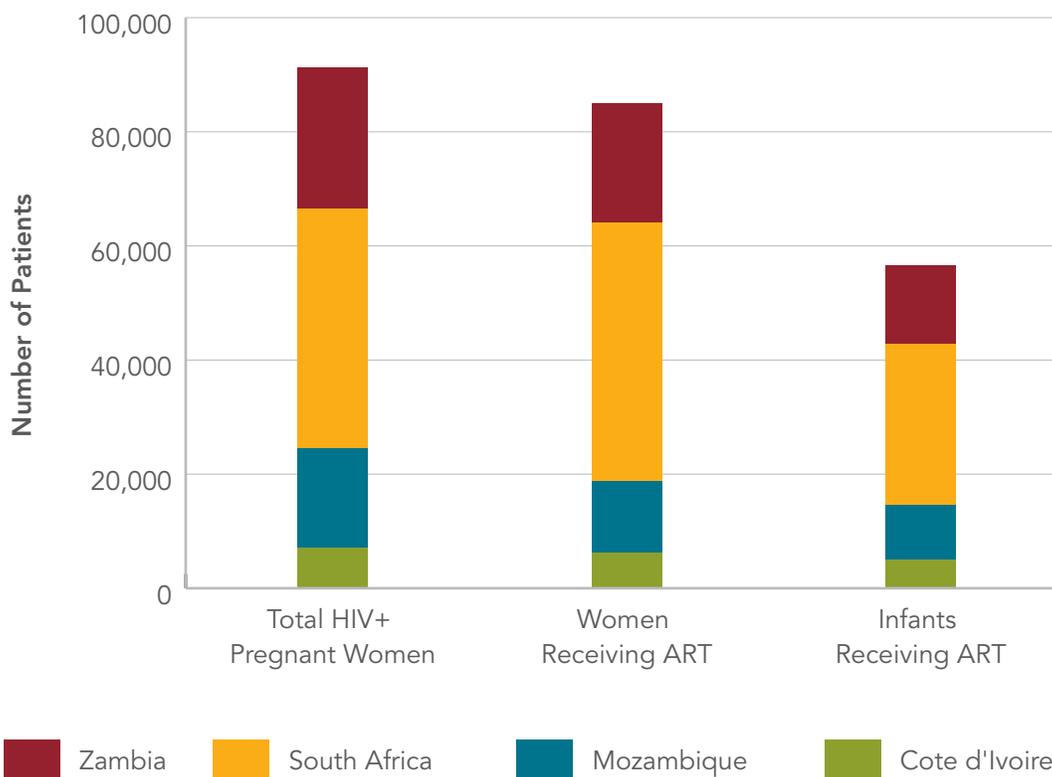
In 2010, 34 percent of HIV-positive pregnant women were screened and staged for illness, and 21 percent enrolled in care and treatment. While timely initiation of life-saving ART drastically reduced mother-to-child transmission (MTCT) of HIV, ensuring that eligible women receive ART as early as possible during pregnancy remained a challenge for all country programs.<sup>10</sup> The approach of integrating ANC and ART services appears to be more effective at rapid enrollment of pregnant women than passively referring mothers to separate ART clinics. Projectwide, infant uptake of ARV prophylaxis was 62 percent in PY7, an increase from 50 percent in the first year of the project. In countries such as Côte d'Ivoire, where an infant take-home dose is available, this percentage reached 70 percent. This difference between maternal and infant uptake of ARV prophylaxis may be explained in part to low rates of institutional deliveries in rural areas and poor infant follow-up.

In South Africa and Côte d'Ivoire, there have been marked improvements in the quality of PMTCT programs at Project HEART-supported sites. Propelled by considerable political will to reduce MTCT to less than 5 percent by 2011,

**FIGURE 5A. PROJECT HEART PMTCT CASCADE A, PROJECT YEAR 7 (APRIL 2010-MARCH 2011): WOMEN ELIGIBLE FOR PMTCT SERVICES, COUNSELED, TESTED FOR HIV, RECEIVED HIV TEST RESULTS, AND TESTED HIV-POSITIVE\***



**FIGURE 5B. PROJECT HEART PMTCT CASCADE B, PROJECT YEAR 7 (APRIL 2010-MARCH 2011): TOTAL HIV-POSITIVE PREGNANT WOMEN, WOMEN RECEIVING ARV PROPHYLAXIS AND INFANTS RECEIVING ARV PROPHYLAXIS\***



\*Project HEART did not support PMTCT services in Tanzania because this component was funded by USAID. Therefore, PMTCT data for Tanzania is not included in Figures 5A and 5B.

## PROJECT HEART: FROM EMERGENCY TO SUSTAINABILITY

the South African government developed the National PMTCT Accelerated Plan (A-Plan). Project HEART trained nurses in PMTCT, provided supervision, and measured performance before, during, and quarterly following the intervention. Selected to support three of the 18 priority districts identified by the MOH, Project HEART won an award for the results achieved in Metsweding district in Gauteng Province, lowering MTCT to less than 5 percent in one year; as a result, the district was removed from the priority list.

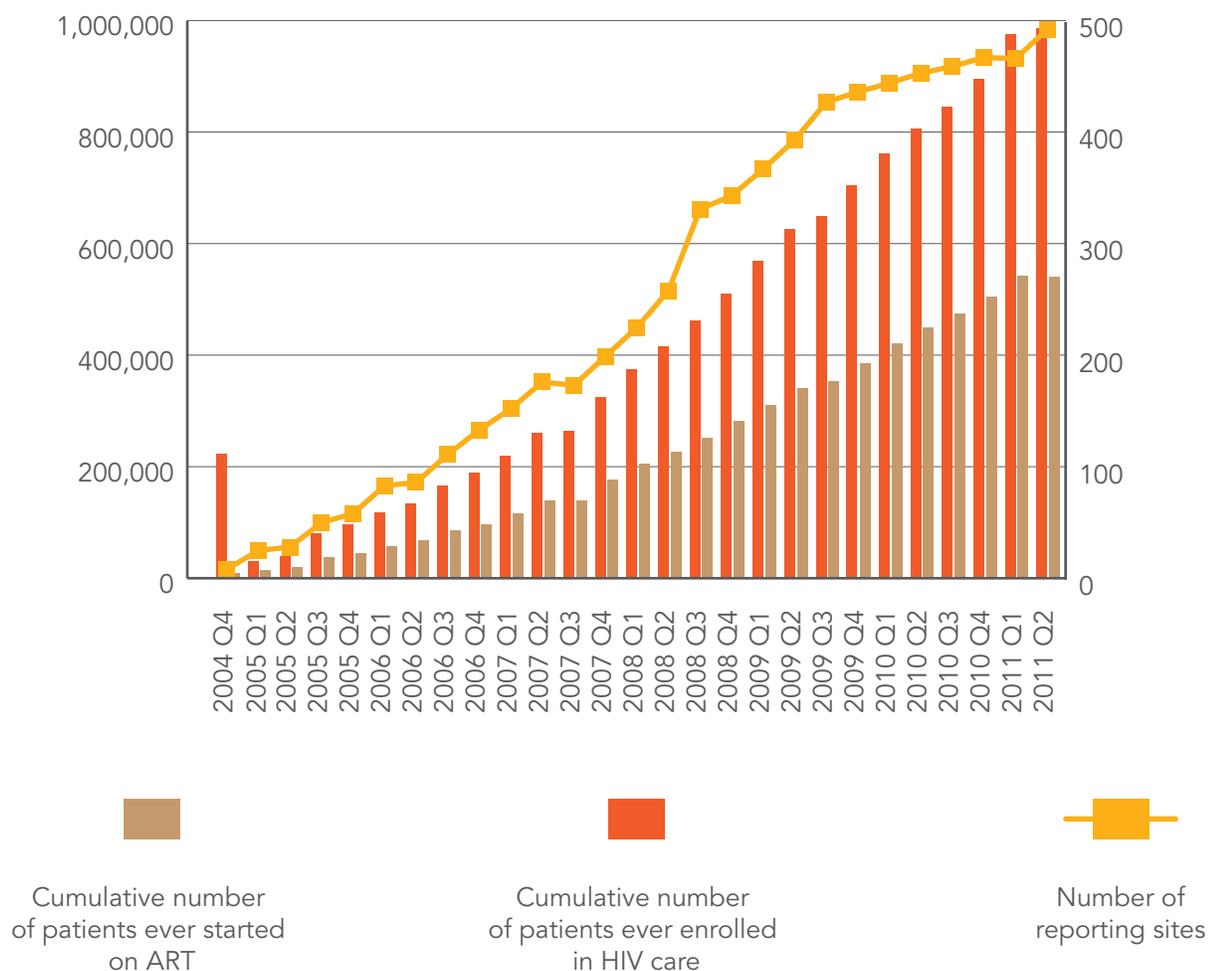
The surge in demand for testing and the use of more efficacious regimens for PMTCT placed constraints on the logistic system in country and contributed to stock-outs of test kits, zidovudine (AZT), and cotrimoxazole (CTX), which impeded the quality and consistency of PMTCT services and is confirmed by recent studies.<sup>11</sup> This trend is expected to continue, as the new WHO

guidelines will increase the number of treatment-eligible patients by 50 percent or more.<sup>12</sup> Expanding PMTCT coverage in future years must continue to focus on reducing delays along the PMTCT cascade and on providing adequate information systems linking data from PMTCT and ART services.

### ADULT CARE AND TREATMENT

The sheer growth in the number of sites supported by Project HEART illustrates the overall scale achieved in the past eight years (see Figure 6). Tanzania and Côte d'Ivoire represented 32 percent and 31 percent, respectively, of the total number of sites. The number of patients enrolled in care and treatment paralleled the significant growth in site support. By the end of September 2011, over one million patients had been enrolled in care<sup>13</sup>, and more than half a million had been started on ART. Zambia accounted for the greatest proportion of adults enrolled

**FIGURE 6. CARE AND TREATMENT ENROLLMENT AND SITE EXPANSION AS OF SEPTEMBER 30, 2011<sup>14</sup>**



### **FIGURE 7. STRENGTHENING PEDIATRIC CARE AND TREATMENT IN SOUTH AFRICA: THE CONTRIBUTIONS OF PROJECT HEART**

- Ensuring PITC in pediatric wards, under-five clinics, and emergency rooms
- PMTCT supporters to strengthen linkages between postnatal care, infant testing, outpatient departments, and immunization
- ART initiation in inpatient wards
- Nurses and nurse assistants to support counseling in PMTCT, which has increased uptake of early infant diagnostic testing
- Strong focus on community education to increase awareness of available services
- Support groups for mothers, children, and families to assist with disclosure of HIV status
- Training of physicians in pediatric care and treatment, facilitated by BIPAI

in care and treatment, while South Africa enrolled the highest number of children in both care and treatment. Among countries where Project HEART works, HIV prevalence is highest in South Africa and Zambia is at 17.8 percent and 13.5 percent,<sup>15</sup> respectively, but the relative strength of the health systems also accounts for these achievements in these countries.

At the outset of the project, the demand for care and treatment services outpaced the capacity of health facilities to meet the need. For the most part, initiation of ART was restricted to district-level health facilities, reference hospitals, or private service providers, and only medical doctors were authorized to prescribe ART, which limited access and forced patients to travel long distances to receive care. By decentralizing care and treatment to lower level health facilities, in line with the policies of the MOHs, and training other cadres, such as nurses and medical officers, to prescribe and dispense ART, Project HEART extended care and treatment services to a significant number of adults living with HIV. Through training, mentoring, and supportive supervision of health professionals in country, Project HEART enhanced the clinical skills of physicians and health staff, the majority of whom had limited experience in providing longitudinal care for people living with HIV.

Improvements in patient outcomes were observed over the course of Project HEART, and patients initiated treatment earlier, as demonstrated by the increases in the baseline CD4 percentage. Approximately 80 percent of patients across all five Project HEART countries received a CD4 percentage at baseline.<sup>16</sup> By the end of September 2011, Project HEART's cumulative attrition rate was 38.1 percent,<sup>17</sup> 51 percent of which was due to loss to follow-up, followed by transfers to different health facilities, which accounted for 22 percent. Patient deaths, unknown reasons, and stopping ART represented 18 percent, 8 percent, and 1 percent of attrition, respectively. Findings from an analysis of retention data performed in 2009 demonstrated that Project HEART enrolled healthier cohorts over time, and retention was higher at urban sites and primary-level health facilities. To better understand the relationship among site characteristics, performance, and quality of care, Project HEART conducted a health facility survey at 220 ART sites in 4 countries in 2009. Results showed that low attrition for adults was associated with the provision of a basic care package, and the availability of home-based care services was associated with lower attrition for both

### **FIGURE 8. PACKAGE OF COMPREHENSIVE PREVENTION, CARE, AND TREATMENT SERVICES OFFERED AT PROJECT HEART-SUPPORTED HEALTH FACILITIES**

- HIV testing and counseling, including PITC of family and partners, and prevention with positives, clinical history and exam, WHO clinical staffing, TB screening, and isoniazid preventive therapy
- Sexually transmitted infection and opportunistic infection screening, treatment, and CTX prophylaxis
- Antiretroviral therapy
- Early infant diagnostic testing for all HIV-exposed children
- Nutritional evaluation, counseling, and support, including infant feeding
- Laboratory tests
- Assessment of reproductive health and family planning needs
- Psychosocial and community support services, including support groups and patient education
- Adherence education and support
- Referrals to other services as needed

## PROJECT HEART: FROM EMERGENCY TO SUSTAINABILITY

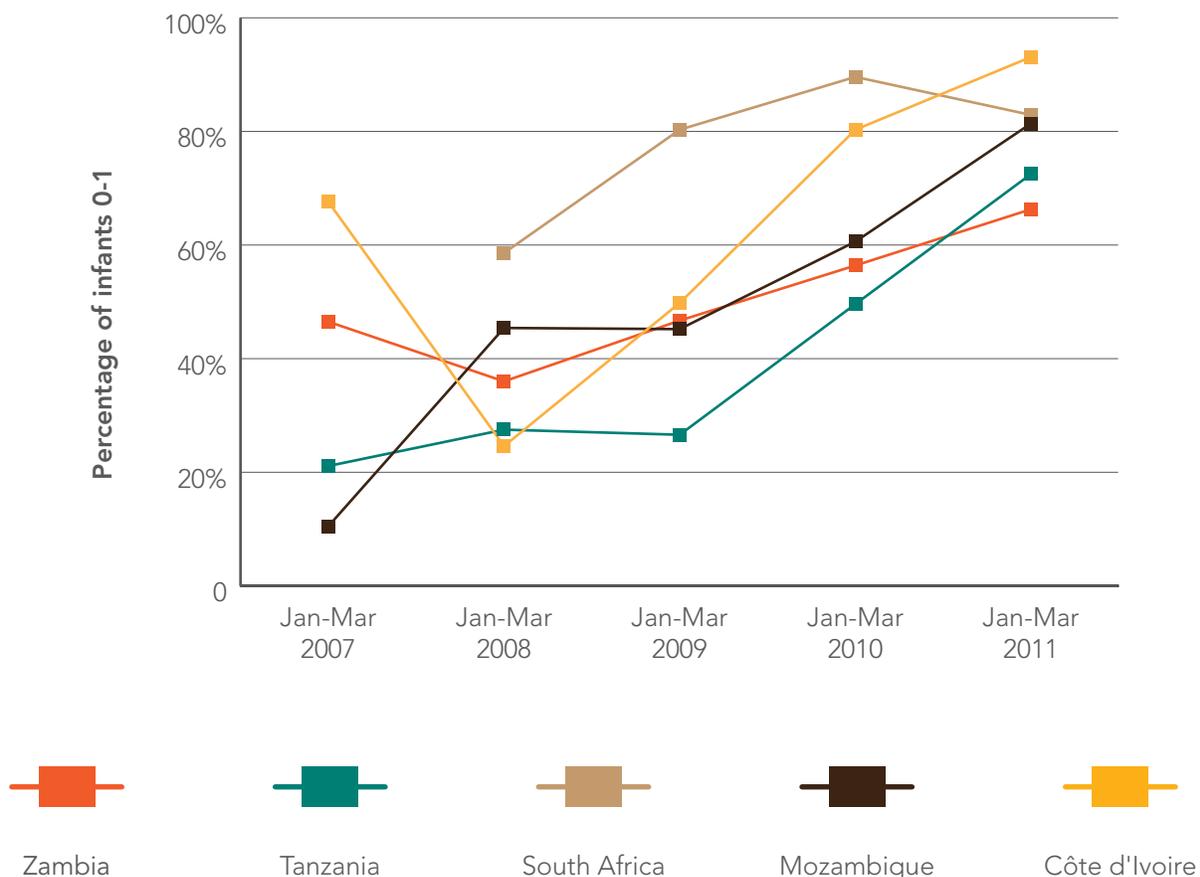
children and adults.<sup>18</sup> In response to these findings, the Foundation ramped up the psychosocial and community support component, with a strong focus on pre-ART counseling and active tracing mechanisms. Early identification of HIV patients through PITC, combined with a stronger focus on adherence support, helped improve retention rates. Nevertheless, patient retention remained a significant challenge.

### PEDIATRIC CARE AND TREATMENT

By the end of September 2011, Project HEART cumulatively enrolled in care 79,677 children, of whom 47,154 were initiated on ART. Zambia accounts for the largest contribution to the number of children ever enrolled in care, with 22,311, while South Africa accounts for the most number of children ever initiated on ART, with 14,804. Since 2005, on average, South Africa enrolled more than 4,000 children in care and more than 2,700 children in ART each year. Across the five Project HEART countries, children

represented 7.7 percent of all individuals ever enrolled in care, ranging from 9.4 percent in South Africa to 5.1 percent in Côte d'Ivoire. During the last three-quarters of the project, enrollment of children increased by 15 percent. As shown in Figure 9, nearly all countries have doubled the proportion of infants under two years of age starting ART who are currently enrolled in care. Overall, the majority of children enrolled in care and treatment are between 5 and 14 years old. Mozambique has made notable progress in providing ART to the youngest, with children younger than one year of age making up 38 percent of children ever enrolled in ART. This is largely a result of the rapid roll-out of the revised WHO guidelines, which recommend initiating ART in all HIV-infected infants (regardless of CD4 percentage), and the roll-out of early infant diagnosis (EID) using polymerase chain reaction (PCR) testing. Similar increases are expected in the other countries as the WHO guidelines become more widely implemented.

**FIGURE 9. PROPORTION OF INFANTS YOUNGER THAN TWO YEARS OF AGE CURRENTLY IN CARE WHO STARTED ART, 2007–2011<sup>19</sup>**



**FIGURE 10. INCREASING ACCESS TO PEDIATRIC CARE AND TREATMENT THROUGH A FAMILY-CENTERED APPROACH: THE KILIMANJARO CHRISTIAN MEDICAL CENTER (KCMC) EXPERIENCE IN MOSHI, TANZANIA**

KCMC is a large referral hospital in Moshi, Tanzania, that established a child-centered family care clinic (CCFCC) in 2006 to provide comprehensive care and treatment of services for children and their families, including primary and specialized clinical care, social services, PMTCT, and home-based care. Using a family-centered approach, the CCFCC reached a large number of children and families and achieved higher retention rates of patients compared to other sites. Factors that contributed to their success included: (1) creating a child-friendly clinic with age-appropriate activities, (2) establishing children's clubs or support groups for children living with HIV, (3) offering postnatal and reproductive care to mothers of HIV-exposed and infected infants at the same location, and (4) training in pediatric counseling for health workers. Key accomplishments included:

- By the end of June 2011, 4,789 individuals were enrolled in care, of which 835 (21 percent) were children. Of the 3,578 initiating ART, 634 (22 percent) were children.
- In the same period, 256 exposed infants were tested with polymerase chain reaction, of which 24 (9 percent) tested positive.
- KCMC facilitated 38 elective attachments for clinicians to gain hands-on experience in pediatric HIV.

Source: KCMC Final Progress Report, June 2011.

The notable improvement in pediatric care and treatment was primarily a result of three converging factors: (1) increased access to EID testing, (2) training and mentoring of physicians and other health staff, and (3) advocacy at the national level to prioritize pediatric care and treatment. In all Project HEART countries, improved access to EID testing through DNA-PCR testing and rapid turnaround of results through use of Short Message Service (SMS) printers in some countries had a positive impact on the number of children promptly enrolled in ART. Providing support for transport of dried blood spot (DBS) specimens using courier services and renovation of PCR laboratories, coupled with training of service providers, have led to faster turnaround times for PCR results and an increase in the number of children enrolled in care. In the first quarter of 2011, 47 percent of children born to HIV-infected women at Project HEART-supported sites had access to

EID testing (DNA-PCR test done), in comparison to 40 percent in Q1 2010. By the end of March 2011, the percentage of health facilities collecting DBS specimens for PCR ranged from 29 percent in Mozambique to 86 percent in South Africa.<sup>20</sup> In all countries the Foundation recommended the designation of medical officers, lay counselors, or pediatric focal points exclusively in charge of EID services to improve follow-up of HIV-exposed and -infected infants at health facilities. PITC in pediatric wards, in outpatient departments, and with children of HIV-positive individuals became more routine as governments adopted more aggressive approaches to testing and identifying children. Effective integration of HIV care and treatment in MCH, PMTCT, and TB services also improved identification of HIV-positive children.

In parallel, investment in training and mentoring of health staff contributed to improvements in pediatric care and treatment by giving providers the skills and confidence to treat children. In the early days of Project HEART, clinicians with limited hands-on experience were apprehensive about treating children, given the complexity involved and their own perceived lack of counseling skills required to discuss disclosure and other sensitive issues with parents. Successful interventions implemented by Project HEART to enhance provider capacity included the following:

- Project HEART Zambia's pediatric mentorship program and targeted training of nurses in counseling and psychosocial support for children and caregivers has increased the confidence and self-efficacy of health staff to treat children and their families.
- Project HEART Côte d'Ivoire's partnership with the Ivorian Pediatric Association played an important role in training and mentoring health staff.
- Establishing a pediatric HIV Learning Center at General Hospital of Machava in Mozambique allowed physicians and medical officers to receive didactic training and attend clinical rotation to increase comfort and skills in treating children.
- A family-center care model was implemented at KCMC in Tanzania, whereby all MCH, PMTCT, and postnatal care was provided at the same location for caregivers and children, which resulted in higher pediatric retention rates.

### FIGURE 11. BEST PRACTICES IN TB/HIV COLLABORATION: PROJECT HEART /TANZANIA

- Partial or full integration of TB/HIV
- Longitudinal TB screening forms that follow same patient for one year
- MOH Working Group on TB/HIV Integration to bring more attention to the issue
- Supportive supervision specifically for TB/HIV

### COLLABORATIVE TB/HIV SERVICES

Tuberculosis is the most common opportunistic infection (OI) associated with HIV and the leading cause of death among HIV-infected patients. Integrating TB services into HIV care and treatment programs was crucial in Project HEART to adequately tackle both diseases, as the countries where Project HEART works have some of the highest rates of TB worldwide. However, TB diagnosis is often hampered by inadequate laboratory facilities, lack of trained personnel, suboptimal access to diagnostic technologies, distance, and fees related to services.<sup>21</sup>

More recently, the Foundation has advocated for the substantial collaboration of TB/HIV services and the adoption of the one-stop shop model of TB/HIV services, which is being piloted in select sites in Tanzania and Gaza Province, Mozambique, where HIV counseling and testing, clinical assessment (including WHO staging and CD4 percentage screening), pre-ART counseling, provision of CTX prophylaxis, TB screening, TB treatment, and ARV treatment occurred within HIV clinics.<sup>22</sup> Still in the early stages of implementation, this model promises to address some of the pending barriers to TB/HIV integration, particularly the provision of ART for eligible TB patients newly diagnosed with HIV. Some of the strategies Project HEART identified to improve TB/HIV collaboration are outlined in Figure 11. Successful interventions include the development of a longitudinal TB screening form that provides space to record results for up to one year and supportive supervision specifically to address TB/HIV activities at the facility level. Most important, the MOHs in each country have adopted collaborative TB/HIV activities as national policy and have developed guidelines for implementation. Although roll-out was slower than desired, overcoming the vertical approach to TB/HIV care is vital to curtailing these dual epidemics.

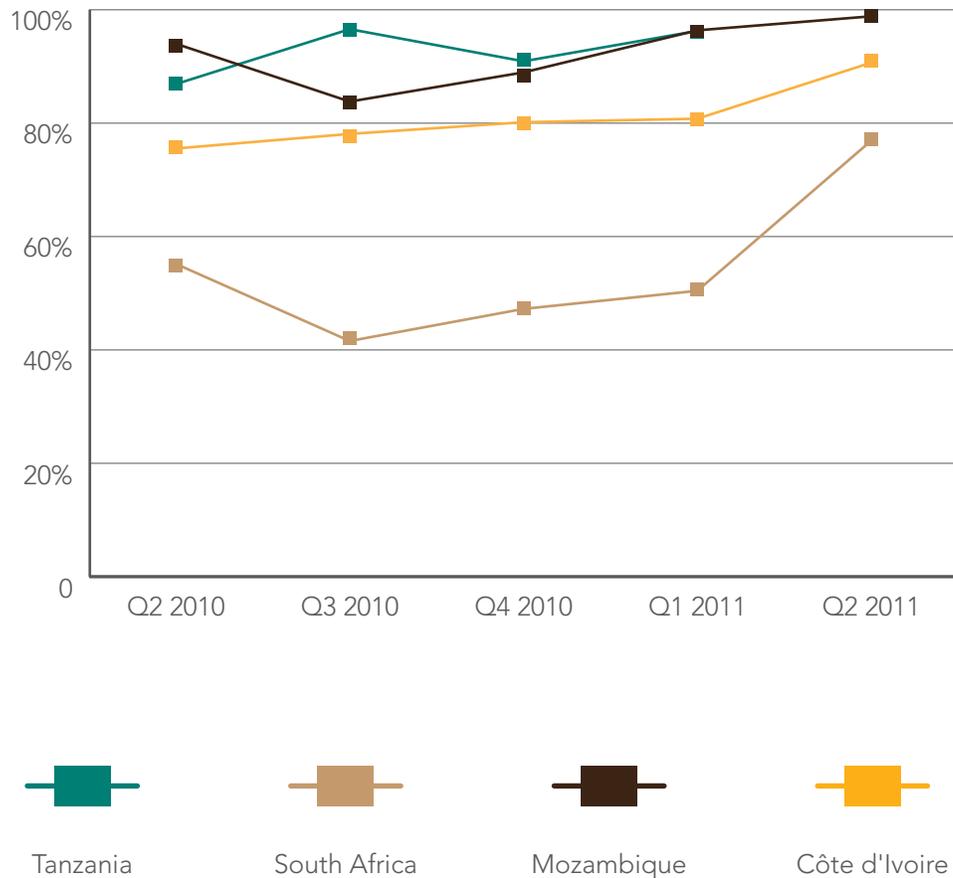
Routine TB screening and diagnosis of HIV patients increased in all Project HEART countries, as demonstrated in Figure 12. Project HEART/Tanzania has maintained high and consistent TB screening rates, with more than 70 percent of HIV patients screened for TB every quarter. Following TB symptomatic screening, the majority of patients in South Africa (87 percent) had access to diagnostics evaluation for active TB disease, and more than 80 percent received TB treatment. All Project HEART countries institutionalized HIV counseling, testing, and recording status of TB patients, with the average rate exceeding 75 percent in 2010. However, less than 30 percent of eligible co-infected patients received ART in 2010, pointing to the need for more effective follow-up and integration of services.

### COMMUNITY AND PSYCHOSOCIAL SUPPORT SERVICES

Since 2007, the community support program under Project HEART has broadened in scope and coverage to include health promotion and health extension activities. Whether developing partnerships with NGOs with extensive experience in community health, providing sub-grants to local community-based organizations (CBOs), or working through various community agents, Project HEART engaged communities, including groups of people living with HIV (PLWHA), to address the multiple psychosocial support needs of children and adults living with HIV/AIDS. Community outreach and support interventions complemented the clinical focus of the project and ultimately enabled Project HEART to achieve scale and improve health outcomes. Some of the implemented interventions included the following:

- **Psychosocial support:** Both facility-based and community-based support groups, provided an opportunity for children, mothers, and family members living with or affected by HIV to meet regularly to discuss issues such as adherence, experiences with stigma, nutrition, positive living, child and partner testing, disclosure, and so on. In addition, children's camps provided an opportunity for children to receive targeted psychosocial interventions aimed at reducing their social isolation and enhancing their coping skills.
- **Children's Corners:** The Côte d'Ivoire, Tanzania, and Zambia Project HEART programs piloted children's corners in medium- and high-volume sites to cater to the special needs of children living with and affected by HIV. The children's corners are equipped with child-friendly furniture, toys, and books and incorporate child-friendly activities conducted by trained lay

**FIGURE 12. PERCENTAGE OF PATIENTS TESTED FOR HIV OF THOSE ATTENDING TB SERVICE FROM Q2 2010-Q2 2011\***



\*TB in Zambia is funded through a separate program

and licensed service providers. Through collaborations with district stakeholders and service providers, the Tanzania country program successfully scaled up this service, training over 142 service providers and initiating children’s corners in over 68 of the 165 care and treatment centers. In Zambia, puppetry activities are conducted on clinic days at sites serving children as a way to convey messages about ART adherence and living positively through child-friendly messaging. The Tanzania and Zambia country programs were able to integrate training materials for these activities into the national pediatric HIV efforts.

- **Expert patients and peer agents:** Provide counseling to PLWHA and their families, escorted patients to consultations and referrals, organized patient files, and conducted home visits to recuperating patients lost to follow-up. Where possible, the

Foundation relied on existing volunteer networks [TB, Orphans and Vulnerable Children, and home-based care (HBC)] and provided training in HIV care and support in order to maximize resources and encourage sustainability.

- **Community focal points** at health facilities established and facilitated support groups, organized mechanisms for active tracing, and liaised with CBOs and other community structures.
- **Sub-grants and memorandums of understanding with CBOs** improved treatment literacy through health communication activities, enabled health facilities to provide home-based support to patients at risk of defaulting, and established community-based support groups.



PHOTO: JON HRUSA

- **Partnerships** with the World Food Programme, Program for Appropriate Technology in Health, Save the Children, Helen Keller International, and other NGOs provided micronutrients for HIV-positive patients, food supplements, nutrition and infant feeding counseling, training, and information, education, and communication (IEC) materials.

#### INFRASTRUCTURE IMPROVEMENT: LABORATORY AND SUPPLY CHAIN MANAGEMENT SYSTEMS

Historically, the health system in sub-Saharan Africa has been geared toward episodic care rather than chronic care, and the physical infrastructure and logistic systems in place at the start of Project HEART reflected this trend.<sup>23</sup> At the start of Project HEART, the available space, equipment, and supplies at health facilities, predominantly located in neglected, rural areas, were inadequate to provide quality HIV services. Many health facilities did not have running water, electricity, or sanitation systems to meet biosafety standards. Renovations of health centers and reorganization of existing space improved patient flow and referrals and protected confidentiality, while the purchase of essential laboratory equipment and supplies expanded diagnostic capacity. Working closely with the MOH in all countries to identify infrastructure improvement priorities, by March 2011, Project HEART supported the renovation of 134 health facilities, including 29 pediatric clinics and 105 laboratories, with the vast majority occurring in Côte d'Ivoire and Zambia.

#### FIGURE 13. IMPROVING EARLY INFANT DIAGNOSTIC SERVICES THROUGH THE USE OF SMS PRINTERS: LESSONS LEARNED FROM MOZAMBIQUE

Mozambique has made great strides in expanding access to EID services through the installation of the Expedited Results System (ERS), which utilizes GPRS wireless technology and simple, inexpensive printers, and reduces the time and cost of transporting results from the laboratory to clinics. In collaboration with the Clinton Health Access Initiative and the MOH, the Foundation supported 65 of 201 PMTCT sites to implement SMS printers for results delivery. Preliminary results from Maputo City showed a decrease in the average return time of EID results to patients from 85 to 33 days when using the ERS. This is cost-efficient at less than one cent per test, and the distribution of results was managed by an administrative assistant, thereby reducing the workload of skilled laboratory technicians.

Ensuring a stable and sufficient supply of test kits, drugs, and reagents was critical to providing comprehensive HIV clinical care. To rapidly start up activities, Project HEART directly procured many ARVs, test kits, and other supplies, addressing a serious gap in all countries. In 2006, the PEPFAR-funded SCMS project assumed responsibility for strengthening the supply chain management system, including drug forecasting and warehouse

capacity. Nevertheless, SCMS's mandate focused primarily on national-level systems. With the unprecedented increase in the number of patients accessing HIV services taxing already fragile supply chain systems, occasional stock-outs at district and provincial levels were observed and threatened to compromise the uptake of testing and initiation of ART.

Project HEART staff provided ongoing technical assistance and supportive supervision to pharmacists on the use of current HIV treatment guidelines, sample referral transport networks, good storage practice of ARV commodities, and proper use of laboratory information management system tools. In Tanzania, the Foundation supported the ISO lab accreditation process at KCMC and the WHO-AFRO accreditation of Mt. Meru and Kahama Labs, and in Zambia, it is transitioning Kalingalinga Central Laboratory and Ngansa Warehouse to full management by the MOH after intensive training in Good Clinical Laboratory Practice, and is transferring the management of contracts with equipment and supply vendors.

In most countries, district laboratories were able to provide rapid HIV testing and results. Increasingly, these laboratories performed CD4 percentage testing and collection and transport of DBS. Project HEART promoted the decentralization of laboratory services within national parameters. Despite increased access to diagnostics, district laboratories typically sent CD4 and DBS samples to referral laboratories, causing delays in processing and determining eligibility for treatment. Limited laboratory capacity at the district level was one of the most pervasive barriers to

care. Through sub-grants to district health departments, Project HEART worked with the district health teams to optimize the functioning of these sample referral transport networks, including through the use of technology (see Figure 13). In addition to transport support, the Foundation trained and mentored 2,660 laboratory staff in diagnostic procedures and quality control; performed supervision visits at 441 laboratories; and supported procurement and reliable forecasting of test kits, equipment for ARV monitoring tests, ARVs and OI drugs, CD4 machines, reagents, and other supplies.<sup>24</sup>

### TRAINING, MENTORING, AND CAPACITY BUILDING

Training available health staff and creating a pool of skilled workers was crucial to scaling up access to HIV services. Project HEART supported basic, refresher, on-the job, and preservice trainings for a variety of health cadres, including medical doctors, medical officers, nurses, pharmacists, laboratory technicians, counselors, and volunteers. National training curricula were used to ensure that training content was aligned with national guidelines. Didactic training was complemented by structured supervision and mentoring provided by Project HEART staff or peers who were trained to be facilitators, mentors, and supervisors. To the greatest extent possible, Project HEART built the capacity of national trainers, used training of trainers (TOT) methods, and financed training through sub-grants, making district and provincial health departments responsible for identifying needs and organizing trainings independently. By the end of September 2011, through Project HEART, a total 7,045 doctors, 11,564

**TABLE 3. CUMULATIVE NUMBER OF HEALTH-CARE WORKERS (HCW) TRAINED IN ART AND NON-ART CARE THROUGH PROJECT HEART<sup>25</sup>**

COUNTRY NAME	PHYSICIANS TRAINED: ART	NURSES TRAINED: ART	OTHER HCW TRAINED: ART	TOTAL STAFF TRAINED: NON-ART CARE*
Côte d'Ivoire	3,069	2,571	655	1,431
Mozambique	278	916	699	1,675
South Africa	932	1,966	1,919	588
Tanzania	1,835	1,968	1,229	1,956
Zambia	931	4,143	2,690	23
<b>TOTAL</b>	<b>7,045</b>	<b>11,564</b>	<b>7,192</b>	<b>5,673</b>

\*Some staff trained in non-ART care may have also been trained in ART.

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nurses, and 7,192 other health workers were trained in ART and 5,673 received training in non-ART care (see Table 3).

Mentoring goes hand in hand with conventional training, reinforces concepts, and gives health staff a unique opportunity to put into practice the skills learned in a classroom setting, all while receiving constructive feedback and supervision. On-site mentoring is particularly effective because health workers can apply their clinical skills in an environment with the same resources, infrastructures, and conditions where they work on a daily basis. Mentoring is time- and labor-intensive, however, so the Foundation solicited the technical assistance of expert partners to implement these programs including UCSF/ASPIRE and BIPAI (see page 11).

Project HEART also supported 12 preservice training courses in an effort to increase the existing pool of qualified human resources for health, particularly health workers from rural areas who are more likely to remain in more neglected districts and provinces.<sup>26</sup> Since 2007, Project HEART in Côte d'Ivoire, in collaboration with the University of Abidjan-Cocody (UAC), the National Institute of Nursing, and the National Institute for Social Work, developed and expanded preservice training programs in medicine, social work, nursing, and pharmacy, training a total of 245 service providers. Certificate programs were established at preservice training institutions for infectious disease management. This included internships for 151 social workers and nurses, 25 pharmacy graduates, and 69 medical students. The program prepared and assigned students to three- and six-month placements at underserved and rural Foundation-supported locations offering HIV, TB, and malaria services, and about half of the participants have requested to stay at their placement site. In Mozambique, the Foundation provided sub-grants to the training institutes in four provinces to carry out preservice training based on the priorities identified by the provincial health departments. Thus far, Project HEART has supported a total of nine courses for 259 medical officers and nurses.<sup>27</sup>

### MONITORING AND EVALUATION AND QUALITY IMPROVEMENT: ESTABLISHING SIMPLE YET EFFECTIVE SYSTEMS TO MEASURE PERFORMANCE AND IMPACT

Robust monitoring and evaluation (M&E) systems are key to measuring program performance, tracking patient outcomes, and continually improving service delivery. Supporting

governments to establish and build upon existing M&E systems that provide reliable, accurate, and automated information on longitudinal care for patients was one of Project HEART's goals. Project HEART's strategy was three-pronged and focused on (1) training and building the capacity of national M&E staff to more effectively collect, manage, and use data for decision making (2) developing more sophisticated databases and reporting tools; and (3) improving data quality through periodic data quality audits of health facilities and quality improvement (QI) methodologies that use data to improve programs. The initial stages of Project HEART focused on setting up data systems, training data entry staff, and improving routine data collection and reporting to donors and stakeholders. Building institutional capacity to manage, analyze, and use data gained more momentum once adequate systems were in place. Coaching of M&E staff and clinicians to master data verification and analysis, and reinforcing data quality standards, occurred more frequently during on-site supervision visits. As local capacity to collect and manage data increased, Project HEART placed a stronger focus on data use and analysis for real-time decision making, data quality improvement, and program quality improvement.

Improving M&E systems relied on establishing data collection tools and databases for timeliness and accuracy of data, as more and more patients enrolled in care and treatment. Project HEART strongly encouraged the revision and use of national registers, tools, and databases to generate information on program indicators and more effectively monitor patients. Where viable and conditions permitted, the Foundation supported national governments and health facilities in installing or adapting electronic patient monitoring systems that aggregated data on various indicators collected from patient registers, including information on patient status and clinical history, ARV eligibility and regimen, OI screening and care, and adherence. Routine reports were automatically generated and customized to provide information on a specific set of indicators, including PEPFAR requirements. These databases reduced human error, improved individual patient monitoring, enabled cohort tracking, and made data collection and management more efficient. Electronic patient databases produced lists of patients lost to follow-up, which facilitated active tracing and recuperation of these patients. Furthermore, data extracted from patient tracking systems fed into the implementation of QI cycles.

#### **FIGURE 14. DATA QUALITY ASSESSMENTS: AN EFFECTIVE TOOL IN EVALUATING AND ENHANCING DATA QUALITY**

- Data quality assessments (DQAs) were conducted in 75 percent of Project HEART–supported health facilities in Tanzania.
- From 2009 to 2010, there was a 25 percent increase in the number of facilities with accurate reporting in Tanzania, with a decrease in the average rate of discrepancies from 45 percent to 6 percent.
- In Côte d'Ivoire, 70 percent of care and treatment sites performed DQAs, and more than 50 percent conducted repeat measurements.
- Following DQAs and QI interventions, improvements were noted in the PMTCT cascade in South Africa between July 2009 and July 2010.
- HIV testing of pregnant women improved from 54 percent to 92 percent.
- All HIV-positive women received CD4 percentage testing and results.
- Uptake of ARV prophylaxis increased from 14 percent to 96 percent.
- Initiation of eligible pregnant women on ART increased from 27 percent to 66 percent.
- The PCR positivity rate decreased from 11–14 percent to 5 percent.

Source: Msofe, JY, Moroni, M, Van't Pad Bosch, J. 2011.

To compare data across countries, the Foundation developed in 2006 the Global AIDS System for Evaluation and Reporting (GLASER), an online data warehouse to store and utilize data on all Foundation-supported HIV prevention, care, and treatment programs. To complement in-country databases, GLASER allowed for QI measurements using select indicators for comparisons across Project HEART countries, provided critical feedback to Project HEART staff in countries about performance over time, and promoted sharing of lessons learned.

As the number of patients enrolled in care and treatment expanded, ensuring accurate and timely data collection and reporting became more critical for program implementation and management. Since 2008, data quality assessments (DQAs), conducted together with health facility staff, have provided essential information on the reliability, validity, and accuracy of Project HEART data and served as a platform to build

local capacity for M&E. Usually conducted during supportive supervision visits to health facilities, DQAs entailed routine data checks and cleaning of source documents and patient chart reviews. Health facility teams were debriefed on the results and developed data quality improvement plans, which were monitored during the following visit. Specific weaknesses identified through DQAs were communicated to district health directors and addressed through on-the-job training or specific program interventions to improve service delivery. Combined with the development and dissemination of simple standard operation procedures (SOPs) for data management and on-the-job training, DQAs have improved data quality and dramatically improved program results in the PMTCT program in South Africa, as described in Figure 14.

Promoting the institutionalization of QI at all levels of the health system (facility, district, and provincial), and integrating it into all aspects of HIV clinical care, was a primary focus of Project

#### **FIGURE 15. SMARTCARE IN ZAMBIA**

In 2006, Project HEART/Zambia, under the technical leadership of the CDC, supported the roll-out of the national electronic patient records system, SmartCare, by providing strategic and programmatic input, financial management, information technology, staff, training, and procurement of computer equipment and hardware. As of March 2011, SmartCare was deployed in more than 571 health facilities in Zambia. SmartCare has been adopted by the MOH as the national patient records system. The Foundation and the CDC have worked with the Information Communication Technology Unit of the MOH to build capacity for increased MOH ownership of SmartCare. Future plans include adding a PMTCT platform to 1,000 PMTCT sites nationwide.

Source: Project HEART Semi-Annual Program Report, March 2011.

**"The Smartcare system has been able to help the Ministry of Health move patients from point to point with medical records in their hands, and at each location health care providers have been able to see the patient history. That improves how the clinician treats the patient."**

Derrick Muneene, Smartcare Project Manager

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**“Quality improvement encourages health staff to work smarter, not harder, and fosters mutual learning and sharing between high-performing sites and those that need more support.”**

—Mary Morris, Technical Officer, QI

HEART. Project HEART’s QI strategy centered on supporting national QI initiatives and tools to inform the QI process. Programs relied on available data used by the national health system and optimized the analysis of the same data. Focal points and QI coordinators were identified in each country program to spearhead QI efforts and oversee training of Foundation staff and health professionals to equip them with the necessary skills to lead QI activities. Training and mentoring of health staff, along with improvements in health management information systems (HMIS), were catalysts for incorporating QI as a routine part of program implementation. The majority of health facilities supported by Project HEART established Quality Improvement/Management Committees consisting of clinicians and M&E staff to analyze results of QI exercises, develop and monitor QI plans, and propose solutions to improve performance. Promoting site- and district-level ownership was key to the success of QI, as evidenced by the effectiveness of collaboration and twinning relationships between sites in Project HEART countries. Through the use of the EZ-QI tool, which measures indicators that represent the quality of HIV care for clients and can indicate areas in which quality of care needs improvement, Project HEART/South Africa helped bring improvements to the PMTCT cascade in three target districts from January–June 2009 to January–June 2010. Specifically, MTCT in Maluti-a-Phofong district decreased from 12 percent to 2 percent, in Nongoma from 14 percent to less than 5 percent, and in Metsweding from 14 percent to 3 percent. Among the three supported districts, there was a 25 percent increase in PCR testing of HIV-exposed babies, from 45 percent to 70 percent. In Zambia, the harmonization of QI methodology and tools at the national level was particularly successful because a Project HEART technical advisor was actively involved in a national working group tasked with standardizing QI across all implementing partners.

### GLOBAL PARTNERSHIPS: WORKING TOGETHER TO IMPROVE THE QUALITY OF HIV SERVICES

Project HEART engaged three global implementing partners to provide technical assistance in quality improvement and training and mentoring of clinical staff across all five countries: UCSF/ASPIRE; JSI. and BIPAI.

A key player in defining best practices of HIV clinical care, the UCSF/ASPIRE provided technical consultation and assistance on HIV care in South Africa, Zambia, Côte d’Ivoire, and Tanzania. Mentoring consisted of patient rounds and case-based learning in small groups at a specific site and focused on PMTCT, pediatric diagnosis, early infant ART initiation, resistance, detecting failure of ART, and safe switching of ARVs. In Zambia, UCSF/ASPIRE provided ongoing mentoring for clinical and medical officers through semiannual visits and remote consultation services, while in Tanzania and South Africa, UCSF focused on adult and pediatric HIV training and mentoring for nurses. In Côte d’Ivoire, UCSF provided classroom and clinic-based training to the faculty of medicine at the UAC and the Social Work Training School.

JSI brought extensive experience and technical expertise in quality improvement, which enabled Project HEART to develop functional quality management programs in all countries. In close collaboration with the Foundation, JSI developed the EZ-QI tool to analyze a core set of site-level indicators to support QI. This tool was used in Côte d’Ivoire, South Africa, and Tanzania, which supported MOHs to adopt a more proactive approach to QI,

### FIGURE 16. REAL LIVES, REAL IMPACT

Although data show the programmatic success of Project HEART, more poignant is the indelible impact the program has had on individuals and families living with HIV. Discordant couples, single mothers, fathers working far from home, grandmothers, and children alike have shared their stories of hope and perseverance in living with a chronic illness. In the face of stigma and discrimination, many beneficiaries have had to overcome considerable odds to access and stay on treatment. For many, speaking out about HIV and advocating for policy change and continued funding has become their life’s purpose. Many beneficiaries become counselors, educators, and fund raisers in their communities to increase awareness about HIV and to be a support system for their peers. They eagerly embrace this role, and their remarkable commitment to advocacy has a far-reaching impact.

## FIGURE 17. KEY ACCOMPLISHMENTS OF PROJECT HEART GLOBAL PARTNERS

### UCSF/ASPIRE

- Trained 1,072 clinical personnel and mentored 644 clinical personnel in HIV care and treatment in Côte d'Ivoire, South Africa, Tanzania, and Zambia. Training of Trainer and Mentoring of Mentor programs reached 352 clinicians in Tanzania and 166 in Zambia.
- Designed and implemented district-based clinical mentoring systems.

### JSI

- Trained and mentored 1,369 Foundation and health facility staff in Côte d'Ivoire, Mozambique, South Africa, and Tanzania.
- Assisted more than 288 sites in conducting QI measurements. Used Project HEART trainers to train 170 local health professionals (TOT).

### BIPAI

- Trained a total of 1,472 health professionals in pediatric HIV in South Africa, Mozambique, and Tanzania.
- Developed basic and advanced workshops on pediatric HIV accredited by the South African Medical Association.

Source: End-of-project reports submitted by UCSF, JSI, and BIPAI in September 2011.

establish national programs, and disseminate QI tools. JSI significantly contributed to building the capacity of Project HEART field staff and designating QI focal points to measure quality, develop site-specific plans, and monitor their implementation greatly advanced QI and propelled the integration of QI into routine program activities. This strategy was instrumental in decentralizing QI to the district level, thereby making it more accessible and fostering local ownership of QI efforts.

Specializing in health professional education and training and clinical research, the BIPAI provided in-depth training and mentoring in pediatric care and treatment for the Foundation's national staff, as well as, service providers in Mozambique, South Africa, and Tanzania. These trainings consisted of didactic sessions, clinical case discussions, rotations, and supervision of health professionals. BIPAI seconded full-time physicians to the KCMC in Tanzania and the General Hospital of Machava

(HGM) in Mozambique to provide mentoring to local health staff at these sites. The pediatricians placed at KCMC provided on-site mentoring to visiting doctors as well as pediatric residents, and provided outreach to district hospitals within the region. Similarly in Mozambique, HGM became a learning center for pediatric care with the support of the pediatrician seconded by BIPAI, who also managed clinical attachments for a total of 33 doctors. Local physicians will take over the clinical attachments at HGM to extend the professional development program to numerous clinicians throughout the country. In South Africa, BIPAI developed a curriculum for basic and advanced workshops on pediatric HIV and provided expertise to physicians via e-consulting. Accredited by the South African Medical Association, the training is integrated into the national health system and can be used to train additional health professionals. The sustained presence of BIPAI physicians in all three countries provided excellent educational opportunities for local health workers, particularly in pediatric HIV, ultimately ensuring that patients will continue to benefit from access to a highly trained pool of professionals beyond the end of the project.

### CHALLENGES AND LESSONS LEARNED

Scaling up HIV prevention, care, and treatment services in resource-constrained settings across various contexts posed numerous challenges, as demand for testing and treatment often outstripped the existing capacity of health systems to adequately respond to the epidemic. Providing timely access to care and treatment for children, ensuring patients remained in care, and providing comprehensive community and psychosocial support services were the foremost challenges Project HEART encountered. Other challenges were more systemic in nature,

**“Initial planning for PMTCT did not place sufficient focus on preparing health staff for treating HIV-infected children and how to effectively communicate the treatment options to families. In the early years, the international community didn't think about what happened to those children who were not so lucky.”**

Denis Tindebywa, EGPAF, Regional Director, Pediatric Care and Treatment



PHOTO: JAMES PURSEY

## FIGURE 18. SPOTLIGHT ON TANZANIA

One of most moving personal triumphs is that of Tatu and her daughter Faith from Tanzania. A nurse at the KCMC in northern Tanzania, Tatu found out she was HIV positive when she became pregnant and went to the antenatal clinic, where she was tested for HIV. She received counseling and took nevirapine to prevent transmitting the virus to her child. Tatu was also able to give her newborn formula because she had access to clean water, which reduced the risk of transmission. Her daughter Faith is seven years old today, HIV negative, and attending elementary school. Tatu's courage and dedication have inspired her peers and colleagues alike. Her testimony touched the heart of former First Lady Laura Bush. In January 2008, Tatu and Faith attended President Bush's State of the Union Address, where he discussed the success of the PEPFAR, symbolized by women and children like Tatu and Faith. Tatu is currently the nursing officer in charge at the KCMCO. As a registered nurse, her duties include overseeing the care provided by the nurses, conducting PMTCT trainings, and providing home-based care. She is pursuing a bachelor's in science degree in nursing at Tumaini University Christian College. In 2011, Tatu was invited to join the board of directors for the Ariel Glaser Pediatric AIDS Healthcare Foundation Initiative.

connected to the underlying weaknesses in the health system. These issues included shortages in human resources, infrastructure issues, interruptions in the supply chain, and weak or no linkages among services, capacity building, and data quality.

**Pediatric Care and Treatment Lessons Learned:** From 2007 to 2010, the proportion of children under two years of age currently receiving care who were initiated on ART increased from 40 percent to 80 percent. The three principal challenges in treating children were related to (1) the limited capacity and experience of service providers in treating children living with

HIV, particularly in the early years of Project HEART; (2) poor follow-up of HIV-exposed and -infected children; and (3) socio-cultural barriers. Although Project HEART supported numerous trainings in pediatric HIV for health staff, reinforcing these skills through supportive supervision was a major challenge, as the limited number of pediatricians were overworked and unable to consistently participate in supervision visits. The scarcity of providers authorized to prescribe ART, particularly in rural areas where many health-care providers are nonphysician providers such as medical officers, nurses, midwives, and community health

workers, meant that children diagnosed with HIV were often referred to high-volume, urban, or peri-urban sites far away from home.

While PMTCT coverage dramatically improved, follow-up of infants was not systematic and resulted in the majority of them being lost prior to establishing a definitive HIV diagnosis. Although efforts were made to better integrate PMTCT and ART services through referral mechanisms and HMIS, viewing pediatric HIV along one continuum is essential to preventing infections and improving health outcomes of children living with HIV. Expanding access to pediatric ART at rural sites is crucial to identifying HIV-infected children early, thereby reducing mortality and loss to follow-up.<sup>28</sup> Suboptimal adult retention rates also contributed to high infant loss to follow-up; that the behavior of caregivers is closely linked to ART adherence in their children is indisputable.<sup>29</sup>

Community awareness of and education about the benefits of treatment must be increased to ensure that children start and remain in treatment. The decision to initiate a child on treatment is a collective one, with the family and wider community often playing a key role. Families must be convinced that the benefits of clinical care at a health facility will outweigh the financial and opportunity costs.

### RETENTION IN CARE

High rates of mortality and loss to follow-up were observed across all Project HEART countries. In part, this increase in attrition was an inadvertent consequence of rapid scale-up, as resource-limited health facilities were congested due to the overwhelming patient volume at some sites. As health facilities reached saturation levels, it was necessary to decentralize care and treatment services to lower level health facilities close to where patients lived. Project HEART in Mozambique and Tanzania promoted the decongestion of high-volume sites by supporting the provision of ART services at lower level health facilities located closer to patients. Physicians and health staff received mentoring and training to build their capacity to diagnose and treat HIV-positive individuals. Stronger emphasis was placed on improving the quality of counseling offered at health facilities, particularly among pre-ART patients, as this cohort was more likely to abandon treatment because they were nonsymptomatic. Task shifting through the hiring of lay counselors and peer educators was critical to carrying out this intervention.

### FIGURE 19. WAYS TO IMPROVE RETENTION IN CARE

- Use small program evaluations and more robust data analysis on retention indicators to identify trends and affected populations.
- Support the expansion and delivery of basic packages of care at health facilities.
- Provide more vigorous and active tracing of defaulters and patients lost to follow-up through community volunteers, peer educators, or expert patients.
- Actively engage health facility staff to reorganize patient files and obtain more detailed patient information.
- Identify focal points tasked with providing outreach to patients lost to follow-up.

### DATA QUALITY AND QUALITY IMPROVEMENT

Overburdened clinicians with more urgent concerns such as patient care tended not to prioritize data collection, data management, and data use. The demands of routine reporting faced by clinical staff coupled with other priority responsibilities were often cited as a major cause of error and inconsistencies in data quality. Fragmented HMIS by disease or area and paper-based reporting, widely used in lower level health facilities due to limited electricity supply, hampered efforts to track patients longitudinally and measure progress over time. To address this, Project HEART focused on strong collaboration between data collectors and clinicians to reduce the burden of the data collection process. Established scheduled meetings for health facility staff to learn from each other in a structured setting using data to compare results and inform decisions supported the institutionalization of QI. Based on lessons learned from Project HEART, QI efforts were more effective when closely aligned with national standards, tools, and data that were simple and easy for health staff to understand and evaluate. Institutionalizing QI in national preservice training and other formal training for health professionals, rather than as an add-on or a separate topic, is critical to making QI an integral component of HIV care.

Patient satisfaction is an important, yet overlooked, component of the quality of health services. As HIV programs expand, it is imperative to incorporate qualitative indicators and measurements on patient satisfaction into QI through exit interviews, focus groups, or existing health committees to reinforce feedback mechanisms among individuals, communities, and health facilities.

### PHASE II: TRANSITIONING TO LOCAL PARTNERS

By building the capacity of districts and civil society, the Foundation has been working toward strengthening local health systems throughout the life of Project HEART. In 2009, in response to a mandate requirement of a three-year project extension, all four Track 1.0 ART partners, including the Foundation, launched intensified initiatives to build the capacity of local partners, including the MOHs and NGOs, with the ultimate goal of transitioning a substantial portion of the implementation and management of HIV prevention, care, and treatment programs to local partners in 2012. As part of this process, referred to as transition, which entails full local ownership and management of HIV programs with limited or no external or international technical assistance, in 2009, Project HEART developed a transition strategy to outline the goals, objectives, and necessary activities to successfully increase local capacity to the levels needed to support the gradual transition of responsibilities.

The Foundation established its transition strategy in keeping with the tenets of sustainable development and health system strengthening, ensuring that local ownership and capacity building remained central to the strategy. Informing this strategy are eight guiding principles that aim to guarantee that service delivery programs are vested in local leadership, thereby ensuring responsiveness to community needs. These principles were used to guide the review of the various partnerships with government health entities, CBOs, hospitals, and other NGOs developed under Project HEART to determine where support should be targeted to facilitate a transition of programmatic leadership and management to local partners. This process culminated in the development of a three-pronged transition strategy:

- Strengthening the health system through investments in infrastructure, logistics systems, human resources, and innovative and sustainable financing mechanisms;
- Strengthening the technical and organizational capacity of existing governments, NGOs, and CBOs to provide quality HIV services; and
- Establishing local NGOs affiliated with the Foundation where needed, in order to serve as technical leaders around pediatric HIV and partners to support MOHs for health systems strengthening and service delivery activities in host countries.

### FIGURE 20. PROJECT HEART TRANSITION GUIDING PRINCIPLES

- The U.S. government's and the Foundation's contributions must be well integrated and consistent with host-country HIV plans.
- Host governments and other stakeholders are to be partners in defining sustainability and transition in Project HEART countries. For efficient program planning and implementation, communication and coordination among all stakeholders are essential.
- Leadership development at all technical and managerial levels is considered an essential component necessary for success.
- Building capacity in administration and management, maintaining quality and continuity of service delivery, and expanding services are building blocks of the transition plan.
- Community engagement and advocacy to promote a favorable operating environment are essential to successful programming during the transition period and into the future.
- Prevention of new infections, including vertical transmission, must be included as a component of any long-term response to HIV.
- High priority should be given to services for children, especially the youngest children.
- Services provided must have a client focus, and to the extent possible, clients, especially people living with HIV, must have opportunities for active engagement and representation in program planning and implementation.

The ultimate goal of transition is to strategically and incrementally develop strong health systems through local governments, civil society, and communities to ensure an integrated and enduring response to the HIV epidemic. Whether through developing MOHs, existing CBOs, or new Foundation-affiliated NGOs, the approach to transition maximizes the synergies between these key segments of the health sector. Throughout the process, the Foundation has recognized the importance of careful monitoring to ensure that capacity development activities are well targeted and to evaluate progress toward transition benchmarks. Accordingly, a monitoring strategy that included the development of tools to measure capacity at the government, community, health facility, and civil society level was developed and implemented as part of the transition process.

**TABLE 4. FOUNDATION TRANSITION PARTNERS BY COUNTRY**

<b>Côte d'Ivoire</b>	<ul style="list-style-type: none"> <li>• Ministry of Health districts</li> <li>• <i>Fondation Ariel Glaser pour la Lutte Contre le SIDA Pédiatrique en Côte d'Ivoire</i></li> </ul>
<b>Mozambique</b>	<ul style="list-style-type: none"> <li>• Ministry of Health districts and provinces</li> <li>• <i>Fundação Ariel contra o SIDA Pediátrico</i></li> </ul>
<b>South Africa</b>	<ul style="list-style-type: none"> <li>• Department of Health districts and provinces</li> <li>• <i>Ariel Glaser Pediatric AIDS Foundation South Africa</i></li> <li>• Health Systems Trust</li> </ul>
<b>Tanzania</b>	<ul style="list-style-type: none"> <li>• District health teams</li> <li>• Pediatric Association of Tanzania</li> <li>• Kilimanjaro Christian Medical Centre</li> <li>• <i>Ariel Glaser Pediatric AIDS Healthcare Initiative</i></li> </ul>
<b>Zambia</b>	<ul style="list-style-type: none"> <li>• Center for Infectious Disease Research in Zambia</li> <li>• Ministry of Health</li> <li>• Tiny Tim and Friends and Africa Directions</li> </ul>

#### STRENGTHENING GOVERNMENT AND PRIVATE HEALTH SYSTEMS AT THE DISTRICT AND PROVINCIAL LEVELS

Strong relationships with national counterparts facilitated the transition process, as Project HEART’s priorities have historically been defined and driven by needs voiced by local health authorities, which established a high level of trust between the Foundation and government agencies in each country. Project HEART’s commitment to adapting program approaches to the structure of the local health system, tackling underlying structural limitations, and proposing long-term solutions as opposed to temporary fixes has been an asset as transition gained more traction. To a large extent, across all country programs, the MOH has assumed greater responsibility for training and mentoring. Continued capacity building is required in specific areas, most notably planning, human resources, financial management, pediatric HIV, data use for decision making, and QI.

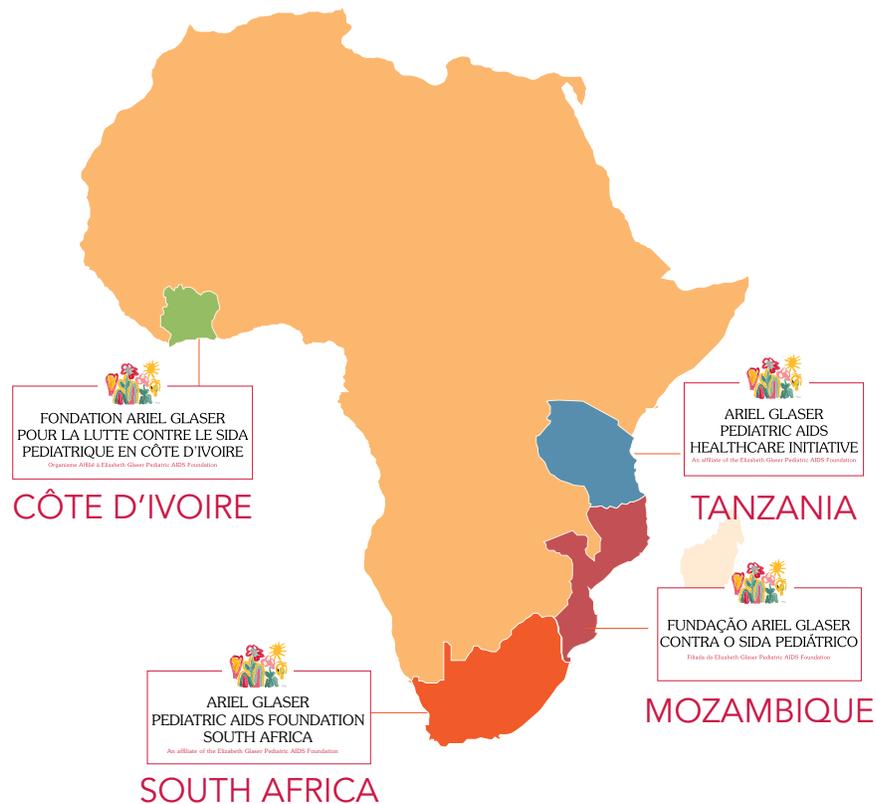
Although governments firmly embraced HSS activities, the time-consuming nature of the policy change process, human resource capacity development, budget limitations, and centralized health financing are serious constraints to realizing a full transition of HIV services in a short period of time. Future programs led by the Foundation and other international and local partners need to continue the HSS initiatives launched under Project HEART and through other Track 1.0 ART partners to ensure long-term growth and transition.

#### STRENGTHENING EXISTING LOCAL ORGANIZATIONS

The second prong of the Foundation’s transition strategy is to strengthen and energize the local response to HIV/AIDS by building the capacity of existing CBOs and NGOs in the Project HEART countries. Civil society capacity has varied, and continues to vary, across Project HEART countries. For example, Zambia and South Africa have networks of faith-based organizations (FBOs), NGOs, and CBOs with extensive experience in clinical and psychosocial support services for people living with HIV. Civil society capacity to lead and manage HIV service delivery programs is more nascent in Côte d’Ivoire, Mozambique, and Tanzania. Regardless of the context, building the community’s capacity to expand their reach and deliver quality care continues to be an important component of transition. In Côte d’Ivoire, Mozambique, and South Africa, Project HEART provided sub-grants to a wide array of NGOs and CBOs to establish support groups, increase community awareness of HIV, and conduct active tracing of defaulting patients.

Performance-based financing mechanisms for CBOs in Côte d’Ivoire that provide HIV care and treatment services yielded significant gains to transform clinics from small sites serving a handful of patients into strong service-delivery centers providing a variety of HIV prevention, care, and treatment services to the community. Funding provided through PBF mechanisms allowed the organizations to improve infrastructure, train health care workers, and expand services to include mobile activities to reach patients in communities, provide community

FIGURE 21. FOUNDATION-AFFILIATED ORGANIZATIONS



follow-up, and offer support groups. In Zambia, Project HEART worked closely with Africa Directions, a local NGO in Lusaka that provides on-site voluntary counseling and testing (VCT), to develop a capacity-building plan and train staff in financial management, resource mobilization, and overall strengthening of the M&E systems. Today, Africa Directions implements the VCT program independently, with minimal technical support from the Foundation. In Zambia, the Foundation also partnered with CIDRZ to support the development of an independent governance structure and strengthen financial, administrative, and programmatic systems in preparation for independent leadership and management of HIV service-delivery programs.

Organizational development activities for NGOs and CBOs were facilitated by the use of the Organizational Capacity and Viability Assessment Tool (OCVAT), designed for facilitated self-assessments of organizational systems, which led to the development of organizational capacity-development plans that are tailored to organizational needs.

### ESTABLISHING LOCAL AFFILIATES

By continuing to work with locally established organizations as part of the transition strategy, the Foundation aims to strengthen the health system as a whole, ensuring that civil society remains a key component in HIV/AIDS service delivery. However, in countries where civil society capacity for leadership of HIV programs was more limited, the Foundation sought to establish new organizations to serve as partners to MOHs for technical aspects of HIV program implementation. The third prong in the Foundation's transition model is the establishment of three independent NGOs in Côte d'Ivoire (*Fondation Ariel Glaser pour la Lutte Contre le SIDA Pédiatrique en Côte d'Ivoire* [Fondation Ariel]), Mozambique (*Fundação Ariel contra o SIDA Pediátrico* [Fundação Ariel]), and Tanzania (*Ariel Glaser Pediatric AIDS Healthcare Initiative* [AGPAHI]). An independent NGO was also created and launched in South Africa, the Ariel Glaser Pediatric AIDS Foundation South Africa; however, that organization was not successful in securing independent funding, and the organization's board will make a determination about its future. The affiliates are independently

governed by host country nationals who represent of the various stakeholders in the HIV epidemic. Named after Ariel Glaser, the daughter of Elizabeth Glaser, who died from HIV at age 7 prior to the advent of pediatric formulations, the affiliate NGOs and the Foundation are aligned in their common mission to end pediatric AIDS.

The development of this affiliation with the Foundation grew out of the concerns and challenges identified by the Foundation's national staff during the transition process. They voiced a need for a system to promote accountability to international standards for local organizations and to have long-term access to a network of organizations that could provide technical expertise and tools for continuous program improvement. Based on that need the Foundation reviewed its priorities and developed a set of principles and standards that would facilitate maintenance of high-quality operations and programmatic systems among the affiliates. The Foundation affiliation model delineates the roles and responsibilities of each organization within the network and establishes clear standards for program performance, good governance, financial accountability, and transparency, thereby ensuring credibility and sustainability of the affiliate in each country. In turn, affiliates have access to expertise, technical assistance, and financial resources from the Foundation and other organizations in the network. This mutually beneficial relationship allows the affiliates to operate as independent entities, preserving their autonomy while optimizing the ability to expand programs focused on the elimination of pediatric HIV at the local level, in alignment with the shared mission of the Foundation and its affiliates.

Fostering local ownership and leadership has been critical to the success of the transition process with the affiliates. The governance bodies were convened through a participatory process whereby the Foundation's project staff in the country programs recommended and voted on potential board members and formed committees to make key decisions regarding the bylaws and human resource procedures. Ensuring buy-in demanded that the transition was rigorous and rational. This required profound and continuous engagement and participation of national staff, board members, stakeholders, and government agencies at each stage in making key decisions regarding the structure, policies, and procedures that would govern the local organizations. Although reaching consensus prolonged the process, it was essential to creating a vision wholeheartedly embraced by all stakeholders.

Transition of responsibility for implementation of activities has been designed as a phased model, where affiliates take on a small component of program implementation at the beginning, with the goal of expanding their geographic and programmatic scope over time as they demonstrate capacity. Initially, affiliates assumed responsibility for management of activities in a single region or province within each country where the Foundation works. The Foundation's role has been to oversee and periodically evaluate the capacity of the affiliates to ensure that quality standards are maintained. Initially, capacity development and program direction were mainly driven by the Foundation, with input from affiliate staff, to ensure that adequate systems were in place. In the second phase, the Foundation is working with transition partners to implement programs where clinical management will be the primary responsibility of the affiliates. In the third phase, the Foundation will provide oversight, feedback, and technical assistance as needed and based on structured monitoring and findings from annual performance reviews. Once the affiliates' capacity is tried and tested, they will be drivers of the process and request technical assistance and targeted support from the Foundation as needed.

## MONITORING THE TRANSITION

The Foundation's approach to monitoring the transition focuses on two components:

1. Assessing the organizational capacity of existing NGO partners and new NGOs serving as lead transition partners, and
2. Assessing the capacity of health facilities and community-based providers of HIV support services to provide quality HIV care and treatment and maintain the continuity of care.

For each component, Project HEART country teams carried out comprehensive assessments using capacity assessment tools that were adapted from existing tools or created to serve transition monitoring needs as well as the Foundation's future capacity assessment needs. Collectively, these tools assess the quality of services, management of service delivery, organizational management viability, and availability and accessibility of community-level services. A comprehensive list of the tools and their objectives is provided in Figure 21.

### FIGURE 22. PROJECT HEART CAPACITY ASSESSMENT AND TRANSITION MONITORING TOOLS

**Organizational Capacity and Viability Assessment Tool (OCVAT):** An assessment of organizational capacity and viability across 13 capacity areas covering technical and operational functions. Designed to be implemented as a facilitated self-assessment in conjunction with an external assessment. Results in the development of capacity-building plans.

**Accreditation Assessment Tool (AAT):** Assesses organizational performance and compliance with operational and technical standards outlined in the Standards of Affiliation, with the aim of proposing recommendations for continued capacity building.

**Site Capacity Profile (SCP):** A comprehensive health facility assessment, assessing a health facility's capacity to provide quality HIV care and treatment through systems, processes, and resources existing across 13 capacity areas. Provides automatically calculated scores per capacity area.

**NGO/CBO HIV Support Service Provider Capacity Profile:** Tools to assess community-based providers of HIV support services on the availability of HIV support services, quality of services provided, linkages with health facilities and communities (referral systems, community input), and utilization barriers. Also assesses select organizational capacity areas (governance, M&E systems, and so on). Provides automatically a calculated score per capacity area.

**PLWHA Group Capacity Profile:** Same scope and structure as the NGO/CBO capacity profile but adapted for the PLWHA group context. Designed for PLWHA groups registered as CBOs in Tanzania; may be applicable in other countries as well.

**HIV Support Service Provider Inventory and Mapping Tool:** Provides a matrix for creating an inventory of HIV support services, including associated health facilities, basic service provision data, and patients served. Contains automated features to facilitate sampling for assessments and calculation of HIV support services utilization rates. Data may be used in conjunction with mapping software to create district maps of HIV support service availability.

### ASSESSING THE ORGANIZATIONAL CAPACITY OF EXISTING NGO PARTNERS AND NEW NGO AFFILIATES SERVING AS LEAD TRANSITION PARTNERS

In 2010 and 2011, the OCVAT was adapted and used to identify the capacity-building needs of each country office as a precursor to the development of affiliates. The OCVAT process was initiated to develop a capacity-building plan early on to better plan for the transition, as affiliates progressively adapted the systems already established by the Foundation. Application of the tool fostered team building and stimulated rich dialogue on improving organizational effectiveness. Equally as important, the transparent discussions provided line staff with an opportunity to evaluate and voice their opinions on the current functioning of the program and identify key areas for improvement; it also underscored the need to transition senior staff with strong capacity to the local affiliate. The OCVAT was also used with CIDRZ to facilitate organizational development activities to prepare for the transition to a direct CDC award to an independent local NGO.

Upon establishment for the new NGOs in Côte d'Ivoire, Mozambique, and Tanzania, and the affiliation criteria for those choosing to be affiliated with the Foundation, the Affiliate Accreditation Tool was developed to specifically evaluate organizations seeking affiliation with the Foundation. The tool evaluates organizational capacity-building needs and compliance with the Foundation's Affiliation Standards. The tool has been implemented for affiliates in Côte d'Ivoire, Mozambique, and Tanzania as part of an initial accreditation process; subsequent reviews will be held to ensure compliance with the Foundation's affiliation agreement.

### ASSESSING THE CAPACITY OF HEALTH FACILITIES AND COMMUNITY-BASED PROVIDERS TO PROVIDE QUALITY HIV CARE AND TREATMENT AND MAINTAIN THE CONTINUITY OF CARE

The development of the Site Capacity Profile (SCP) allowed the Foundation and its transition partners, as well as health authorities at regional and district levels, to rank health facilities on their capacity to provide quality HIV services for the first time. The tool's comprehensive scope and automated scoring

mechanism allowed consideration of not only treatment procedures but also all systems and processes within the facility that could impact HIV service provision, such as infrastructure, supply chain systems, quality improvement, and financial management, where applicable. Preprogrammed skip patterns associated with each health facility level in each country allowed the use of the same tool for all health facilities and produced comparable scores across all health facilities measuring performance against criteria for the specific facility level.

The SCP was conducted in all HIV care and treatment sites in regions being transitioned to NGO transition partners in Côte d'Ivoire, Mozambique, Tanzania, and Zambia—a total of 250 sites. In Tanzania, a sample of facilities providing PMTCT services only was also assessed (included in the above total). The results serve to document the capacity of the facilities to provide HIV services prior to transition and give the baseline assessment data for new projects awarded to NGO transition partners that will be directly managed by them. The transition partners and regional and district health authorities will use the data to target support to health facilities. The use of a uniform, comparable tool to conduct facility assessments also provides the opportunity to truly demonstrate the sustainability of gains in the capacity to provide HIV services under Project HEART after transition, as long as the NGO transition partners conduct future assessments using the same tool. At the time of production for this report, preliminary results were only available for the Shinyanga region of Tanzania, the first country to conduct the SCP. The results demonstrated high-performing areas, with the majority of sites scoring 85 percent or higher in the areas of patient chart completeness, pediatric care and treatment, and quality of care. Conversely, the capacity areas with the majority of sites scoring lower than 50 percent included integration of HIV services with TB, MCH, RH, and primary care; quality improvement; and treatment support.

In addition to the health facility assessments, in Côte d'Ivoire, Tanzania, and Mozambique completed inventory of community-based HIV support service providers was conducted in the transitioning regions. This included any entity providing HIV support services directly to patients regardless of the type of organization (i.e., international, national, regional NGOs, CBOs, FBOs, and PLWHA groups). In Côte d'Ivoire and Tanzania, all or a representative sample (depending on the country context) of the organizations identified were further assessed using the

NGO/CBO Capacity Profile or the PLWHA Group Capacity Profile, which included an automated scoring mechanism akin to the SCP. These tools assessed the availability of services, quality of services (based on procedures followed, not direct observation of care), linkages with health facilities, community engagement, and barriers to utilization of services. In addition, the tools assessed a selection of key organizational capacity areas to provide a basic understanding of each organization's capacity. The data resulting from the inventory and capacity assessments of community-based providers provide a thorough understanding of the linkage systems between health facilities and community-based providers, which is essential to ensuring the continuity of care, gaps in HIV support services, and factors affecting the utilization of services. In addition to documenting the pretransition status of the latter, the new NGO partners will utilize this information to identify CBOs to support and areas of support to prioritize. A mapping of the community-based providers by facility catchment area is also planned using the inventory data.

Overall, the transition-monitoring process implemented by the Foundation has effectively guided the capacity-building process for NGO transition partners, with partners successfully obtaining competitive, direct USG funding in Côte d'Ivoire, Mozambique, Tanzania, and Zambia. The assessment of HIV service providers at the health facility and community level has comprehensively documented the capacity of the health system in transitioning areas to provide HIV services prior to transition and has established a foundation for measuring the sustainability of gains made through Project HEART as assessments are continued under the new projects managed by the NGO transition partners (assuming the same tools are used). In addition, the assessments provide valuable baseline information for the NGO transition partners as they continue building on the progress achieved through Project HEART.

## PROJECT HEART: FROM EMERGENCY TO SUSTAINABILITY

TABLE 5A. KEY TRANSITION OBJECTIVES AND ACCOMPLISHMENTS, 2009–2011

COUNTRY	TRANSITION OBJECTIVES
Côte d'Ivoire	<ul style="list-style-type: none"> <li>• Strengthen the national health system by forming the next generation of health providers and social workers specialized in quality HIV prevention, care, and treatment service delivery through expanded collaboration with preservice training institutions.</li> <li>• Build the capacity of the MOH to establish a sustainable supervision and control strategy for quality HIV prevention, care, and treatment services.</li> <li>• Establish an independent, Ivorian NGO that will be empowered to:               <ul style="list-style-type: none"> <li>• Provide quality HIV/AIDS prevention, care, and treatment services;</li> <li>• Develop and grow partnerships with a range of public-and private-sector entities; and</li> <li>• Continue to support national HSS (through expert technical assistance to the MOH by scaling up the health district model and building the capacity of networks of community partners proficient in HIV prevention, care, and treatment).</li> </ul> </li> </ul>
Mozambique	<ul style="list-style-type: none"> <li>• Strengthen institutions and systems to provide sustainable, integrated, high-quality, accessible HIV clinical services.</li> <li>• Build a national organization to receive and use USG funds to ensure availability of high-quality HIV clinical services until the national health system can take over.</li> </ul>
South Africa	<ul style="list-style-type: none"> <li>• Support the South African government to assume responsibility for the delivery of quality HIV services at the provincial, district, and subdistrict levels.</li> <li>• Build a local, independent organization to competitively apply for and use USG funds to support district health strengthening in partnership with the and CBOs in order to continue Project HEART work.</li> <li>• Transition AIDS Healthcare Foundation (AHF) activities to the DOH or a local implementing organization.</li> <li>• Promote community linkages through strengthening the management capacity of CBOs.</li> </ul>
Tanzania	<ul style="list-style-type: none"> <li>• Improve capacity at the government level to carry out selected activities of Project HEART/Tanzania.</li> <li>• Improve the capacity of existing NGOs to carry out selected Project HEART/Tanzania activities.</li> <li>• Establish a new NGO and build its capacity to take over remaining Project HEART/Tanzania activities.</li> </ul>
Zambia	<ul style="list-style-type: none"> <li>• Establish and build the capacity of CIDRZ as a local entity to plan, manage, finance, and technically support PMTCT and HIV prevention, care, and treatment programs supported by Project HEART/ Zambia.</li> <li>• Build the capacity of the Lusaka District Health Medical Team, as well as the MOH Provincial Health Offices in Lusaka, Western, Eastern, and Southern Provinces, to actively manage and implement high-quality PMTCT and HIV prevention, care, and treatment activities.</li> <li>• Build the capacity of Africa Directions to receive larger awards and over time show strengthened program and operations management.</li> <li>• Support integration of SmartCare into the national health management information structure and increase MOH ownership.</li> </ul>

**TABLE 5B. KEY TRANSITION OBJECTIVES AND ACCOMPLISHMENTS, 2009–2011**

COUNTRY	KEY TRANSITION ACCOMPLISHMENTS
Côte d'Ivoire	<ul style="list-style-type: none"> <li>• Collaborated with the UAC preservice training institutions, including the Schools of Medicine, Nursing, Pharmacy, and Social Work. An HIV certificate program was developed and</li> <li>• 245 students of pharmacy, medicine, nursing, and social work completed HIV service delivery placements at Foundation-supported sites. About half of the students requested to remain at their placement sites after graduation.</li> <li>• Administered performance-based financing to 32 private, NGO, and FBO health facilities. The PBF approach has proven effective in increasing the uptake of PMTCT services and enhancing the accountability of the sub-awardees.</li> <li>• Established Fondation Ariel, a 100 percent Ivorian independent NGO in 2011, with an executive director and a board of directors.</li> <li>• Fondation Ariel has implemented work in three provinces and has been awarded CDC funding to continue the work and take on more provinces over the next five years.</li> </ul>
Mozambique	<ul style="list-style-type: none"> <li>• Launched PBF mechanisms for government health entities in two provinces.</li> <li>• Seconded four technical advisors in the areas of clinical services, M&amp;E, pharmacy, and laboratory to work directly with three provincial health departments to build institutional capacity at the provincial level to supervise and manage comprehensive HIV programs.</li> <li>• Expanded sub-grants to an additional 15 districts. The Foundation and Fundação Ariel are now directly financing 56 out of 121 health districts in the country; 31 of these districts are initiating PBF prior to the end of Project HEART.</li> <li>• Registered Fundação Ariel as a local foundation with an executive director and a board of directors in April 2011.</li> <li>• Fundação Ariel has implemented work in Maputo Province and has been awarded CDC funding to continue the work and take on more provinces over the next five years.</li> <li>• Fundação Ariel is responsible for one of four provinces previously supported by the Foundation.</li> </ul>
South Africa	<ul style="list-style-type: none"> <li>• Transferred McCord Hospital in July 2010.</li> <li>• The AHF, a U.S.-based international NGO, will be transferred to the DOH at the end of Project HEART.</li> <li>• Transitioned district support to Health Systems Trust, a South African NGO.</li> </ul>
Tanzania	<ul style="list-style-type: none"> <li>• Provided sub-grants to 60 district health authorities, with accompanying support to strengthen technical, management, administrative, and financial systems.</li> <li>• Established AGPAHI as a local affiliate with an executive director and a board of directors in 2011.</li> <li>• AGPAHI has been funded for HIV care and treatment work in Shinyanga over the next five years.</li> <li>• Provided capacity development support for KCMC and the Pediatric Association of Tanzania to improve clinical knowledge and skills of health-care providers in delivering care and treatment to HIV-affected and -infected children.</li> </ul>
Zambia	<ul style="list-style-type: none"> <li>• Supported the restructuring of CIDRZ's governance body to enhance local participation and leadership. CIDRZ received funding as a local organization to continue work.</li> <li>• Enhanced the capacity of Africa Directions, a local CBO to implement a voluntary counseling and testing program in Lusaka and establish 3 pediatric support groups supporting 60 children.</li> <li>• Improved the infrastructure and provided mentoring to technicians at Kalingalinga Lab, including the capacity of the pharmacy and logistics department to operate independently.</li> <li>• Contributed to roll-out of SmartCare to 571 sites.</li> </ul>



PHOTO: JON HRUSA

### FIGURE 23. CAPACITY AREAS OF THE ACCREDITATION REVIEW

- Governance
- Program Management
- Organizational Management
- Human Resources
- Communications and Advocacy
- Monitoring and Evaluation
- Financial Management
- Awards and Compliance
- Information Technology

### LESSONS LEARNED

Although the transition process is ongoing, the Foundation has reached key milestones and has learned important lessons as program planning and implementation have become more locally driven. The most salient of these include: the need to (1) remain flexible and responsive to the local evolving capacity-building needs of the health system, the community, and the affiliates; (2) understand that the Foundation's historical commitment to HSS laid the groundwork for transition and is pivotal to the long-term success and sustainability of transition;

(3) establish a structure to link the new NGOs with the Foundation as an international organization to provide a structure where the NGOs can operate as a truly local voice in civil society but be held accountable to meeting international standards; (4) recognize the critical role of governance, operational, management, and financial systems of local organizations; and (5) understand that the establishment of local NGOs required more time than originally anticipated because it demanded a consensus-building approach and the actual development of the affiliation model required more time than originally expected.

### LOOKING FORWARD

The spotlight on transition has encouraged the MOH, the Foundation, and the affiliates to propose more creative ways to ensure that sustainability is interwoven into all aspects of programming, as opposed to relying on stop-gap measures to address persistent structural gaps in HIV service delivery and the broader health system. Going forward, documenting experiences and lessons learned on HSS and the organizational development of affiliates, and linking these to clear targets, will be crucial to demonstrate that transitioning to local partners is feasible and effective.

## LEVERAGING PARTNERSHIPS TO IMPROVE HIV SERVICES

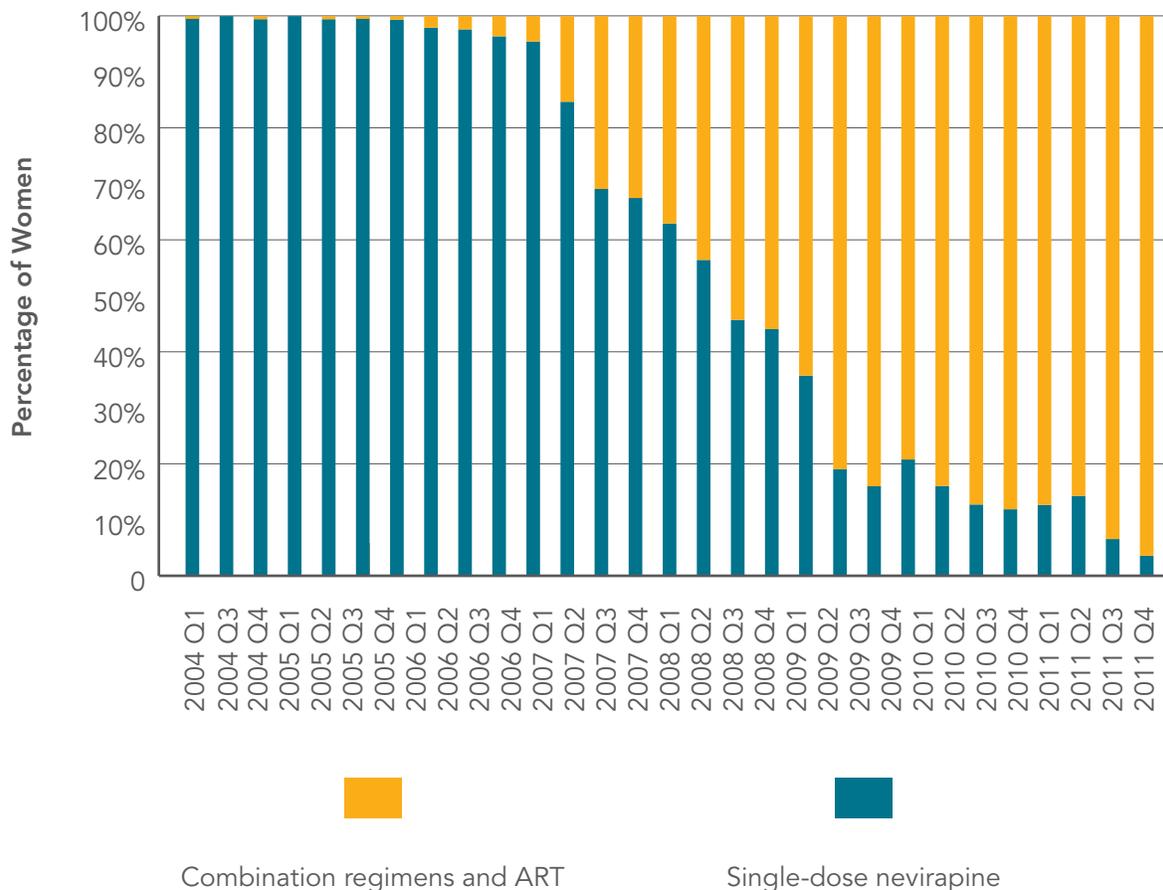
Leveraging existing resources available in country has been integral to the expansion of Project HEART over the past eight years. Where possible, the Foundation has coordinated with programs funded by other donors, such as Global Fund, USAID and UNICEF, to complement program activities implemented by Project HEART. Most programs have benefited from ARVs, bed nets, and other drugs and supplies funded by the Global Fund. Since 2003, the Foundation has managed the Technical Assistance for Prevention of Mother-to-Child Transmission program in Tanzania, which aims to expand access to PMTCT services and strengthen linkages for pregnant women and their HIV-exposed infants to care and treatment. Funded by USAID, this project enabled the Foundation to provide support to both PMTCT and care and treatment at the same health facilities, maximize staff and material resources, and achieve mutually reinforcing goals—preventing pediatric infections and ensuring more eligible women and children have access to ART. Similarly, in Mozambique, UNICEF supported care and treatment in four districts in Cabo Delgado Province. This funding enabled the Foundation to implement interventions throughout the entire province, reaching more women and children with PMTCT, ART, and psychosocial support services, and training service providers in the same areas. In 2009, the CDC awarded EGPAF/Mozambique funding for the Capacity-Building Project, enhancing the management capacity of the provincial and district health departments of Maputo and Cabo Delgado, with a particular focus on planning, administrative, and financial management, through training and supportive supervision. Project HEART/Zambia also benefited from a strong partnership with UNICEF, which funded training and mentoring of health workers on the Mother Baby Pack, which provided mothers with prepackaged antibiotic and ART medication for themselves and their infants. The Foundation also collaborated with staff at the Macha Mission Hospital in Zambia to develop a continuum-of-care site assessment tool; prevent and identify cases of sexual abuse of children; and develop behavior change communication materials on PMTCT, EID, community-based integrated HIV services, and infant feeding.

Project HEART sought the input of Program for Appropriate Technology in Health (PATH) to provide infant feeding and nutrition technical assistance to Project HEART programs in Côte d'Ivoire, South Africa, and Zambia. The Foundation has

also engaged a wide array of partners to implement the nutrition support component, because many NGOs active in country have long-standing expertise and experience in this area. The largest of this is the collaboration with PATH and Helen Keller International in Côte d'Ivoire to provide micronutrient supplements, nutritional support, and infant feeding counseling for pregnant women before and after delivery and for their infants at 33 PMTCT sites. PATH also developed IEC materials in collaboration with the World Food Programme (WFP) and worked with the National Nutrition Program to revise the nutritional training curriculum for health professionals and provide training for community support workers and caregivers. In South Africa, PATH provided extensive training and on-site supervision in HIV and infant feeding for nurses and counselors in five provinces, as well as for Foundation staff. The highly visible EGPAF/PATH partnership in South Africa has been influential in advocating the Department of Health (DOH) to adopt the new WHO recommendations on infant and young child feeding (IYCF) and develop a model program for integration of IYCF and PMTCT services. Similarly, in Zambia, PATH developed IYCF counseling materials for health-care providers and caregivers. In Mozambique and Côte d'Ivoire, Project HEART partnered with the WFP to provide food support to HIV-positive pregnant women and HIV-exposed infants.

At the national level, the Foundation has consistently worked with NGO counterparts in country, most notably International Center for AIDS Care and Treatment Programs CARE, Catholic Relief Services/AIDS Relief, Family Health International, and the Clinton Foundation, among others, to revise national guidelines, manuals, and training curricula. Through PEPFAR coordination mechanisms and MOH working groups, the Foundation has advocated for and contributed to the harmonization of program approaches and demonstrated commitment to building on and complementing ongoing efforts to reduce duplication and maximize effectiveness. The Foundation also worked with George Washington University (GWU), based in Washington, D.C., to provide technical assistance to country teams in program evaluation and research. In 2008, GWU conducted the midterm assessment of Project HEART and provided key recommendations to improve program performance, which were later implemented with favorable results and useful recommendations.

FIGURE 24. INCREASE IN MORE EFFICACIOUS PMTCT REGIMENS OVER TIME, PROJECT HEART 2004-2011<sup>30</sup>



TECHNICAL LEADERSHIP, RESEARCH, AND ADVOCACY

Research and advocacy for HIV/AIDS is one of the three pillars of the Foundation’s mission. Through technical leadership, both globally and at the national level, Project HEART advocated for policy changes to improve the quality of HIV programs. Lessons learned and best practices from the field were documented and shared with key stakeholders in country and contributed to the ongoing refinement of programs. Program evaluations conducted in country enabled both Project HEART and MOH staff to make evidence-based decisions to improve the effectiveness and quality of HIV services.

GLOBAL TECHNICAL LEADERSHIP

Project HEART played an instrumental role in calling for more funding, research, and programmatic focus on pediatric care and treatment, including advocacy for the availability of pediatric drug formulations. Early on, Project HEART leadership lobbied for

“Now we are moving toward shared responsibility, where we are building the capacity of the local government and a new affiliate. It is also part of the transition for district health departments to understand that we do this as part of a broader mission to eliminate pediatric HIV, and to understand the challenges and how to overcome them versus telling them what to do.”

—Roland Van de Ven, Technical Director, EGPAF/Tanzania

more efficacious regimens<sup>31</sup> to be used for PMTCT in resource-limited settings based on research that showed substantial reductions in transmission and to prevent resistance to nevirapine. Success in changing the position of the broader HIV/AIDS

## FIGURE 25. PRIVATE PUBLIC PARTNERSHIP (PPP) WITH SOCIÉTÉ GRAND BEREBY IN CÔTE D'IVOIRE

In 2005, Project HEART/Côte d'Ivoire partnered with Société Grand Bereby (SOGB), a major agroindustrial firm, to provide HIV prevention, care, and treatment services at their private clinic in San Pedro, which serves the surrounding community free of charge. Project HEART provided training for staff and laboratory support, including purchase of a CD4 machine. As a result of early success, SOGB hired additional staff and added PMTCT services to the package of care offered at the clinic. Inspired by the results of this PPP, Project HEART pursued similar partnerships with other private companies, namely, SAPH (port authority) in San Pedro and Bongo and SCB (banana plantation) in Abengourou and Abidjan. The Foundation/Côte d'Ivoire also collaborated with the mobile phone company MTN to increase awareness about pediatric HIV prevention and care through distribution of SMS messages. Combining the resources of the private sector with the technical expertise of the public sector, these relationships ultimately enhanced access to HIV services for underserved populations.

community was also seen in country, as the governments updated national policies on the provision of more efficacious treatment, essentially making it standard practice for PMTCT services. Given the success of Project HEART and similar projects in expanding HIV clinical care and treatment to people living with HIV in the most resource-constrained settings, continued funding was critical to solidify and institutionalize the gains made in strengthening the capacity of health systems to accommodate a chronic care model. Through participation in various panels and working groups, Foundation staff provided technical leadership and actively contributed to the revision of the WHO 2010 recommendations and provided guidance for their implementation. An active member of the United Nations Interagency Task Team (IATT), the Foundation led the development of the IATT advocacy toolkit for pediatric HIV care and treatment.

### COUNTRY-LEVEL TECHNICAL LEADERSHIP

Through the work of the country offices and highly skilled technical experts and program managers, most of whom were national staff, Project HEART provided key input into the development of a wide range of strategic plans in the health sector. These included, but were not limited to, five-year national strategic plans for HIV, ART guidelines and algorithms, pediatric HIV national protocols and training curricula, M&E plans,

and health financing and human resource plans, among others. Working side by side with government counterparts in national-level working groups and task forces, Project HEART staff provided technical assistance in the revision of national policies and modification of programs based on international standards as well as on evidence gathered from the field.

Common crosscutting issues faced by most Project HEART-supported countries included (1) policies on HIV testing and screening (2) task shifting and (3) the revision of child and maternal health cards.

At the start of Project HEART 8 years ago, HIV testing was voluntary, which limited uptake even with adequate counseling. Advocacy for opt-out testing in ANC, HIV testing in maternity wards, and retesting after three months as a standard PMTCT policy occurred in all Project HEART-supported countries. Two specific examples where Project HEART staff played an instrumental role in changing testing policy in country include Côte d'Ivoire and Zambia. In Côte d'Ivoire, Project HEART staff advocated for the adoption of rapid testing for faster results, switching to finger-prick testing for HIV rather than venous blood samples, and increasing the number of health workers who could administer HIV tests to include medical officers and nurses. Research funded by the WHO Special Programme for Research and Training in Tropical Diseases, the Sexually Transmitted Disease Diagnostic Initiative, the London School of Hygiene and Tropical Medicine, and the Bill and Melinda Gates Foundation was conducted with the support of Project HEART/Zambia to assess the feasibility of providing rapid syphilis testing at the same time as HIV testing at antenatal clinics. In response to the evidence confirming that rapid syphilis testing can be performed with proper quality controls, the Zambian MOH changed national policy to include rapid syphilis testing at some entry points.<sup>32</sup> Based on these findings, the MOH plans to roll out the program

**"Fondation Ariel is demonstrating that strong local organizations can successfully continue the work of international partners to provide HIV services, while maintaining high international standards."**

—Anthony Tanoh, Executive Director, Fondation Ariel

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to all health facilities using seed money from the WHO and the health-sector budget for 2012.

Task shifting and task sharing were priority issues, as congestion at HIV clinics and health facilities demanded that lower level cadres, including medical officers and nurses, prescribe and/or dispense ART in order to keep up with the skyrocketing number of patients receiving treatment. Scale-up of HIV clinical services to peripheral health centers, primarily located in rural areas, hinged on training nurses and medical officers to prescribe and administer ART, thereby allowing for more timely access to care and treatment services, in closer proximity to the patient. Advocacy of Project HEART staff influenced policy changes in South Africa and Zambia, allowing nurses to prescribe and dispense ART. In Zambia, Project HEART staff liaised with the General Nursing Council to develop a nurse practitioner program to formalize and provide in-depth training for nurses. Similarly, in South Africa, by training Foundation staff to become lead trainers, Project HEART helped mobilize the government and medical associations to authorize nurse-initiated and -managed ART (NIMART). Project HEART collaborated with BIPAI, which provided basic and advanced pediatric HIV/AIDS training courses for nurses, and discussions for expansion are underway.

One of the major hurdles at the beginning of Project HEART in providing family-centered HIV care was the limited information available on patient health cards used in the various countries. Primarily designed as immunization records, health cards did not contain information on HIV status, making it difficult for health staff to identify and provide adequate care to HIV-positive individuals. In Mozambique and Côte d'Ivoire, Project HEART teams in country supported national HIV programs in the development, validation, and implementation of handheld health cards to enable the identification of HIV-positive women and HIV-exposed children so that follow-up care can be offered at any facility at any point.

Country-specific examples of key advocacy efforts of Project HEART staff to effect policy change are summarized in Table 6. Historically, program evaluation has been one of the building blocks of the Foundation's work and an integral component of Project HEART. Findings from evaluations implemented by Project HEART have not only informed program implementation and innovation but have also challenged commonly held conceptions about HIV programs and outcomes. The Foundation supported one large multicountry study through

Project HEART, in addition to smaller operations research in various stages of implementation, the most important of which are highlighted in this section.

The study titled "Evaluation of the National Antiretroviral Therapy Program in Côte d'Ivoire" looked at clinical and immunological treatment outcomes in four groups of HIV-positive patients who initiated ART in Côte d'Ivoire between 2004 and 2008: adults, children, commercial sex workers, and HIV-2 and dually reactive patients. Results showed that ART improves clinical outcomes such as weight and CD4 count for all groups to varying degrees. For example, by the end of 48 months, the average CD4 count of pediatric patients had increased by 317 (250 for boys and 385.5 for girls); of sex workers, by 266; of adults in the general population, by 260. But HIV-2 or dually reactive (HIV-1/2) patients only saw an average increase in CD4 of 151. In addition, early initiation into treatment and patient follow-up and retention over the long term remain a challenge in Côte d'Ivoire. At 24 months, 59 percent of HIV-2 or dually reactive patients, 73 percent of children, 61 percent of sex workers, and 66.8 percent of adults were still on ART.

Through Project HEART/Zambia, CIDRZ implemented a study to assess the feasibility of implementing a cervical cancer-see-and-treat program in high-burden settings. Facilitating factors that contributed to the program's success included the integration of cervical cancer screening services in existing government-run health systems, a task shift to nurses, and an emphasis on greater coverage by providing same-day results. Using low-cost digital imaging visual inspection with acetic acid, nurses examined patients and provided results in a single visit. Nurses benefited from continuous training and weekly meetings to discuss cases with gynecologists. Peer education through community sensitization and theater to increase awareness of the availability and importance of cervical screening was another important component of the program. Over two and a half years, the program screened more than 20,000 women in 15 primary care clinics and one referral hospital, demonstrating that piggybacking on HIV services to link women to other essential screening services is effective.<sup>33</sup> Replicated throughout Zambia, the see-and-treat program is now considered a best practice and a powerful example of how Project HEART-supported research translated into program innovations with real impact on women's health.

**TABLE 6. KEY ADVOCACY EFFORTS OF PROJECT HEART**

COUNTRY	ACTIVITIES TO PROMOTE POLICY CHANGE
Côte d'Ivoire	<ul style="list-style-type: none"> <li>• Negotiated family-based fee for health services as opposed to individual-based fees at Project HEART sites.</li> <li>• Adopted finger-prick testing for HIV rather than venous blood samples, increasing the number of health-care workers who could administer HIV tests and promoting rapid testing.</li> <li>• Promoted opt-out testing.</li> <li>• Contributed to the development of Carnet de Santé Mère-Enfant (Mother-Infant Health Card).</li> <li>• Advocated for recognition and absorption of lay counselors and community health workers into national system.</li> <li>• Advocated a shift toward more efficacious regimens in PMTCT.</li> <li>• Advocated for nurse-midwives to prescribe and dispense ART.</li> <li>• Introduced TB screening forms.</li> <li>• Advocated at the MOH level to maintain HIV-infected children in the care and treatment program by providing free cotrimoxazole.</li> <li>• In collaboration with World Bank, advocated for the integration of PBF into the public sector and direct funding of district and regional health departments.</li> <li>• Promoted eligibility screening of HIV-positive pregnant women with linkages to care and treatment.</li> </ul>
Mozambique	<ul style="list-style-type: none"> <li>• Promoted retesting in PMTCT and testing in labor and delivery.</li> <li>• Promoted a shift toward more efficacious regimens in PMTCT.</li> <li>• Advocated for provider-initiated testing and counseling.</li> <li>• Promoted decentralization of pediatric HIV services to health centers that meet predefined criteria.</li> <li>• Advocated for the development of Caderneta de Criança (Child Health Card).</li> <li>• Developed guidelines for pediatric support groups.</li> <li>• Developed guidelines for healthy children and children at risk.</li> <li>• Promoted the development of the Patient Health Card.</li> </ul>
South Africa	<ul style="list-style-type: none"> <li>• Advocated for nurse-initiated and -managed ART (NIMART).</li> <li>• McCord Hospital actively contributed to the campaign to replace d4T with TDF in first-line regimens. due to the preponderance of adverse events.</li> </ul>
Tanzania	<ul style="list-style-type: none"> <li>• Promoted provider-initiated testing and counseling.</li> <li>• Advocated for psychosocial support modules in national MOH curricula.</li> <li>• Promoted integration of TB and HIV testing and care.</li> <li>• Promoted task shifting.</li> </ul>
Zambia	<ul style="list-style-type: none"> <li>• Promoted rapid syphilis screening in antenatal care.</li> <li>• Advocated for a cervical cancer “see-and-treat” program.</li> <li>• Advocated for task shifting/sharing and the establishment of a nurse practitioner program.</li> <li>• Promoted adoption of a pediatric psychosocial training curriculum.</li> <li>• Promoted adoption of CIDRZ care and treatment forms now used in all MOH ART sites.</li> <li>• Promoted eligibility screening and initiation of ART in MCH.</li> </ul>



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Project HEART also supported several in-country program evaluations to investigate the factors that contributed to emerging program trends and to generate recommendations for new interventions. These included an evaluation of the national ART program in Côte d'Ivoire, a study on barriers to pediatric care and treatment in Mozambique, and an ARV costing analysis performed in Côte d'Ivoire and Zambia. Conducted by Health Development Africa, the evaluations of nine health facilities included in the costing analysis represented a range of urban, rural, public, private, new, and established ART sites. The assessment reported higher costs during initial stages of treatment, with patients on ART representing the majority of these costs. Overall, laboratory tests, ARV drugs, and staff time made up the bulk of these costs.<sup>34</sup> These findings verified that sites initiating ART service have higher costs, which decrease over time as program growth leads to economies of scale; they also point to the role of task shifting in reducing costs of ART programs.

In Mozambique, Project HEART supported the implementation of a study to determine the constraining and facilitating factors for providing follow-up care to HIV-exposed and -infected children in two provinces. Based on a similar evaluation conducted in Tanzania, this formative study documented available health services for HIV-exposed and -infected children and examined the knowledge, attitudes, behaviors, and perceptions of caregivers

and health workers regarding the availability of HIV prevention, diagnosis, care, and support services for affected children.

Results are expected to inform program changes to increase enrollment and follow-up of children, thereby addressing one of the major challenges confronted by the national ART program in Mozambique.

## MOVING TOWARD ELIMINATION

Project HEART accomplished and exceeded program goals in supporting the MOHs in five countries to bring comprehensive prevention, care, and treatment services to scale, while building local capacity in countries with very different health systems and epidemiological and sociocultural contexts. The HSS approach that defined Project HEART essentially paved the way for a smooth transition to full local ownership in the upcoming years, which is well integrated into broader global health initiatives and objectives. During the eight years of implementation, Project HEART made impressive gains in HIV testing, early identification of both children and adults, and enrollment in care and treatment. The implementation of the new WHO guidelines on PMTCT, ART, and infant feeding has the potential to prevent pediatric infections and bring even greater access to individuals who urgently need treatment. Although the recent gains are undeniable, providing quality HIV services along the continuum of care requires continued strengthening in the following key ways.

### PREVENTION, CARE, AND TREATMENT

- Expand and roll out point-of-care technology to facilitate rapid diagnosis of pregnant women, thereby removing barriers to care, including long waiting times, multiple visits, transport costs, and so on.
- Intensify focus on primary prevention, including voluntary male medical circumcision, prevention with positives including treatment for prevention, and couples counseling.
- Enhance community support activities through strengthened linkages to PITC and HBC services that show a positive effect on patient retention.
- Actively engage influential community members and expert patients to increase patient voice and promote awareness and behavior change focused on prevention and linked to clinical services.
- Provide more effective integration of services, patient-centered care, MCH, PMTCT, family planning, and TB/HIV care including referral and counter-referral systems within and between health facilities.
- Roll out WHO recommendations and evaluate the impact on incidence, morbidity, and mortality.

### PEDIATRIC CARE AND TREATMENT

- Simplify regimens and fixed-dose formulations to help keep children on treatment for longer.
- Equip both service providers and parents with counseling and communication skills to deal with children's concerns and emotional well-being.
- Continue advocacy for new pediatric formulations. As more children are initiated on ART, treatment failure on the first-line regimen is a growing concern. As children currently on ART grow into adolescence and adulthood, lifelong maintenance and prevention of resistance are issues that merit more attention.
- Develop innovative approaches to actively engage community and family members specifically on pediatric HIV, as well as, on the creation of support groups for children.
- Generate robust data that provide reliable estimates of the actual number of children in need of treatment in order to evaluate the success of PMTCT programs and forecast future trends.

### HEALTH SYSTEMS STRENGTHENING

- Continue to build the capacity of district and provincial health departments to plan, manage, and monitor HIV services.
- Create a larger pool of human resources through support for preservice training and updates to curricula, with greater focus on integrated care.
- Continue to evaluate innovative financing mechanisms, such as PBF, to improve health worker performance and program results.
- Promote task shifting and sharing in an effort to decongest high-volume sites and increase access to HIV care and treatment in rural areas.
- Integrate, standardize, and automate HMIS to respond to the comprehensive information needs of the entire health sector.

Building capacity in health administration and management, including planning, monitoring, and evaluating program activities, was equally as important as nurturing technical leadership and expertise. Project HEART contributed to enhancing the technical knowledge and competency of clinicians and other health cadres in country; however, experience implementing the district



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approach, sub-grants, and PBF underscored the need for further investment in operational and managerial skills, such as human resources and financial management required to maintain quality in an environment marked by donor fatigue, decreasing resources, and increasing demand for services.

Addressing the multiple bottlenecks in the health systems—namely, available infrastructure, well-organized drug and logistic supply chains, and human resources—is critical to maximizing the impact of HIV clinical care. Limited availability of equipment and stock-outs of ARVs, reagents, and test kits reduce the impact of care and can potentially reverse the progress made in providing essential access to care and treatment services, because these problems weakened trust in the overall system and could provide a breeding ground for resistance to develop.

The initial stages of Project HEART focused heavily on supporting governments to deliver prevention, care, and treatment services to patients in urgent need. Today, patients are getting tested and seeking care earlier. In recent years, more emphasis was placed on quality improvement because the initial hurdles in getting people on treatment had been removed. To maintain the results achieved thus far, quality improvement must be viewed as an integral component of service delivery, not as an afterthought or merely to satisfy external requests. More routine

and effective use of data for management decisions at all levels of the health system was and continues to be a conspicuous gap. Institutionalizing quality improvement and enhancing local capacity for it goes hand in hand with sustaining recent advancements through transition. Coupled with promoting ownership of QI processes and diligent follow-up of plans at the health-facility and district level, QI frameworks must be developed and enforced at the national level.

Finally, HIV programs must do more to ensure that the voice of patients is captured and reflected in changes made to services so that such services more adequately respond to their needs. Recent studies show that increasing patient involvement in care has positive effects on retention. Using peer educators as adherence supporters and support group leaders mobilizes existing resources that were untapped in the early phase of the epidemic and is associated with lower mortality, improved adherence, and better overall health.<sup>35,36,37</sup> Ensuring that patient feedback is regularly incorporated into health-facility assessments and overall system functioning is a strategy that warrants additional attention. Identifying innovative ways to personalize clinical care and allowing patients to express the full range of medical and socio-cultural concerns will only strengthen the continuum of care and serve as a proxy for the quality of services.<sup>38</sup>



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## CONCLUSION

Thanks to the support of CDC/PEPFAR between 2004 and 2012, Project HEART supported an exceptional scale-up of comprehensive HIV prevention care and treatment services in five of the most affected countries in sub-Saharan Africa. This project supported the ministries of health in Côte d'Ivoire, Mozambique, South Africa, and Zambia to reach more than 2.5 million pregnant women with PMTCT services and enrolled more than 1.1 million individuals in care, of which more than 600,000 received life-saving ARVs. Over the past 8 years, Project HEART galvanized the international community to prioritize pediatric care and treatment through persistent advocacy at the national level and by building the capacity of health staff to treat children living with HIV. At the end of the project, 78,302 children were enrolled in care, and an additional 45,569 started treatment. Most important, Project HEART demonstrated that with financial and technical support, the local health system can provide quality HIV clinical services in resource-constrained settings at an unprecedented scale. Project HEART's lessons learned and evaluation findings added value to the existing body of knowledge on HIV/AIDS, influenced policy changes in country, and introduced innovative approaches to HIV programming.

Data show that greater coverage and access to PMTCT services can virtually eliminate pediatric HIV. There has been a renewed commitment to the elimination of pediatric AIDS. At a UN high-level meeting on AIDS in 2011, a global task team led by UNAIDS and the U.S. Office of the Global AIDS Coordinator issued a Global Plan toward elimination of new HIV infections among children and keeping their mothers alive. The Foundation is part of this task team and will continue to work toward elimination. Project HEART's historical emphasis on capacity building and health systems strengthening has positioned these five countries to move significantly closer toward the elimination of pediatric HIV, fostering local ownership at all tiers of the health system and providing quality HIV clinical services to the millions still in need. As Roland Van de Ven, technical director of Project HEART/Tanzania, said, "We cannot say the emergency is over just yet." This could not be more true, because each year there are more than twice as many new infections as there are people starting ART.<sup>39</sup> But turning the tide against the epidemic is no longer an elusive goal, if we continue to build on past accomplishments and allocate the necessary resources to create a generation free of HIV.

### ACKNOWLEDGMENTS

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### NOTES

<sup>1</sup>With support from USAID and the Bill and Melinda Gates Foundation, the Foundation implemented the “Call to Action” project, a multicountry, service-based PMTCT program in 19 countries, from 1999 to 2010. USAID continues to support the Foundation’s PMTCT project in Tanzania.

<sup>2</sup>Lemiere, Reducing geographic imbalances of health workers in sub-Saharan Africa.

<sup>3</sup>The definition of rural sites is tracked in GLASER and based on national census data.

<sup>4</sup>Some of the original partners from Project HEART went on to receive direct USG or other funds, specifically in South Africa (McCord Hospital, Africa Centre, and Port Shepstone Hospital), in Tanzania (Axios Foundation), and in Côte d'Ivoire (ACONDA).

<sup>5</sup>The targets in the original proposal submitted to the CDC did not include Mozambique, which was added to Project HEART in 2006. Results indicate that the targets were underestimated.

<sup>6</sup>UNAIDS, Countdown to Zero.

<sup>7</sup>GLASER database. Washington, DC: Elizabeth Glaser Pediatric AIDS Foundation.

<sup>8</sup>UNAIDS, Countdown to Zero

<sup>9</sup>UNAIDS, Countdown to Zero.

<sup>10</sup>Killam, et al. Antiretroviral therapy in antenatal care.

<sup>11</sup>Sprague, et al. Health system weaknesses.

<sup>12</sup>WHO, PMTCT Strategic Vision, 2010–2015.

<sup>13</sup>Project HEART did not support PMTCT services in Tanzania because this component was funded by USAID. Therefore, PMTCT data for Tanzania is not included in Figures 5A and 5B.

<sup>14</sup>EGPAF, Care and Treatment Site Profile Review.

<sup>15</sup>UNAIDS, Countdown to Zero

<sup>16</sup>During some quarters, not all sites supported by Project HEART were able to report due to extenuating factors, such as political conflict, as was the case with Côte d'Ivoire in Q1 of 2011.

<sup>17</sup>The Foundation's attrition data include all patients who are no longer receiving ART due to any one of the following reasons: died, stopped, transferred out, lost to follow-up, or unknown.

<sup>18</sup>Ibid.

<sup>19</sup>For Project HEART/South Africa, infants starting ART disaggregated by age was only available in 2008.

<sup>20</sup>This figure is based on proxy data for sites able to report data on the number of infants tested at younger than six months.

<sup>21</sup>EGPAF, 2010 TB/HIV EGPAF Program Report.

<sup>22</sup>Project HEART does not support TB/HIV integration in Zambia.

<sup>23</sup>Justman et al. Developing laboratory systems and infrastructure for HIV scale-up.

<sup>24</sup>Data for laboratory training were not available for Zambia prior to 2008. These data reflect the contributions of Côte d'Ivoire, Mozambique, Tanzania, and South Africa. Laboratory support was not provided in South Africa under Project HEART.

<sup>25</sup>These data may include individuals who participated in refresher training. It was not possible to distinguish between formal, in-service, and on-the-job training based on the way data were collected and reported by the MOH in each country. Also of note, individuals may have received more than one training during the course of Project HEART.

<sup>26</sup>Lemiere, Reducing geographic imbalances.

<sup>27</sup>EGPAF, Mozambique Semi-Annual Program Report. Washington, DC: EGPAF; April 2011.

<sup>28</sup>Lessels, Retention in HIV care.

<sup>29</sup>Ibid.

<sup>30</sup>Project Heart did not support PMTCT services in Tanzania because this component was funded by USAID. Therefore, PMTCT data for Tanzania are not included in Figure 25.

<sup>31</sup>Ibid.

<sup>32</sup>EGPAF, Quality Management of Rapid Syphilis Testing in Zambia and Uganda.

<sup>33</sup>Mwanahamuntu et al. Implementation of "see-and-treat" cervical cancer prevention services.

<sup>34</sup>EGPAF, Costing of Selected Antiretroviral Therapy Services in Zambia; EGPAF, Costing of Selected Antiretroviral Therapy Services in Côte d'Ivoire.

<sup>35</sup>Callaghan et al. A systematic review of task-shifting.

<sup>36</sup>Bouille et al. Seven year experience of a primary care antiretroviral treatment programme.

<sup>37</sup>Zacariah et al. Community support is associated with better antiretroviral treatment outcomes.

<sup>38</sup>Berwick, What "patient-centered" care should mean.

<sup>39</sup>WHO, Towards Universal Access.

### BIBLIOGRAPHY

- Beatty G, Castel AD, Gill M, Justice J, Shannon M. Project HEART Global Assessment Report. Washington, DC: EGPAF; 2009.
- Bekker LG, Myer L, Orrell C, Lawn S, Wood R. Rapid scale-up of a community-based HIV treatment services program performance over 3 consecutive years in Guguletu, South Africa. *S Afr Med J*. 2006;96(4):315-320. <http://www.samj.org.za/index.php/samj/article/viewFile/1072/536>. Accessed July 20, 2011.
- Berwick, DM. What “patient-centered” care should mean: confessions of an extremist. *Health Aff*. 2009;28(4):w555-w565. <http://content.healthaffairs.org/content/28/4/w555.full>. Accessed August 15, 2011.
- Boulle A, Van Cutsem G, Hilderbrand K, et al. Seven year experience of a primary care antiretroviral treatment programme in Khayelitsha, South Africa. *AIDS*. 2010;24(4):563–572. [http://journals.lww.com/aidsonline/Fulltext/2010/02200/Seven\\_year\\_experience\\_of\\_a\\_primary\\_care.9.aspx](http://journals.lww.com/aidsonline/Fulltext/2010/02200/Seven_year_experience_of_a_primary_care.9.aspx). Accessed July 20, 2011.
- Callaghan M, Ford N, Schneider H. A systematic review of task-shifting for HIV treatment and care in Africa. *Hum Resour Health*. 2010(8):8. <http://www.human-resources-health.com/content/8/1/8>. Accessed July 20, 2011.
- Chi B, Chintu N, Lee A, Stringer E, Sinkala M, Stringer J. Expanded services for the prevention of mother-to-child HIV transmission: field acceptability of a pilot program in Lusaka, Zambia. *JAIDS*. 2007;45(1):125-127. [http://journals.lww.com/jaids/Fulltext/2007/05010/Preventing\\_Mother\\_to\\_Child\\_Transmission\\_of\\_HIV\\_in.20.aspx](http://journals.lww.com/jaids/Fulltext/2007/05010/Preventing_Mother_to_Child_Transmission_of_HIV_in.20.aspx). Accessed August 31, 2011.
- Chima I, Lupondwana P. How soon should ART defaulters be traced? Characteristics and outcomes of defaulters attending an antiretroviral treatment clinic in Vryheid Hospital, Kwa-Zulu Natal Province, South Africa. Abstract presented at: the International AIDS Society Conference; July 17-20, 2011; Rome, Italy. Accessed August 31, 2011.
- Church K, Lewin S. Delivering integrated HIV services: time for a client-centred approach to meet the sexual and reproductive health needs of people living with HIV? *AIDS*. 2010;24(2):189-193. [http://journals.lww.com/aidsonline/Fulltext/2010/01000/Serosorting\\_can\\_potentially\\_increase\\_HIV.3.aspx](http://journals.lww.com/aidsonline/Fulltext/2010/01000/Serosorting_can_potentially_increase_HIV.3.aspx). Accessed August 31, 2011.
- EGPAF. 2010 TB/HIV EGPAF Program Report. Washington, DC: EGPAF; 2010.
- EGPAF. Care and Treatment Site Profile Review. Washington, DC: EGPAF; 2009.
- EGPAF. Costing of Selected Antiretroviral Therapy Services in Côte d'Ivoire. Washington, DC: EGPAF; 2010.
- EGPAF. Costing of Selected Antiretroviral Therapy Services in Zambia. Washington, DC: EGPAF; 2010.
- EGPAF. Quality Management of Rapid Syphilis Testing in Zambia and Uganda. Washington, DC: EGPAF; 2011.
- EGPAF. Rapid Scale-Up of PMTCT Services in Tanzania. Washington, DC: EGPAF; 2008.
- Fenner L, Brinkhof MW, Keiser O, et al. Early mortality and loss to follow-up in HIV-infected children starting antiretroviral therapy in Southern Africa. *JAIDS*. 2010;54(5):524-532. [http://journals.lww.com/jaids/Fulltext/2010/08150/Early\\_Mortality\\_and\\_Loss\\_to\\_Follow\\_up\\_in.13.aspx](http://journals.lww.com/jaids/Fulltext/2010/08150/Early_Mortality_and_Loss_to_Follow_up_in.13.aspx). Accessed July 20, 2011.
- Geng E, Nash D, Kambugu A. Retention in care among HIV-infected patients in resource-limited settings: emerging insights and new directions. *Curr HIV/AIDS Rep*. 2010;74(4):234-244. <http://www.ncbi.nlm.nih.gov/pubmed/20588185>. Accessed July 20, 2011.
- Ghanotakis E, Attiah J, Ntumbanzondo M, et al. Performance-based financing: a mechanism to improve uptake of pediatric and maternal HIV care and treatment. Poster presented at: International AIDS Society Conference; July 18-23, 2010; Vienna, Austria. Accessed August 31, 2011.

Giphart, A. Smart Integration: Maternal and Child Health and HIV. Presentation presented at: EGPAF Annual Global Leadership Meeting; February 10, 2011; Washington, DC.

Hardona AP, Akurut D, Comoro C, et al. Hunger, waiting time and transport costs: time to confront challenges to ART adherence in Africa. *AIDS Care*. 2007;19(7):658-665. <http://www.ncbi.nlm.nih.gov/pubmed/17505927>. Accessed August 15, 2011.

Heidari S, Harries AD, Zachariah R. Facing up to programmatic challenges created by the HIV/AIDS epidemic in sub-Saharan Africa. *J Int AIDS Soc*. 2011;14(Suppl 1):S1. <http://www.jiasociety.org/content/14/S1/S1>. Accessed July 20, 2011.

Justman J, Koblavi-Deme S, Tanuri A, Goldberg A, Gonzalez LF, Gwynn CR. Developing laboratory systems and infrastructure for HIV scale-up: a tool for health systems strengthening in resource-limited settings. *JAIDS*. 2009;52(suppl 1):S30-S33. [http://journals.lww.com/jaids/fulltext/2009/11011/developing\\_laboratory\\_systems\\_and\\_infrastructure.10.aspx](http://journals.lww.com/jaids/fulltext/2009/11011/developing_laboratory_systems_and_infrastructure.10.aspx). Accessed July 20, 2011.

Karim QA, Banegura A, Cahn P, et al. Asking the right questions: developing evidence-based strategies for treating HIV in women and children. *BMC Public Health*. 2011(11):388. <http://www.biomedcentral.com/content/pdf/1471-2458-11-388.pdf>. Accessed July 20, 2011.

Kilimanjaro Christian Medical Center (KCMC). Final Report for Project HEART. Tanzania: KCMC; 2011.

Killam WP, Tambatamba BC, Chintu N, et al. Antiretroviral therapy in antenatal care to increase treatment initiation in HIV-infected pregnant women. *AIDS*. 2010;24(1):85-91. [http://journals.lww.com/aidsonline/Fulltext/2010/01020/Antiretroviral\\_therapy\\_in\\_antenatal\\_care\\_to.11.aspx](http://journals.lww.com/aidsonline/Fulltext/2010/01020/Antiretroviral_therapy_in_antenatal_care_to.11.aspx). Accessed August 15, 2011.

Kim JY, Gilks C. Scaling up treatment—why we can't wait. *NEJM*. 2005;353:2392-2394. <http://www.nejm.org/doi/full/10.1056/NEJMe058261>. Accessed July 22, 2011.

Lawn SD, Harries AD, Anglaret X, Myer L, Wood R. Early mortality among adults accessing antiretroviral treatment programmes in sub-Saharan Africa. *AIDS*. 2008;22(15):1897-1908. <http://www.ncbi.nlm.nih.gov/pubmed/18784453>. Accessed July 20, 2011.

Lemiere C. Reducing geographic imbalances of health workers in sub-Saharan Africa: a labor market perspective on what works, what does not, and why. Washington, DC: World Bank; 2011. [http://issuu.com/world.bank.publications/docs/9780821385999?mode=a\\_p](http://issuu.com/world.bank.publications/docs/9780821385999?mode=a_p). Accessed July 20, 2011.

Lessels R, Mutevedzi, Portia C, Cooke G, Newell M. Retention in HIV care for individuals not yet eligible for antiretroviral therapy: rural KwaZulu-Natal, South Africa. *JAIDS*. 2011;56(3):e79-86. [http://journals.lww.com/jaids/Fulltext/2011/03010/Retention\\_in\\_HIV\\_Care\\_for\\_Individuals\\_Not\\_Yet.11.aspx](http://journals.lww.com/jaids/Fulltext/2011/03010/Retention_in_HIV_Care_for_Individuals_Not_Yet.11.aspx). Accessed July 20, 2011.

Losina E, Toure H, Uhler L, et al. Cost-effectiveness of preventing loss to follow-up in HIV treatment programs: a Côte d'Ivoire appraisal. *PLoS Med*. 2009;6(10):e1000173. [http://www.plosmedicine.org/article/info percent3Adoi percent2F10.1371 percent2Fjournal.pmed.1000173](http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000173). Accessed August 15, 2011.

Mangochi M. Taking services to the client: the use of roving teams to decentralise antiretroviral therapy (ART) services to primary healthcare clinics (PHC) in uMgungundlovu district, KwaZulu-Natal Province, South Africa. Poster presented at: International AIDS Society Conference; July 18-23, 2010; Vienna, Austria.

Marris MB, Chapula BT, Chi BH, et al. Use of task-shifting to rapidly scale-up HIV treatment services: experiences from Lusaka, Zambia. *BMC Health Serv Res*. 2009;9:5. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2628658>. Accessed July 20, 2011.

McCord Hospital. Final Report to Project HEART. South Africa: McCord Hospital; 2010.

Micek MA, Gimbel-Sherr K, Baptista AJ. Loss to follow-up of adults in public HIV care systems in Mozambique: identifying obstacles to treatment. *JAIDS*. 2009;52(3):397-405. <http://www.ncbi.nlm.nih.gov/pubmed/19550350>. Accessed August 15, 2011.

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Miller CM, Ketlhapile M, Rybasack-Smith H, Rosen S. Why are antiretroviral treatment patients lost to follow-up? A qualitative study from South Africa. *Trop Med Int Health*. 2010;15(Suppl 1):48-54. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3156.2010.02514.x/pdf>. Accessed July 20, 2011.

Msofe JY, Moroni M, Van't Pad Bosch J. Routine data quality assessments (DQA): an essential component to improving quality of data for reporting and use. Abstract presented at: International AIDS Society Conference; July 17-20, 2011; Rome, Italy.

Mutevedzi PC, Lessells RJ, Heller T, Bärnighausen T, Cooke GS, Newell ML. Scale-up of a decentralized HIV treatment program in rural KwaZulu-Natal, South Africa: does rapid expansion affect patient outcomes? *Bull World Health Organ*. 2010;88(8):593-600. <http://www.who.int/bulletin/volumes/88/8/09-069419/en>. Accessed July 20, 2011.

Mwanahamuntu MH, Sahasrabuddhe VV, Pfaendler KS, et al. Implementation of "see-and-treat" cervical cancer prevention services linked to HIV care in Zambia. *AIDS*. 2009;23(6):N1-N5. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096609>. Accessed August 31, 2011.

PEPFAR. Saving lives through smart investments: PEPFAR's latest results. PEPFAR Web site. <http://www.pepfar.gov/documents/organization/153723.pdf>. Accessed August 28, 2011.

Regien B, Brugha R, Harmer A, Walsh A, Spicer N, Walt G. The effects of global health initiatives on country health systems: a review of the evidence from HIV/AIDS control. *Health Policy Plan*. 2009;24(4):239-252. <http://heapol.oxfordjournals.org/content/24/4/239.full.pdf+html>. Accessed July 20, 2011.

Reich M, Takemi K, Roberts MJ, Hsiao WC. Global action on health systems: a proposal for the Tokyo G8 summit. *Lancet*. 2008;371(9615):865-869. <http://www.thelancet.com/journals/lancet/article/PIIS0140673608603840/fulltext>. Accessed July 20, 2011.

Rosen S, Fox MJ, Gill CJ. Patient retention in antiretroviral therapy programs in sub-Saharan Africa: a systematic review. *PLoS Med*. 2007;4(10):e298. <http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0040298>. Accessed July 20, 2011.

Sie Akoua JC, Tanoh A, Essoi B, et al. Using cell phones to track patients lost to follow-up: the Elizabeth Glaser Pediatric AIDS Foundation's experience in Côte d'Ivoire. Abstract presented at: International AIDS Society Conference; July 17-20, 2011; Rome, Italy.

Sprague C, Chersich MF, Black V. Health system weaknesses constrain access to PMTCT and maternal HIV services in South Africa. *AIDS Res Ther*. 2011;8:10. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3058008>. Accessed August 15, 2011.

Stringer E, Ekouevi DK, Coetzee D, et al. Coverage of nevirapine-based services to prevent mother-to-child transmission in 4 African countries. *JAMA*. 2010;304(3):293-302. <http://jama.ama-assn.org/content/304/3/293.full.pdf>. Accessed August 15, 2011.

Toure S, Koudiao B, Styler C, et al. Rapid scaling-up of antiretroviral therapy in 10,000 adults in Côte d'Ivoire: 2-year outcomes and determinants. *AIDS*. 2008;22(7):873-882. [http://journals.lww.com/aidsonline/fulltext/2008/04230/rapid\\_scaling\\_up\\_of\\_antiretroviral\\_therapy\\_in\\_10.10.aspx](http://journals.lww.com/aidsonline/fulltext/2008/04230/rapid_scaling_up_of_antiretroviral_therapy_in_10.10.aspx). Accessed July 20, 2011.

Tshabalala M, Mapempeni C, Kgobe PL. Utilising District Health Information System (DHIS) data to improve prevention of mother-to-child transmission (PMTCT) program access and outcomes in Metsweding district, Gauteng Province in South Africa. Abstract presented at: International AIDS Society Conference; July 17-20, 2011; Rome, Italy.

UNAIDS. Countdown to Zero: Global Plan Towards the Elimination of New Infections among Children by 2015 and Keeping Their Mothers Alive. [http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110609\\_JC2137\\_Global-Plan-Elimination-HIV-Children\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110609_JC2137_Global-Plan-Elimination-HIV-Children_en.pdf). Accessed July 20, 2011.

UNAIDS. UNAIDS Report on the Global AIDS Epidemic, 2010. [http://www.unaids.org/globalreport/global\\_report.htm](http://www.unaids.org/globalreport/global_report.htm). Published 2011. Accessed July 20, 2011.

Walensky RP, Kuritzkes DR. The impact of the President's Emergency Plan for AIDS Relief (PEPFAR) beyond HIV and why it remains essential. *Clin Infect Dis*. 2010;50(2):272-275. <http://cid.oxfordjournals.org/content/50/2/272.full>

World Health Organization (WHO). Managing the Building Blocks of Health Systems: A Handbook of Indicators and Their Measurement Strategies. [http://www.who.int/healthinfo/systems/WHO\\_MBHSS\\_2010\\_full\\_web.pdf](http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf). Published 2010. Accessed July 20, 2011.

WHO. PMTCT Strategic Vision, 2010–2015. [http://www.who.int/hiv/pub/mtct/strategic\\_vision/en/index.html](http://www.who.int/hiv/pub/mtct/strategic_vision/en/index.html). Published 2010. Accessed July 20, 2011.

WHO. Towards Universal Access: Scaling Up Priority HIV/AIDS Interventions in the Health Sector. Progress report, September 2009. <http://www.who.int/hiv/pub/2009progressreport/en>. Accessed July 20, 2011.

Wouters E, van Loon F, van Rensburg D. Community support and disclosure of HIV serostatus to family members by public-sector antiretroviral treatment patients in the Free State Province of South Africa. *AIDS Patient Care STDS*. 2009;23(5):357-364. <http://www.ncbi.nlm.nih.gov/pubmed/19327099>. Accessed August 15, 2011.

Zacariah R, Teck R, Buhendwa L, et al. Community support is associated with better antiretroviral treatment outcomes in a resource-limited rural district in Malawi. *Trans R Soc Trop Med Hyg*. 2007;101(1):79-84. [http://www.tropicalmedandhygienejrnl.net/article/S0035-9203\(06\)00205-7/abstract](http://www.tropicalmedandhygienejrnl.net/article/S0035-9203(06)00205-7/abstract). Accessed August 15, 2011.



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## **ELIZABETH GLASER PEDIATRIC AIDS FOUNDATION**

The Elizabeth Glaser Pediatric AIDS Foundation is a nonprofit organization dedicated to preventing pediatric HIV infection and eliminating pediatric AIDS through research, advocacy, and prevention, care, and treatment programs. Founded in 1988, the Foundation works in 16 countries around the world.



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