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NIGERIA PREVENTION AND ORGANIZATIONAL SYSTEMS - AIDS CARE AND TREATMENT PROJECT



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FINANCING SUSTAINABLE LABORATORY PROGRAMS IN NIGERIA: LABORATORY REVOLVING FUNDS

Background

Support through the United States President's Emergency Plan for AIDS Relief (PEPFAR) in Nigeria over the last twelve years has rapidly expanded access to life-saving HIV/AIDS services, including free laboratory support services. Rapid expansion under the emergency plan program of PEPFAR phase I led to the emergence of PEPFAR-supported laboratories that meet national and international requirements under an emergency health response. These laboratories are equipped and managed with PEPFAR funding to provide standardized laboratory support services at no cost to people living with HIV (PLHIV). General laboratory services, however, continue through a fee-for-service system, often in parallel to the so-called PEPFAR laboratories but without the same financial backing.

ABOUT PRO-ACT

The Prevention and Organizational Systems - AIDS Care and Treatment (Pro-ACT) project is a seven-year project (2009-2016) funded by the United States Agency for International Development (USAID) and implemented by Management Sciences for Health (MSH) in five Nigerian states: Niger, Kwara, Kebbi, Sokoto, and Zamfara. Pro-ACT strengthens the capacity of Nigeria's public, private, and community sectors for sustainable HIV/AIDS and TB prevention, control, care and treatment integrated within the health system.

The Government of Nigeria (GoN) and the U.S. Government (USG) Partnership Framework on HIV/AIDS 2010 – 2015 indicated that the GoN planned to increase its share of domestic financing for the national HIV/AIDS response from 7% in 2010 to 50% by 2015 at all levels of government.¹ This goal has not yet been realized, and a significant portion of HIV/AIDS financing continues to come from donors. However, as the USG gradually transitions financing of the HIV/AIDS response to host government partners, certain laboratory services will no longer receive PEPFAR funding.

In its efforts to address this potential gap and support sustainable HIV/AIDS prevention, control, care, and treatment services, the Prevention and Organizational Systems – AIDS Care and Treatment (Pro-ACT) project, funded by the United States Agency for International Development (USAID) and implemented by Management Sciences for Health (MSH), explored alternative financing approaches to ensure continued delivery of these critical laboratory services. In collaboration with local stakeholders, Pro-ACT developed and implemented a strategy to strengthen laboratory revolving funds (LRF) at 16 facilities in five states. This brief outlines the process and results of the successful LRF strengthening intervention at General Hospital (GH) Minna located in Niger state.

Approach

To facilitate this approach, Pro-ACT integrated so-called PEPFAR laboratories with non-PEPFAR laboratories to offer patients a more complete set of lab services in one location. The revenue generated from the laboratory services paid for by the public and not by PEPFAR would go toward the laboratory revolving fund (LRF) program, a financing alternative to sustain laboratory services initiated under the PEPFAR program.

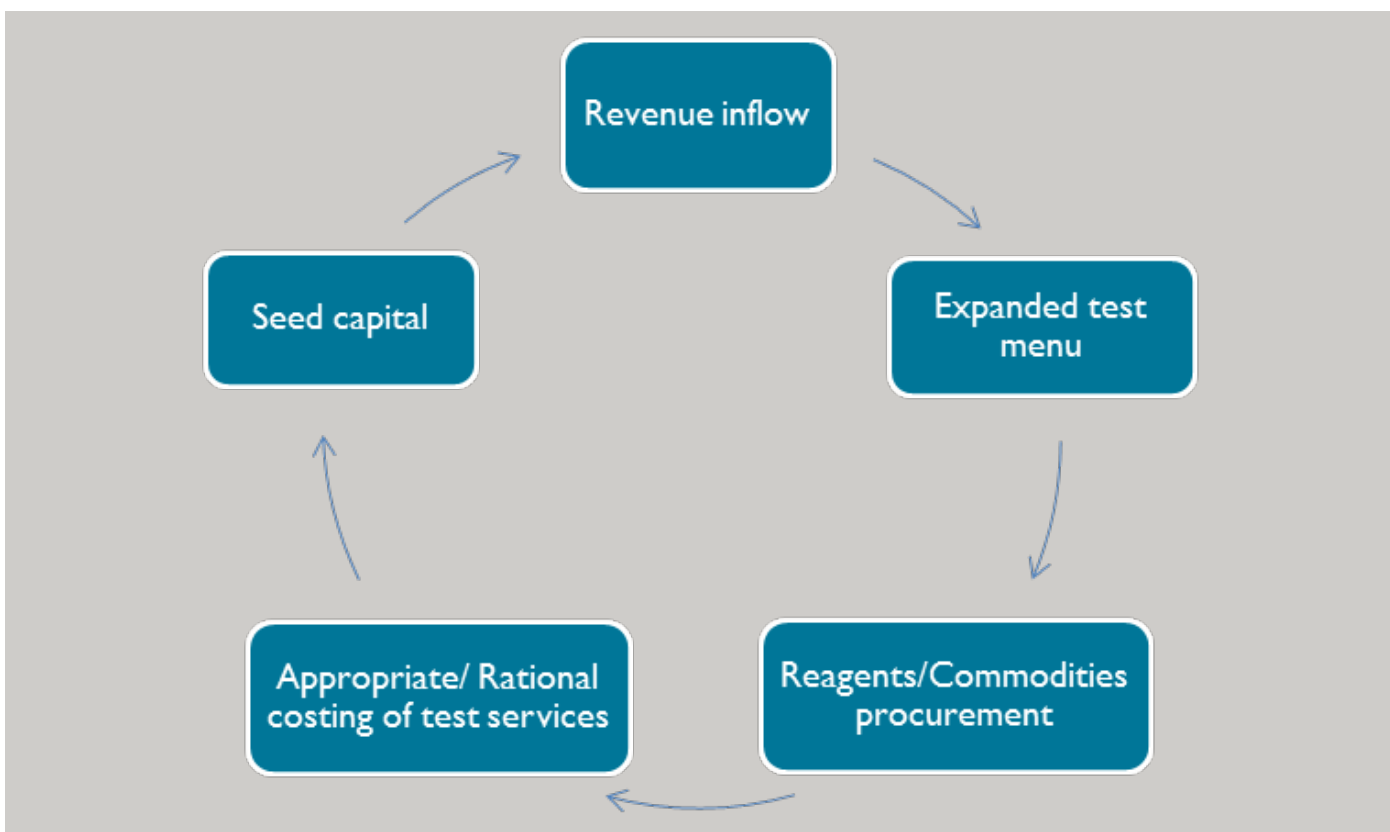
A revolving fund is a fund or account that remains available to finance an organization's continuing operations without any fiscal year limitation, because the organization replenishes the fund by repaying money used from the account.² In Nigeria, the use of revolving funds was spurred by the adoption of the Bamako Initiative, which aimed to increase access to primary health care by raising the effectiveness, efficiency, financial viability, and equity of health services.³ LRFs have been ongoing in several locations, such as University College Hospital Ibadan, Braithwaite Memorial Specialist Hospital, Port Harcourt, and Usmanu Dan Fodiyo University Teaching Hospital Sokoto. These institutions have managed successful LRF programs that have become self-sustaining and even fund other services beyond the laboratory.

Figure 1. Operational Principles

OPERATIONAL PRINCIPLES OF THE LABORATORY REVOLVING FUND

- Engage key stakeholders through consultative meetings
- Analyze and establish a baseline and a system for setting priorities for the use of the funds
- Identify seed grant/start-up capital from a variety of sources such as government funding, philanthropists, endowment funds, donations, and loans
- Articulate clear financial management procedures and policies
- Create strong accounting systems including streamlined processes for the health facility to track utilization of funds.
- Convene periodic revolving fund meetings to track progress and articulate needs of the laboratory
- Develop a business case for sustainability and a plan for future expansion of services
- Institute oversight management, internal control systems, and accounting responsibilities

Figure 2. Laboratory Revolving Fund Program Costing Process



Key operational principles of the laboratory revolving fund are described in Figure 1, beginning with stakeholder engagement. Stakeholders must include the Ministry of Health, PLHIV peer groups, hospital managers, and laboratory managers.

The process of costing under the LRF program is also an important element (see Figure 2). Costing typically begins with defining the expanded test menu (range of lab tests that can be performed by specific lab equipment). This is followed by identification of reagents sets for the test menu, forecast and quantification over a period, managing requisitions, and pipeline for commodity security. The process of costing informs the final budget reflective of the input (direct or indirect) and the projected revenue, which is then drawn to support the advocacy for increased seed capital allocation to the facility in driving this process. Sources of seed capital for the revolving fund are diverse and include administrative budgets, fees, and donations. It is this continuous and well-planned process that ensures sustainable service delivery.

Intervention

GH Minna is a secondary care hospital with a 300 bed capacity and a weekly general outpatient department (GOPD) patient flow of over 800 clients. PEPFAR began support for the provision of comprehensive HIV services in April 2007. In line with the PEPFAR phase I emergency response model, a designated laboratory was established, funded, equipped, and managed with PEPFAR funding to provide standardized laboratory support services at no cost to PLHIV only.⁴ However, general laboratory services, which provided a fee-for-service system using manual laboratory platforms, were not integrated into the PEPFAR laboratory program, creating parallel systems. With the drive towards ensuring country ownership and sustainability of PEPFAR programs, the Pro-ACT project began support for reorganizing the LRF in the facility in January 2014.

Pro-ACT developed a concept paper on LRF that detailed the purpose and benefits of a viable revolving fund program. Next, the project facilitated a stakeholder

engagement workshop to identify and generate a test menu for each of the equipment platforms in accordance with manufacturer specifications, and a costing exercise to determine the cost per test for each of the test menus. The Pro-ACT project team guided the revolving fund management team and worked with the health facility to forecast and quantify commodities. This information informed the laboratory budget.

Pro-ACT also supported the laboratory to improve documentation to capture relevant service data that would enhance future forecasts for both commodities and budgets, and to provide data for decision making. The laboratory is now able to project how much it costs to provide laboratory services at no cost to PLHIV.

To achieve results and ensure ownership, health facility management and laboratory teams were, in February 2014, supported to make decisions to structure the LRF and direct funds towards their laboratory priority needs. For effectiveness, transparency, and accountability, the LRF was structured to encompass management of the fund,

internal control systems, and accounting responsibilities. Laboratory teams were encouraged to document challenges that arose during implementation of the revolving fund, including promoting the use of innovative and efficient technologies, and maintaining appropriate fees for covering the costs of providing and supplying laboratory commodities.

These processes were managed alongside the structural and managerial integration of services. MSH, in collaboration with the Niger State Ministries of Health (SMoH), conducted a pilot assessment on the current status of integration of HIV services into routine health care delivery system in the facility. Pro-ACT's approach to integration included:

1) Physical integration

Automated laboratory platforms were redeployed from the designated PEPFAR laboratories into a single laboratory unit where hematology, chemistry, and immunology samples are analyzed. In order to set the foundation for this integration, consultative meetings were



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For effectiveness, transparency, and accountability, the Laboratory Revolving Fund was structured to encompass management, internal control systems, and accounting responsibilities.

held with the hospital management committee (HMC), and a baseline needs assessment for infrastructure and human resources was conducted. Meetings with PLHIV peer groups and local partners were conducted to promote buy in, mobilize support and commitment, and ensure accountability and sustainability. Pro-ACT also provided training and re-orientation on the benefits of integration and good laboratory practices for six staff who operated the automated laboratory platforms in the designated PEPFAR laboratories, and 64 other staff who supported general laboratory services.

2) Management integration

Pro-ACT convened several consultative meetings with the SMOH, the Hospital Management Board (HMB), and the HMC of the GH Minna. During the meetings, they discussed modalities for a sustainable and holistic integration of PEPFAR-supported laboratory services into mainstream laboratory services. A key component of the

management integration involved the evaluation of the existing LRF model and advocacy visits to the HMB to increase the funding ceiling

3) Costing:

To appropriately determine laboratory services fees, a review of various equipment platforms in the state for hematology and clinical chemistry services was conducted. Platforms identified are presented in Table I.

During a meeting with heads of department of laboratory services across all the GH in Niger States, a generic assumption template was developed for rational costing of reagents and services. This information was used to advocate for an increased seed grant for the revolving fund program. The following cost assumptions and the volume of tests conducted during a one year period were used to determine the cost per test:

- I. Current reagents cost based on MSH procurement cost surveys

Table I. Platforms identified

S/N	Platform	Services	
		Hematology	Clinical Chemistry
1	Abacus Junieur	✓	
5	Selectra Pro		✓
6	Reflotron Plus analyzer		✓
11	Spectrophotometric method		✓

2. Current consumables cost
3. Current equipment maintenance/repair cost
4. Cost of fueling generating sets that serve as back-up during power failures
5. Utility cost
6. Training
7. Infrastructure upgrade
8. Volume of test assays performed
9. Number of patients seen

Personnel costs (e.g., salaries and allowances) and facility rental costs were not included, as these costs are supported by the government. A simple budgeting template using Excel was designed and shared with the team, with various expenditure headings to facilitate their budgeting process. Budget elements included:

1. Line item coding
2. Sub headings (item description)
3. Justification
4. Budgeted cost
5. Actual expenditures
6. Developing budget assumptions

Results

As a result of integrating services at GH Minna, the laboratory department now provides services to all in- and out-patients, as well as referral services for specimens received from other health facilities and laboratories. Key

results of the LRF strengthening intervention include:

- Targeted advocacy contributed to a **41% increase in LRF seed capital** at the GH Minna, facilitating the provision of laboratory services to HIV positive and non HIV positive clients (Table 2).
- The use of automated laboratory platforms **reduced the turnaround time** for the receipt of laboratory results from 12-24 hours to less than 2.5 hours, improving efficiencies and timely decision making.
- The number of HIV positive and non HIV positive **clients who received haematology services increased** from 11,807 in the six months prior to the intervention, to 13,253 six months after the intervention.
- In the six months after the intervention, 11,005 HIV positive and non HIV positive **clients accessed clinical chemistry services from the facility**, which had no previous records due to faulty equipment.
- Despite the discontinuation of PEPFAR funding support for clinical chemistry and hematology investigations in October 2014, **PLHIV have continued to access laboratory services at no cost**, due largely to the successful implementation of the LRF program.
- The **cost of laboratory services have remained stable**, due largely to the successful implementation of the LRF program supported through MSH technical assistance efforts (Table 3).

Table 2. Increase in Lab Seed Capital, General Hospitals

Facilities	Previous Lab Seed Capital		Revised Lab Seed Capital		Percent Increase
	Naira	USD	Naira	USD	
Minna	N 700,000	\$3,535	N 1,700,000	\$8,585	41%
Suleja	N 500,000	\$2,525	N 1,300,000	\$6,565	38.5%
Bida	N 30,000	\$152	N 80,000	\$404	37.6%
Kontagora	N 400,000	\$2,020	N 1,000,000	\$5,050	40%
Kagara	N 40,000	\$202	N 320,000	\$1,616	12.5%

LONG TERM BENEFITS OF THE LABORATORY REVOLVING FUND MODEL

The following long-term benefits of the LRF model were apparent through program implementation in Minna:

- Facilitates the delivery of sustained and integrated laboratory services initiated under the PEPFAR program
- Provides effective, timely, safe, and high quality laboratory services to those who need them, when they need them
- Facilitates the procurement of strategic public health supplies at a reduced cost by taking advantage of the potential savings offered by economies of scale
- Enhances the continuous and timely availability of supplies to meet clients' needs
- Improves supply planning capabilities of the laboratories, hospitals, and SMoH
- Promotes the implementation of appropriate quality management systems for the supplies procured and deployed at service delivery sites

Table 3. General Hospital, Minna - Current Cost for Lab Test (April 2015)

Lab Test	Cost Using manual methods pre-lab integration	Cost Post-lab integration and strengthening of LRF model	Automated platform*
Hematology (FBC)	\$3.75	\$5**	Abacus Junior
Chemistry (EUCr)	\$4.4	\$4.4	Selectra-Pro
Liver Function Test (LFT)	\$5.6	\$5.6	Selectra-Pro

Cost per test based on an exchange rate of \$1 USD=160 naira

*Automated platform refers to the different types of equipment platforms procured and deployed in the laboratories with PEPFAR funds.

**Generally, manual hematologic methods cost far less as compared to automated methods, which explains the slight increase in cost. The fee for laboratory services was arbitrarily fixed. Part of our support was to help do an appropriate costing based on the parameters we listed earlier. Therefore, cost for manual method of assay was different from cost of providing same service using an automated platform.

We had some type of laboratory revolving fund before PEPFAR activities in this hospital. With PEPFAR support we relaxed, and since PEPFAR no longer gives us reagents for hematology and clinical chemistry, we had to strengthen the existing LRF, manage the resources more efficiently and continue to provide basic laboratory services for our people, because this is the only way to sustain what we are doing.

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Conclusion

Transparency, innovation, flexibility, and a focus on results must be the hallmarks of supporting the Government of Nigeria to achieve sustainable laboratory services. The LRF mechanism is a promising strategy for strengthening country ownership of PEPFAR supported laboratory programs in the country and will no doubt go a long way to sustain laboratory services in Nigeria if properly funded and managed. Given the success of implementing the LRF in GH Minna, government at all levels looking to sustain laboratory services in the face of dwindling national resources could adapt this model for roll-out in the country and in other African countries in order to increase access to laboratory services. ■



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ENDNOTES

1. Partnership Framework on HIV/AIDS. A Memorandum of Understanding between the Government of Nigeria and the United States Government to Fight HIV/AIDS in Nigeria. 2010-2015; pp. 6.
2. Franklin, AL. and JW. Douglas, Revolving Funds as Budgeting Tools: An Examination of Oklahoma State Agencies. State and Local Government Review. Spring 2003 vol. 35 no. 2 90-101.
3. Ridde, V. Is The Bamako Initiative Still Relevant for West African Health Systems? International Journal of Health Services, Volume 41, Number 1, 175-184, 2011.
4. PEPFAR has moved from phase 1 (2003-2007) – the emergency response phase that brought HIV prevention, treatment and care services to millions to phase 2 (2008-2012) – the sustainability phase, where PEPFAR worked with partner countries among other partners to address the epidemic. The program is now in phase 3 (2013-present) and is focused on transparency and accountability for impact, as well as accelerating core interventions for epidemic control. Source: <http://www.pepfar.gov/about/strategy/>.

Additional information can be obtained from:
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