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ZAMBIA: FINAL COUNTRY REPORT

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DELIVER
No Product? No Program. Logistics for Health

ZAMBIA: FINAL COUNTRY REPORT

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DELIVER

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Implemented by John Snow, Inc., (JSI) (contract no. HRN-C-00-00-00010-00) and subcontractors (Manoff Group, Program for Appropriate Technology in Health [PATH], and Crown Agents Consultancy, Inc.), DELIVER strengthens the supply chains of health and family planning programs in developing countries to ensure the availability of critical health products for customers. DELIVER also provides technical management of USAID's central contraceptive management information system.

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Abstract

DELIVER in Zambia got off to a late start, compared to other country programs where DELIVER has operated during the last six years. The project was asked by the USAID Mission to establish a field office in late 2005; they quickly hired a staff of 15 to help the Ministry of Health (MOH) and its partners ensure an uninterrupted supply of antiretrovirals (ARVs) and HIV tests in public health facilities.

During the year that DELIVER has been in Zambia, it has assisted the MOH to carry out two important national forecasts and quantifications for ARVs and HIV tests. It has procured more that U.S.$9 million in U.S. Government/USAID-funded ARVs and HIV tests and assisted the national government in developing Global Fund to Fight AIDS, Tuberculosis and Malaria procurement plans. The project has also facilitated the design of a strengthened ARV logistics system and a strengthened HIV test logistics system. Implementation of both systems started before the official end of the DELIVER project.

DELIVER has established itself as a key resource for the MOH for logistics data that can be used for decision making.

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ACRONYMS

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CBOH	Central Board of Health
CDC	Centers for Disease Control and Prevention
CHAZ	Churches Health Association of Zambia
CIDRZ	Center for Infectious Disease Research in Zambia
CRS	Catholic Relief Services
DFID	Department for International Development (UK)
EGPAF	Elizabeth Glazer Pediatric AIDS Foundation
FHI	Family Health International
GDP	gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GRZ	Government of Zambia
HIV	human immunodeficiency virus
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
JSI	John Snow, Inc.
LMIS	logistics management information system
MSL	Medical Stores Limited
NAC	National AIDS Council
NGO	nongovernmental organization
PEPFAR	President's Emergency Plan for AIDS Relief
PSM	procurement and supply management
SCMS	Supply Chain Management System (project)
SOP	standard operating procedure
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
USG	United States Government
WHO	World Health Organization
ZPCT	Zambia Prevention Care and Treatment Project (FHI)

ACKNOWLEDGMENTS

DELIVER in Zambia would like to thank a number of key partners, stakeholders, and other people who have contributed to the success that the project has enjoyed. First, we appreciate the dedication and support that the Ministry of Health has demonstrated. They have quickly embraced a proactive approach to strengthening HIV/AIDS commodity logistics and have dedicated staff and time to a number of key initiatives. Secondly, we wish to thank USAID/Zambia for the opportunity to assist them and the Ministry of Health to make the most of U.S. Government assistance in the efforts of the Government of Zambia (GRZ) to overcome HIV/AIDS. We extend a special thanks to the John Snow, Inc./SHARe Project for their assistance in project start-up, and particularly for allowing us to occupy some of their space in the very early days of establishing ourselves in Zambia. We thank our cooperating partners, such as the Center for Infectious Disease Research in Zambia, the Churches Health Association of Zambia, Catholic Relief Services, the Zambia Prevention Care and Treatment Project, the Health Services and Systems Program, the Centers for Disease Control and Prevention, JHPIEGO, Family Health International, and Management Sciences for Health for their insights into, participation in, and collaboration around ensuring HIV/AIDS commodities are available to all Zambians. Thanks also go to Medical Stores Limited and Global Logistics for their professional assistance in moving HIV/AIDS commodities from the ports of entry to the service delivery points throughout the country. Finally, we want to extend our deep appreciation to the many GRZ and nongovernmental organization staff throughout Zambia who have participated in the development and implementation of the strengthened logistics systems in Zambia.

EXECUTIVE SUMMARY

The purpose of DELIVER's work has been to ensure that the antiretrovirals (ARVs) and HIV tests procured by U.S. Government (USG) and other primary donors, such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), are in sufficient supply and are made available to Zambians at service delivery sites. Since DELIVER started working full-time in Zambia a little more than a year ago, it has accomplished a great deal toward this end. Its earliest accomplishments resulted from initiatives to help coordinate and centralize the management of ARVs and HIV tests. These included centralizing the management of procurement information and planning. Two important software tools, PipeLine and Quantimed, were instrumental in facilitating the centralization. PipeLine is a tool that is used for managing the national supply situation, including forecasting; Quantimed was used for the quantification of ARVs. Staffs from various organizations that procure ARVs were trained in the use of these tools. Currently, these organizations are using PipeLine, particularly to enter essential logistics data every month to help manage their own supply situations and to produce reports that they send to DELIVER for entry into the national database.

DELIVER also installed a specially designed software program to manage the inventory control and information system for ARVs and HIV tests. This computer program is placed at the newly formed Ministry of Health (MOH) Logistics Management Unit based at Medical Stores Limited (MSL), and facilitates the compilation and reporting of national consumption and stock data. The vision is that this software will be also adapted by the Supply Chain Management System (SCMS) project for use in laboratory supplies management, and made available for the malaria and tuberculosis programs.

Further, DELIVER facilitated the design of new logistics management systems for ARVs and for HIV tests. The designs included standard operating procedures (SOPs) for inventory control and information management. They were developed in close collaboration with the MOH and all key stakeholders, including USG-funded implementing organizations (faith-based organizations and non-governmental organizations) and other donor organizations, such as the World Health Organization. DELIVER also organized and conducted logistics training for more than 450 pharmacists, nurses, laboratory technicians, and district and provincial supervisory personnel.

Another important initiative in which DELIVER was a key player was the development of a two-year (2006–2008) operational plan for laboratory services within Zambia. Although a focus on labs was not included in DELIVER's mandate, the project responded to a request from the MOH and USAID to facilitate a four-day national workshop and follow-up work to develop the operational plan. The initiative was quite successful, and resulted in an operational plan that (1) outlines specific activities to be undertaken between May 2006 and December 2008; (2) includes plans for monitoring these activities; and (3) provides a useful tool for mobilizing resources and other forms of support for the implementation of the plan.

In addition to the activities and initiatives mentioned above, DELIVER has initiated a number of other activities to ensure that there is an uninterrupted supply of ARV drugs and HIV tests for the expanding number of ART and testing sites. These activities are meant primarily to ensure the sustainability of the logistics gains made thus far through monitoring and continuous improvement.

DELIVER's ultimate success, therefore, will be judged by the extent to which it is able to address the following indicators:

- quantification and procurement of required ARVs and HIV tests, consistent with resources and policies for scaling up
- coordinated forecasting and procurement planning capacity developed at the central level, particularly in the MOH Logistics Management Unit
- standardized inventory control procedures being used at facility, district, and central levels
- logistics decision making at the national level being done with aggregated data from ART and testing sites in Zambia, as provided through the national logistics management information system
- standardized logistics policies and procedures documented in a procedures manual that is available and being used at all ART and testing sites
- standardized policies and procedures being used by all ART and testing sites
- monitoring and evaluation being used to monitor the supply chains and make continuous improvements as needed
- continuous logistics interventions used to remedy identified problems and issues in the system.

To achieve these success indicators, DELIVER, in collaboration with the MOH, MSL, and other partners, trained more than 100 additional key personnel—doctors, nurses, pharmacists, and laboratory staff from government and NGOs—in order to keep pace with the scale up and the staff turnover and attrition rate. It also helped build logistics monitoring and supervision capacity in the MOH supervisory system.

At the national level, DELIVER continued to coordinate multi-year national forecasts and procurement plans for ARV drugs and HIV tests with all key partners, including the Government of Zambia (GRZ) and donors. It also continued being a member of national committees, such as the VCT and Home Based Care Committee; National ART Implementation Committee; Treatment, Care, and Support Technical Working Group; and the National Global Fund Steering Committee. In addition, DELIVER continued providing support to the GRZ in submitting proposals and procurement and supply management (PSM) plans to GFATM.

Finally, DELIVER focused on HIV/AIDS commodity security, especially in terms of working with the MOH and the SCMS Project, and in relation to donor coordination and coordinated procurement planning.

PROGRAM BACKGROUND

DELIVER was a late bloomer, compared to the other 14 focus countries under the President's Emergency Plan for AIDS Relief (PEPFAR). It was not until October of 2004 that USAID/Zambia chose to first use DELIVER to provide technical assistance for the procurement of antiretroviral drugs (ARVs). Since that time, DELIVER has facilitated several national forecasts and quantifications for both ARVs and HIV tests, and has procured more than U.S.$12 million worth of HIV/AIDS commodities. In addition, in 2005 DELIVER established a field office in Lusaka and quickly mobilized a staff of 15 to assist the Ministry of Health (MOH) with procurement, as well as with the development of logistics systems to distribute procured commodities throughout Zambia. The decision to use DELIVER technical assistance has resulted in the development of a key program in USAID/Zambia's portfolio to support the effort of the Government of Zambia (GRZ) to fight HIV/AIDS.

COUNTRY CONTEXT

The population of Zambia is currently estimated at 11.5 million people, with an annual growth rate of approximately 2.3 percent. More than 50 percent of the country's population is less than 20 years of age. The median age for the total population is 16.5 years, and the life expectancy at birth for the total population is 40 years.

Despite progress in privatization and budgetary reform, Zambia's economic growth remains somewhat below the 6–7 percent needed to reduce poverty significantly. Eighty-six percent of the population lives below the poverty line. The unemployment rate in Zambia is about 50 percent. Copper output has increased steadily since 2004, due to higher copper prices and the opening of new mines. The maize harvest was again good in 2005, helping boost gross domestic product (GDP) and agriculture exports. Cooperation continues with international bodies on programs to reduce poverty, including a new lending arrangement with the International Monetary Fund (IMF) in the second quarter of 2004. A tighter monetary policy will help cut inflation, but Zambia still has a serious problem with high public debt. An estimated 71.5 percent of GDP goes to servicing the debt.[1]

One of the greatest development challenges facing Zambia is the HIV/AIDS epidemic. It is estimated that 16.5 percent of Zambian adults 15–24 years old are infected with HIV. Youth prevalence remains much lower, with 7 percent of females and 2 percent of males aged 15–19 infected, although prevalence rises significantly among those aged 20–24. Mother-to-child transmission also contributes significantly to the disease burden, with currently over 20,000 infants newly infected each year Approximately 920,000 people are living with HIV/AIDS in Zambia, and 89,000 deaths have been attributed to the disease.

The devastating impact of the HIV/AIDS epidemic has manifested itself in more demand for health services, as well as congestion in existing health facilities. Given such pressures on the system, there is an increased demand for traditional and alternative medicine. While it is acknowledged that traditional and alternative medicine plays a significant role in Zambian society through reduced demand on conventional medicine, there is a concern that it tends to interfere with the referral system. It also compromises the standard of health services and furthers disregard for proven treatment protocols.[2]

The HIV/AIDS epidemic has also caused a major decline in the number of health personnel. This has resulted in more pressure on the few that are still working. Further, the human resource constraint is

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[1] *The World Factbook*. August 2006
[2] Ministry of Health. *Strategic Plan, 2005–2009.*

exacerbated by generally poor conditions of service in the public sector that have caused many resignations and migration to other countries where superior conditions of service can be found.

KEY PLAYERS AND ROLES

GOVERNMENT AND DONORS

The GRZ is implementing a national HIV/AIDS/sexually transmitted infection/tuberculosis) strategic plan. The plan established the National AIDS Council (NAC) to provide national leadership for coordinating and supporting planning, monitoring, and resource mobilization. The NAC drafted a National AIDS Policy, finalized a national monitoring and evaluation strategy, and is formulating its next five-year strategy. Currently, the NAC manages 14 technical working groups and provides support to nine provincial AIDS task forces and 72 district AIDS task forces.

Several Zambian ministries (such as the ministries of education, defense, information and broadcasting service, agriculture, food and fisheries, and tourism) have all adopted workplace programs to raise awareness of HIV/AIDS among their staff, train peer educators, and distribute condoms. However, budget constraints are impeding full implementation of these work plans.

Zambia is one of the poorest nations in the world. Government spending on HIV and AIDS is alone not nearly sufficient, and most responses to the epidemic must rely on other sources of funding. Many national governments and nongovernmental organizations (NGOs) fund the fight against HIV and AIDS in Zambia, but the principal donors have been the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), PEPFAR, and the World Bank.

Global Fund to Fight AIDS, Tuberculosis and Malaria

There are four principal recipients of GFATM funding in Zambia. They are the MOH, the Ministry of Finance and National Planning, the Churches Health Association of Zambia (CHAZ) and the Zambia National AIDS Network. The roles and responsibilities of the different principal recipients are becoming more well defined, but there are still a number of questions in this regard. It is assumed that they are managing funds on behalf of their relatively distinct, constituent implementing agencies, such as public health facilities, other line ministries and government bodies, mission facilities, and NGOs and community-based organizations.

GFATM granted Zambia U.S.$92.8 million over five years in round 1 for comprehensive prevention, treatment, and care. Zambia also submitted a successful round 4 proposal, with a five-year funding request of $253.6 million, focused on scaling up access to ART. Zambia is currently working on the submission of a round 4, phase II, PSM plan, and has submitted a round 6 proposal.

The President's Emergency Plan for AIDS Relief

Zambia is the beneficiary of PEPFAR funds. Eighty-two million dollars were allocated to Zambia in 2004 for HIV/AIDS prevention, treatment, and care activities, and $130 million was committed in 2005. In 2006, the United States has committed $149 million.

Significant grants have included $54 million for Family Health International (FHI) and seven other partners (including the International HIV/AIDS Alliance) for the years 2004–2010 to build sustainable HIV/AIDS prevention, care, and treatment service delivery systems. Also in late 2004, Population Service International's Zambian affiliate, Society for Family Health, was awarded $24 million over six years for social marketing campaigns to improve health among low-income and vulnerable Zambians in the areas of HIV/AIDS, malaria, safe water, and family planning.

In January 2005, the newly launched RAPIDS project was awarded $39 million, to be spread over six years, for providing assistance to orphans and vulnerable children. The project, which aims to reach

350,000 such children by 2010, involves government institutions and a consortium of NGOs, including Catholic Relief Services, the Salvation Army, and World Vision. The Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), FHI, and John Snow, Inc., (JSI) were each obligated more than $16 million for work in Zambia in 2005.

The World Bank

The World Bank granted Zambia U.S.$42 million under the second Multi-Country HIV/AIDS Program to Africa. The grant included an ART component in the context of mother-to-child transmission, through which both mothers and fathers had access to treatment. The five-year $46 million ZANARA project (2003–2007), has procured HIV tests.

Other Donors

Other sources of support have included the Japan International Cooperation Agency (JICA), the Centers for Disease Control and Prevention (CDC), NGOs, and United Nations agencies such as UNICEF.

PROGRAMS

The MOH is the lead agency in delivering ART services. It supervises and provides technical support to a network of government health facilities and district health services. Many private practitioners also provide ARTs. CHAZ coordinates the programs of faith-based hospitals. The Center for Infectious Disease Research in Zambia (CIDRZ), with funding from PEPFAR, CDC, and EGPAF, has collaborated with the MOH to enroll nearly 30,000 people in long-term HIV care; nearly 18,000 have started life-prolonging ART. The World Health Organization (WHO) provides some support for the development of tools and guidelines on ART, HIV testing, and laboratory services. WHO and the CDC support capacity-building activities. JHPIEGO, an affiliate of Johns Hopkins University, provides support for developing training materials. The Zambian Medical Stores Limited (MSL) is responsible for management and distribution of MOH drugs and commodities. UNICEF supports drug procurement and capacity building for drug supply management. UNICEF also supports activities for the prevention of mother-to-child transmission.[3]

PEPFAR funds the Zambia Prevention Care and Treatment Project (ZPCT). It is a six-year project managed by FHI. International partners have been Management Sciences for Health and the International HIV/AIDS Alliance; Zambian partners are Kara Counseling and Training Trust, Expanded Church Response, and CHAZ.

The ZPCT works in close collaboration with the provincial health office in each of their five designated provinces to assist the GRZ in scaling up prevention, care, and treatment programs. These programs will strengthen essential HIV/AIDS services, including HIV/AIDS counseling and testing; prevention of mother-to-child transmission of HIV; clinical care and ART for HIV-positive patients; and mobilization of local communities to respond to the HIV/AIDS epidemic. Immediate assistance will help equip health facilities and train health staff in the latest approaches and therapies for HIV/AIDS. Multiple stakeholders and implementers currently support HIV testing services in the public sector in Zambia, including financing, procurement, and delivery of HIV test kits for the GRZ. Cooperating partners include JICA, CDC, USAID, World Bank/ZANARA, UNICEF, CIDRZ, FHI, Catholic Relief Services (CRS) AIDSRelief, and the MOH, which is funded through GFATM.

[3] WHO. 2005. *Summary Country Profile for HIV/AIDS Treatment Scale-up*.

KEY CHALLENGES

GENERAL CHALLENGES

MOH Restructuring

As part of an overall health reform program to address the problem of poor health service delivery, the GRZ created the Central Board of Health (CBOH) and health management boards in 1995. These bodies were legally and institutionally separate from the government, with the autonomy to control resources.[4] The MOH headquarters therefore took on the roles of overall policy development, strategic planning, resource mobilization, public relations, and monitoring and evaluation of health sector performance. The CBOH became the implementing arm of the MOH, and was responsible for interpreting policy and legislation, commissioning health services, providing technical guidance and support services to the health boards, managing human resources, and monitoring and evaluating quality.

As the health sector reform progressed, it became apparent that the delineation of key roles and functions between the MOH and the CBOH was not operationalized as envisaged. Despite efforts to the contrary, a duplication of functions occurred, and the effective and efficient central-level structures envisaged actually became a more cumbersome and costly central-level structure than needed. As a consequence, the Cabinet took a policy decision in 2004 to repeal the National Health Services Act of 1995 that created the CBOH and the health boards. A new restructuring process ensued, and the CBOH was to be dissolved.

When the DELIVER arrived in Zambia, this restructuring was underway. However, important decisions regarding exactly who was to perform key roles and functions had not been made. Among these undecided functions were procurement, policy, planning, financing, audit, and performance monitoring. This indecision not only created a difficulty in determining with whom the project should be working most closely, but the delay in dissolving the CBOH also created a lot of insecurity and unreliability among MOH staff.

The HIV/AIDS Epidemic and Its Impact on Human Resources

HIV/AIDS is perhaps the single most important threat to Zambia's ability to free itself from poverty. During the last two decades, the disease has spread very rapidly, and has had a profound impact on the young and the most productive sectors of the Zambian population. The epidemic has decimated the work force and has had a serious negative effect on economic and social progress. This has been particularly hard-felt in the health sector because of the increased pressure that has resulted from increased demand for health services from fewer health providers.

Procurement Issues in the MOH

Major efforts over the last several years have been made to improve the MOH's capacity to procure needed drugs and medical supplies. Procurement procedures have been established, and decentralized drug storage facilities were set up in all district hospitals. In addition, Crown Agents Consultancy, Inc., was contracted to assist MSL with warehousing and distribution practices. Despite these steps forward, there remain issues with regard to procurement planning, effective and efficient bulk procurement, and framework contracting.

SPECIFIC CHALLENGES

The following represent the specific challenges that have been identified since DELIVER has been involved with Zambia over the last three or four years. Many of these were identified during technical assistance visits, the most notable of which was a rapid assessment of logistics capacity in 2005:

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[4] Ministry of Health *Strategic Plan. 2005–2009*

- As indicated above, there are many different players involved in the MOH's program to fight the HIV/AIDS epidemic. Many of these players do their own procurement and distribution of HIV/AIDS products, such as HIV tests and ARVs. Therefore, there are multiple pipelines for these products.
- With multiple pipelines come multiple ordering and reporting channels. These different channels require different kinds of information and forms upon which to record and report such information. The variety of forms being used to record and report essential data should be analyzed to see what could be standardized.
- Regular, consistent reporting of essential data is needed. Current efforts to develop a logistics management information system (LMIS) should be examined further for potential standardization.
- Use of essential data for forecasting, quantification, and procurement planning would benefit from being consolidated and centralized, as would overall management of HIV/AIDS commodities.
- Ordering of products does not often take into account inventory control measures, such as maximum and minimum levels of stock.
- Ordering of HIV/AIDS products often does not take into account projected demand and new patients.
- Ordering is often done when stocks get low, rather than on a regularly scheduled basis.
- The lack of standardization often results in facilities receiving insufficient quantities of products or not receiving products when they need them.
- There is a need for coordination and consolidation among the many players in Zambia's HIV/AIDS programs. Many useful inputs are being made, but they are diffuse and not standard among all partners.

GOAL AND OBJECTIVES

GOAL

To ensure an uninterrupted supply of HIV/AIDS commodities, particularly ARVs and HIV tests, in public sector health facilities in Zambia.

DELIVER OBJECTIVES

Objective 1: Required ARVs and HIV tests are quantified and procured in a manner consistent with resources and policies for scaling up.

Objective 2: Forecasting and procurement planning mechanisms for ARVs and HIV tests are in place at the central level.

Objective 3: Inventory control procedures, an LMIS, and storage and distribution policies and procedures are established at all levels for ARVs and for HIV tests.

Objective 4: The logistics policies and procedures for managing ARVs and HIV tests are documented and prepared for implementation.

Objective 5: Appropriate personnel in the MOH are trained in the logistics policies and procedures for ARVs and HIV tests in order to implement the strengthened supply chains.

Objective 6: Appropriate short- and long-term mechanisms are in place to monitor the supply chains for ARVs and HIV tests, and adjustments are made as needed.

RELATIONSHIP TO USAID AND CLIENT OBJECTIVES

DELIVER fits within the USAID Mission's Strategic Objective 611–007, titled Improved Health Status. Within this program, DELIVER is a part of the Mission's efforts to reduce the transmission and impact of HIV/AIDS through the Global HIV/AIDS Initiative. Helping Zambia overcome the disastrous impact of HIV/AIDS is stated as the USG's most important undertaking in Zambia.

DELIVER'S ROLE IN RELATION TO OTHER ORGANIZATIONS

In the relatively brief time (one year) that DELIVER has had a field office presence in Zambia, it has managed to become an important catalyst for the coordination and consolidation of the various logistics-related efforts being made by other organizations in Zambia. For example, in October 2005 DELIVER followed up the initial ARV forecasts done in 2004 with a more formalized, national quantification of need. This required gathering procurement information from several different organizations involved in order to put together the national picture. Then, in January of this year, DELIVER invited several key cooperating partners to a workshop to be trained on the use of PipeLine, a free procurement planning and shipment-scheduling software developed by JSI. The key cooperating partners, all of whom manage separate supply chains of ARVs, agreed that separate databases should be created for each supply chain, and that the information from these databases should be reported monthly to DELIVER so that it can be entered into a national database. The national-level data would then be available to inform national forecasting and procurement planning. The cooperating partners included MSL, CIDRZ, CHAZ, and CRS/AIDS Relief. This activity reflects the emphasis that DELIVER has placed on collaboration among supply chain partners.

DELIVER continues to relate to other organizations in a catalyst role. Because there are so many different players in Zambia, and because the past has been marked by poor coordination and consolidation, DELIVER has been able to begin making further inroads to remedy this situation. DELIVER brought together all concerned stakeholders on two occasions to develop policies and procedures for a new ARV logistics system and a new HIV test logistics system. Both of these efforts yielded the kind of standardization that Zambia has needed. DELIVER's challenge now is to implement these two new systems with the support of stakeholders and ensure that products begin flowing in the way they need to flow to support the national HIV/AIDS program.

SUMMARY OF INTERVENTIONS

DELIVER realized soon after its initial visit to Zambia that there were logistics systems in place for ARVs and HIV tests, but that these systems needed to be strengthened. Therefore DELIVER's overall strategy in Zambia has been to start with what exists and not introduce anything new unless there is consensus that it is required. More specifically, DELIVER's strategies for achieving its six primary objectives are to—

- provide continuous technical assistance in the area of quantification and forecasting
- gather data for, manage, and train others to use the PipeLine database in order to be able to continuously analyze the national ARV and HIV test stock status
- manage the procurement and receipt of USAID-funded ARVs and HIV tests for the country
- seek and obtain as much buy-in as possible for the development of clearly outlined, documented, and GRZ-approved logistics systems for ARVs and for HIV tests
- with the MOH, hold central-level stakeholders' meetings to discuss the need for strengthened systems
- reach consensus on the kinds of needs to be addressed.
- facilitate system design workshops for stakeholders to decide on policies and procedures for the ARV and HIV test logistics systems
- have the system design approved by the highest level of the MOH
- develop detailed manual of standard operating procedures for the systems
- develop national implementation strategies in conjunction with the MOH and relevant NGOs
- design detailed curricula to implement the training strategies and strengthened systems
- train trainers
- conduct training
- continuously gather and share information by conducting site-monitoring visits, addressing short-term logistics issues between facilities and central-level entities, and supporting stakeholder's efforts to look at ARV and HIV test forecasts and quantifications
- work closely with the USAID Mission and other potential partners of the GRZ to look seriously at the issues they are facing, in the short term and long term, with respect to funding for ARVs and HIV tests
- address the broader area of HIV/AIDS commodity security.

SUMMARY OF DELIVER FUNDING AND STAFFING

FUNDING

During DELIVER's relatively brief tenure as a full-time project in Zambia, USAID committed $15,664,988 of PEPFAR funds to procurement and logistics system technical assistance. The bulk of the funding—approximately $10 million—was used to procure ARVs and HIV tests. The balance was used to support the technical assistance required to design, develop, and implement two new systems for the distribution of these commodities. In addition, the technical assistance funds were used to design and adapt automated tools for the management of information needed to forecast, quantify, and procure additional ARVs and HIV tests.

STAFFING

DELIVER initially provided technical assistance short-term technical assistance to Zambia. However, when USAID decided to establish a local field office in Lusaka in 2005, the personnel dimension changed dramatically. The staff complement went from one country director/resident logistics advisor, one finance and administration manager, and one administrative secretary in the first three months to a staff of 10 that included three logistics advisors, an information technology specialist, and a training coordinator by the end of the first six months of operation. After 15 months, DELIVER had nine technical staff and twelve administrative staff.

PROGRAM RESULTS

ELEMENT I: IMPROVED LOGISTICS SYSTEMS

As explained in earlier sections of this report, the DELIVER work has focused specifically on two logistics systems: that for ARVs and that for HIV tests. Therefore, the following represent the improvements in these systems:

- a system design for the ARV logistics system that reflects strengthened policies and procedures for inventory control, ordering, and information management related to ARVs
- a system design for the HIV test logistics system that reflects strengthened policies and procedures for inventory control, ordering, and information management related to HIV tests
- SOP manuals for both systems
- improved, standardized forms for managing information in the two systems
- centralized information management related to procurement planning for ARVs and HIV tests
- improved management of essential logistics data by cooperating partners.

In the executive summary, it was explained that DELIVER was also involved in helping strengthen the laboratory capacity in Zambia. This was not a specific focus of DELIVER's mandate, and its eventual work in this area was not focused solely on logistics. However, both the MOH and USAID realized the critical relationship of laboratories to the expansion of the national HIV/AIDS program. Therefore, in anticipation of further USG support to labs through the SCMS project, USAID asked DELIVER to carry out a pivotal activity.

Specifically, DELIVER fielded an advisor who facilitated a four-day workshop for the National Laboratory Technical Working Group to develop a multi-year operational plan. The operational plan, as developed, provides a picture of activities requiring strengthening through December 2008, including areas requiring support. These recommended activities were approved by the MOH and address five distinct areas of need:

- program management
- procurement and logistics
- instrumentation and infrastructure
- quality and data management
- human resources and training.

It is expected that this plan will be the basis for all current and future GRZ and cooperating partner work plans, budgets, and proposals.

ELEMENT II: IMPROVED HUMAN CAPACITY IN LOGISTICS

DELIVER's human capacity-building efforts in the past year have been directed primarily at information management, although a major effort to implement improvements in the ARV and HIV test logistics

systems was begun toward the end of this reporting period. More specific numbers of people trained include the following:

- Thirteen people representing CIDRZ, the MOH, CHAZ, USAID, the ZPCT, and DELIVER were trained in the use of PipeLine software and the management of data using PipeLine.
- Forty people were trained as logistics system trainers in order to implement improvements in the strengthened ARV and HIV test logistics systems.
- Approximately 450 MOH and NGO staff are to be trained in the policies and procedures for the strengthened ARV logistics system.
- Approximately 200 MOH and NGO staff are to be trained in the policies and procedures for the strengthened HIV test logistics system.
- Approximately 10 people are to be trained in the use of Supply Chain Manager software.

ELEMENT IV: IMPROVED ADOPTION OF ADVANCES IN LOGISTICS

The management of logistics information is what drives the key functions of a supply chain, such as forecasting, quantification, procurement, inventory control, and ordering. DELIVER has been successful in building capacity within cooperating partners around their use of logistics data for these purposes. In fact, logistics management information has been a centerpiece of DELIVER's work thus far. Along these lines, DELIVER has also been able to assist cooperating partners in the adoption of PipeLine, Quantimed, and Supply Chain Manager software for management of ARVs and HIV tests.

LESSONS LEARNED AND FUTURE DIRECTIONS

DELIVER has not worked in Zambia for as long as other DELIVER countries; the project still needs to see what works and what does not work when it comes to strengthening the logistics systems for ARVs and HIV tests. However, some lessons learned are listed below, and they will be useful for the project's continued work.

LESSONS LEARNED

In Zambia, we learned that, when many different players operate within a national program that is not optimally coordinated, attention must be paid to collaboration and building on what others have already done. We learned early in our work that Zambians and their partners have done a lot toward improving the logistics for HIV/AIDS commodities. However, these efforts have tended to be diffuse and left unconsolidated and uncoordinated.

We have learned that data-sharing is a key to coordination and collaboration. As reported earlier, DELIVER helped centralize the management of important procurement planning information. This required bringing cooperating partners together; agreeing on a vision, key roles, and responsibilities; and using a standard set of terminology. The result is more efficient use of resources at the program level, and also a much more transparent and efficient national approach to procurement planning.

We have also learned that collaboration helps to ensure product availability. In 2005, one cooperating partner had 50 months of Efavirenz 50 mg in stock, almost guaranteeing expiration and waste, while another partner was stocked out. By sharing logistics data, the partners were able to transfer stock, which allowed the stocked-out partner to meet demand and the overstocked partner to avoid the chance of expiration. Similarly, collaboration enabled partners to make strategic use of their funding. Because different funding streams usually have different procurement regulations, the sharing of such information helped ensure that GRZ and GFATM funding was used to procure first line, fixed-dose, combination ARVs; Clinton Foundation-procured, pediatric first line drugs; while PEPFAR funding could be used to buy second line and alternate first line drugs.

FUTURE DIRECTIONS

DELIVER's ultimate success will be judged by the extent to which it has been able to address the following success criteria:

- coordinated forecasting and procurement planning capacity at the central level, particularly in the MOH Logistics Management Unit
- quantification and procurement of required ARVs and HIV tests, consistent with resources and policies for scaling up
- standardized inventory-control procedures being used at facility, district, province, and central levels
- logistics decision-making at the national level being done with aggregated data from ART and testing sites in Zambia, as provided through the national LMIS

- standardized logistics policies and procedures documented in a procedures manual that is available and being used at all ART and testing sites
- standardized policies and procedures being used by all ART and testing sites
- monitoring and evaluation being used to monitor the supply chains and make continuous improvements, as needed
- continuous logistics interventions used to remedy identified problems and issues in the system.

Therefore, the future direction will necessarily need to involve a consensus-building and then a capacity-building approach to ensure that these success criteria are not only for the work DELIVER does, but also guide the MOH and its partners in their work. Finally, a key to being able to sustain any logistics success will be the MOH's ability to bring about meaningful developments with regard to HIV/AIDS commodity security, especially in the areas of forecasting, financing, procuring, and distributing HIV/AIDS commodities.

REFERENCES

Barton, Cheryl, and Kieran McGregor. 2002. *Consultancy to Provide Technical Assistance in Logistics Management of Drugs and Medical Supplies Curriculum Development in Zambia.* United Kingdom: DFID Resource Centre for Sexual and Reproductive Health.

Ministry of Health, Zambia. 2005. *Strategic Plan, 2005–2009*. Lusaka: Ndeke House.

Ministry of Health, Zambia. May 2006. *Operational Plan for the National Laboratory System, 2006–2008*. Lusaka: Ndeke House.

National AIDS Council. 2004. *National Guidelines on Management and Care of Patients with HIV/AIDS.* Lusaka: World Health Organization and Centers for Disease Control and Prevention.

World Health Organization (WHO). 2005. *Summary Country Profile for HIV/AIDS Treatment Scale-up*. Brazzaville: WHO Regional Office for Africa.

APPENDIX 1

PROGRAM RESULTS MATRIX

Objectives/Strategies	Results	Contribution to DELIVER's Elements	Remarks
Objective 1: Required ARVs and HIV tests quantified and procured	• Over $10 million worth of ARVs and HIV tests procured		
Objective 2: Forecasting and procurement planning mechanisms in place	• PipeLine database in use by USG cooperating agencies and GRZ • Quantifications updated regularly	• Element IV—Improved Adoption of Advances in Logistics	• Cooperating agencies and GRZ also to use Quantimed and Supply Chain Manager
Objective 3: Inventory control procedures, a logistics management information system (LMIS), and storage and distribution policies and procedures established	• System design for ARVs • System design for HIV tests • Improved logistics forms	• Element I—Improved Logistics Systems	
Objective 4: Logistics policies and procedures documented	• SOPs for ARV and HIV tests systems developed	• Element I—Improved Logistics Systems	
Objective 5: Appropriate personnel in the MOH trained	• 13 people trained in PipeLine • 3 people trained in Supply Chain Manager • 40 people trained as logistics system trainers • Curricula for roll-out training developed • Approximately 350 MOH and NGO staff trained in ARV system • Approximately 350 MOH and NGO staff trained in HIV test system	• Element II—Improved Human Capacity in Logistics	• Two people were from the MOH. Others were from NGOs and cooperating agencies
Objective 6: Appropriate short- and long-term mechanisms in place to monitor the supply chains	• Preliminary indicators developed		

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