ANNUAL PERFORMANCE REPORT YEAR 2

Strengthening of Laboratory systems to improve access to quality and HIV/AIDS services through partnerships and innovation in PEPFAR supported countries

1 NU2GGH002493-02

BACKGROUND INFORMATION				
Project start & end dates	Start:	30 September 2023	End:	29 September 2028
Reporting period	From:	01 June 2024	To:	30 September 2025
Cooperative Agreement Year	Year Two			
Date report submitted				
Name of primary person who consolidated this report	Name:	Davis Ashaba dashaba@afenet.net	Position:	Project Coordinator
Name of primary person for correspondence relating to this project	Name:	Prof Olayinka Adebola	Position:	Grant Project Director
	Email:	debolaola@yahoo.com		

Executive Summary

The African Field Epidemiology Network (AFENET) through its AFENET-Lab initiative received funding from the Centers for Disease Control and Prevention (CDC) to support strengthening of Laboratory systems to improve access to quality and HIV/AIDS services through partnerships and innovation in PEPFAR supported countries. From October 01,2024, to September 30, 2025, AFENET has implemented several laboratory-strengthening and significantly strengthened HIV-related laboratory systems across Africa, the Caribbean, and the Dominican Republic. The project enhanced diagnostic capacity, expanded external quality assurance (EQA) programs to over 100 laboratories, and trained thousands of laboratory professionals. It supported the development of digital tools like the ePT and RTCQI platforms, advanced HIV drug resistance surveillance, and facilitated ISO 15189 accreditation efforts. These achievements have directly contributed to improved HIV diagnosis, treatment monitoring, and progress toward the UNAIDS 95-95-95 targets.

Laboratory strengthening activities implemented include:

1. Support implementation of HIV Serology activities
2. Strengthen HIV Viral load and Early Infant Diagnosis activities
3. Strengthen Laboratory Information management systems through development, updating, and maintenance of open-source solutions for lab informatics.
4. Support implementation of Population-Based HIV Impact Assessment Laboratory Fellowship Program (PHIA) fellowships in selected countries.
5. Provide Technical support to Angola MoH to 1) strengthen point of care (POC) testing (including rapid testing, and POC VL and EID) at central level, provincial, and municipal levels, 2) Fully implement viral load system management (VLSM), including dashboards for disaggregated data visualization, in central and regional laboratories.
6. Providing Technical Assistance (TA) to the PEPFAR supported sites in Dominican Republic to achieve the 3rd 95 of the cascade and support the implementation of Recency Testing in 23 PEPFAR-supported sites, to enhance and guide HIV index testing activities.
7. Support strengthening of laboratory Management Towards Accreditation (SLMTA)
8. Facilitating implementation of continuous quality improvement initiatives for TB diagnostics.

This report summarizes the impact, innovations, and lessons learned, offering a roadmap for sustaining and scaling laboratory systems strengthening in resource-limited settings. Reports are presented by region, scope of work, highlighting activities, achievements, challenges encountered, solutions, best practices, lessons learned and recommendations.

Acronyms

AFENET	African Field Epidemiology Network
ART	Anti-retroviral therapy
CD4	Cluster of Differentiation 4
CDC	Centers for Disease Control and Prevention
CQI	Continuous Quality Improvement
CONABIOS	Consejos Nacional de Bioética en Salud
DATIM	Data for Accountability, Transparency and Impact Monitoring (PEPFAR)
DBS	Dry Blood Spot
DH	District Hospital
DNA	Deoxyribose Nucleic Acid
DTS	Dried Tube Specimen
ECHO	Extension of Community Health Outcomes
EID	Early Infant Diagnosis
EQA	External Quality Assessment
EQAS	External Quality Assessment Scheme
HEID	Health Center IV
HIV	Human Immunodeficiency Virus
HIV-RT	HIV Rapid testing for HIV
MoH	Ministry of Health
NHRL	National HIV Reference Laboratory
PEPFAR	President's Emergency Plan For AIDS Relief
PEEC	Programa de Evaluación Externo de la Calidad
PMTCT	Prevention of Mother To Child Transmission
PT	Proficiency Testing
QMS	Quality Management System
RTCQI	HIV Rapid Test Continuous Quality Improvement
SLMTA	Strengthening Laboratory Management Toward Accreditation

1.1 Successes/ accomplishments

SEROLOGY

Activity One: 1.Field validation of the HIV Triplex assay using the 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) samples.

The objective of this activity was to validate further the performance of the Triplex assay for HIV diagnosis, serotyping, and recency and compare and estimate HIV incidence and prevalence obtained from multiplex testing with the reference results from the NAIIS survey. This assay is robust and highly reproducible, has a low sample volume requirement, higher throughput, less processing time, and rapid results.

Achievements:

- **Phase 1 (July – August 2024)**

Using the multiplex bead assay system (MBA), 25,000 plasma samples were tested at the MBA laboratory situated at the NCDC National Reference Laboratory, Abuja Nigeria. Before pulling the samples from the National Reference Laboratory (NRL's) biorepository, two NASCP lab team members were trained in a 2-day onsite training on the principles of the MBA assay, operation of the Luminex MAGPIX, and laboratory data management and analysis. The NRL's biorepository team maintained the integrity of all specimens during sample retrievals, specimen tube volume was verified and returned to the proper storage location after the completion of the testing.

For the MBA assay, all MBA lab testers participated in the multiplex training and competency assessment. The laboratory procedure for the assay involved buffer preparation, bead plate preparation, control and specimen dilution and incubation, secondary antibody incubation, and analyzing the beads. Testing was for concluded within five weeks and confirmatory testing was performed on some identified samples based on the preliminary data.

After the review, a total of 1,016 samples will be further subjected to additional testing (DNA PCR, ELISA, and ARV metabolite analysis).as per the protocol.

AFENET further supported the successful preventive maintenance ofMagpix machines in the MBA lab. Six (6) out of the seven (7) Magpixes were successfully functional and also passed calibration/verification.

- **Phase 2 (January 2025 -March 2025)**

In the second phase of testing, a percentage of the initial 25,000 screened samples by the MBA technique were subjected to testing using the rapid tests as indicated in the national HIV testing algorithm in Nigeria (Determine HIV, Unigold, and Stat-Pak), the Geenius HIV ½ confirmatory assay, and the Genscreen HIV ELISA tests.

Testing was halted due to the stop work order in January 2025. We resumed testing upon clearance and completed all testing in March 2025. For quality assurance purposes, 10% of all the samples tested were retested using a similar platform and the results were compared to the verify initial results from the first run.

- **Phase 3: Molecular Testing DNA Polymerase Chain Reaction (April -May 2025)**

In the third phase of testing, Dried Blood Spots (DBS) of the same samples used for phase two were analyzed using the Xpert HIV-1 Qual which is a qualitative test capable of early identification of HIV infections up to 7-10 days before seroconversion and is based on the GeneXpert technology, Xpert HIV-1 Qual provides a total nucleic acid-based test for RNA and proviral DNA, which will be carried out at the national Reference Laboratory.

A total of 1,014 samples were tested using Xpert HIV-1 qualitative test and all tested negative for HIV -1.

Result	No of Globally Unique Sample ID
HIV-1 NOT DETECTED	1014
Total no of Samples	**1014**

Table: DBS HIV-1 DNA Qualitative Assay results

- **Phase 4 Determining the presence of antiretrovirals and HIV infection**

Specimens that are found to be positive on the HIV Triplex multiplex assay will also be tested for the presence of ARVs using the established Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS) method to determine simultaneously the presence of ARVs as outlined in the Nigeria national treatment guidelines. The methods will detect both first line and second-line ARVs; over 90% of HIV patients on treatment or receiving prophylaxis are on the first-line regimen.

Status: Material Transfer Agreement between collaborating institutions has been developed and is awaiting approval for release and transfer of DBS to CDC HQ for ARV testing because Nigeria does not have the capacity to test for ARVs. Samples will be shipped on dry ice for plasma specimens and, if DBS specimens are required, they will be shipped on cold packs.

Activity Two: Characterization of Inconclusive Samples According to Rapid Test for Recent Infection (RTRI) In Four African Countries

Following the development of a single test device that can simultaneously diagnose HIV infection and differentiate between recent and long-term HIV-1 infection, many other commercial Rapid Test for Recent Infection (RTRI) kits have been developed. Currently, recency guidelines indicate RTRI testing should only be conducted on specimens determined HIV-1 positive by a national HIV testing algorithm, so in the event a valid RTRI test returns a negative HIV verification line result on the Asante, it is considered “inconclusive”.

Status of Project Activities

Implementing Countries:

At the project planning stages, the five countries involved in this implementation activities were Malawi, Nigeria, Uganda, Kenya, and Cameroon. However, the US CDC and AFENET agreed to exclude Cameroon from the implementation due to nonresponse and lack of commitment to the project implementation over a period of one year of engagement.

Sample Size

The ideal sample size is at least 110 archived RTRI HIV-1 recent or long-term inconclusive samples from each country. Each specimen with at least 1ml of serum or plasma, and dried blood spot specimen (DBS).

Nigeria

The amended RTRI inconclusive project protocol received approval from the National Health Research Ethics Committee (NHREC) on April 30th, 2025, and further approval for the release of specimens from National AIDS and STDs Control Programme (NASCP). The protocol was subsequently unloaded onto the P2 platform of the US CDC for ethical clearance and is currently awaiting approval.

Of the 110 expected specimen, a total of 47 plasma specimen were available/retrieved for RTRI inconclusive testing. Out of the 47 specimens tested on the Asante recency assay, 36 (78%) confirmed as RTRI inconclusive and 9 (20%) confirmed as recent as indicated in figure 1. Among the HIV 1/2 positive samples, a total of 8 (40%) and 5 (25%) were detected as HIV 1 positive and HIV 1 indeterminate respectively on Geenius. Figure 2.

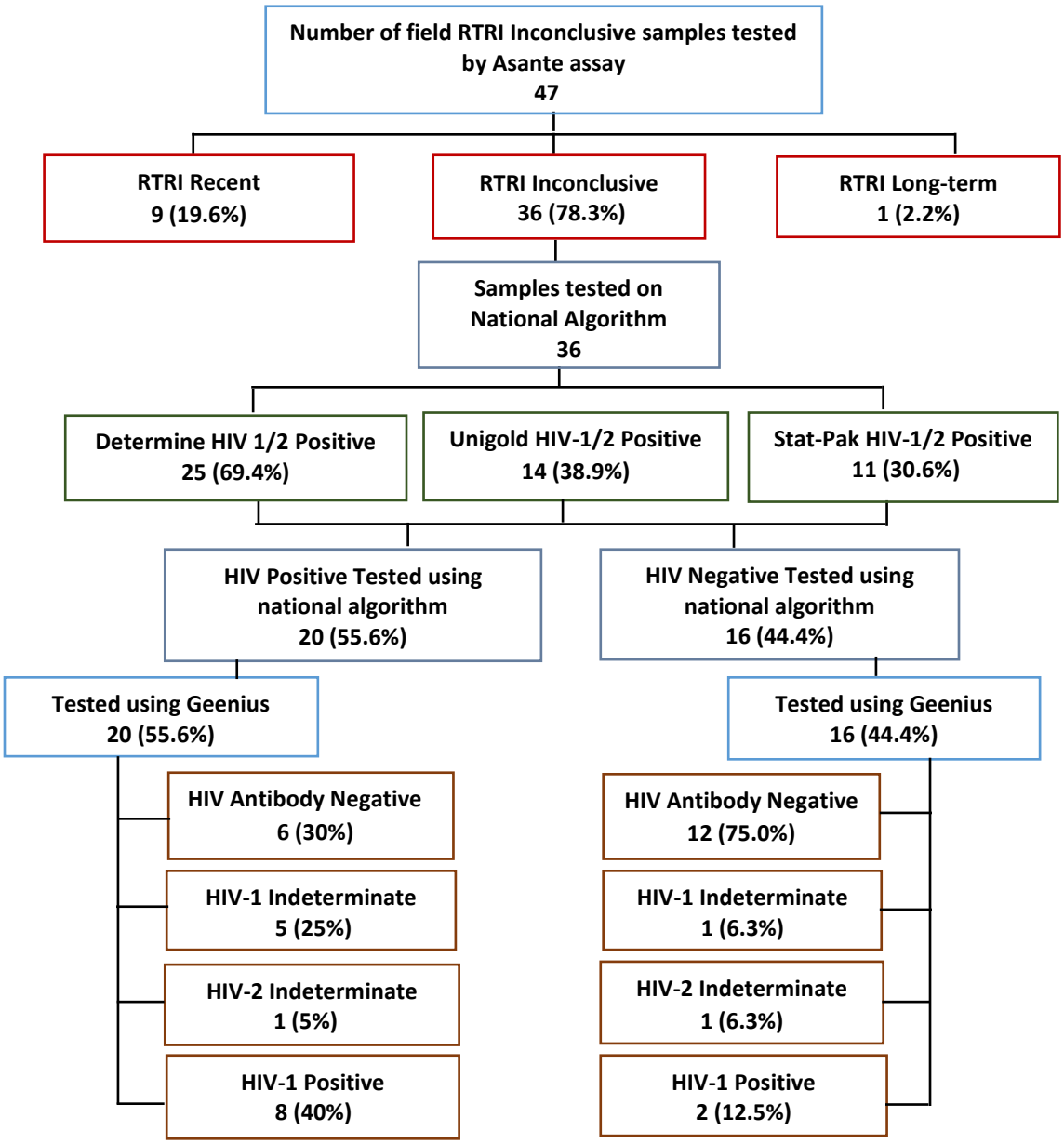


Figure 2. Flow chat of RTRI inconclusive specimen results on Asante recency, National HIV testing algorithm, and Geenius assays, Nigeria, August 2025

Uganda

A total of 985 specimens were identified as field tested RTRI inconclusive, out of which 910 (92.4%) were retrieved from biorepository for testing with 75 (7.6%) specimens excluded due to hemolysis and insufficient sample volume. This activity is still ongoing.

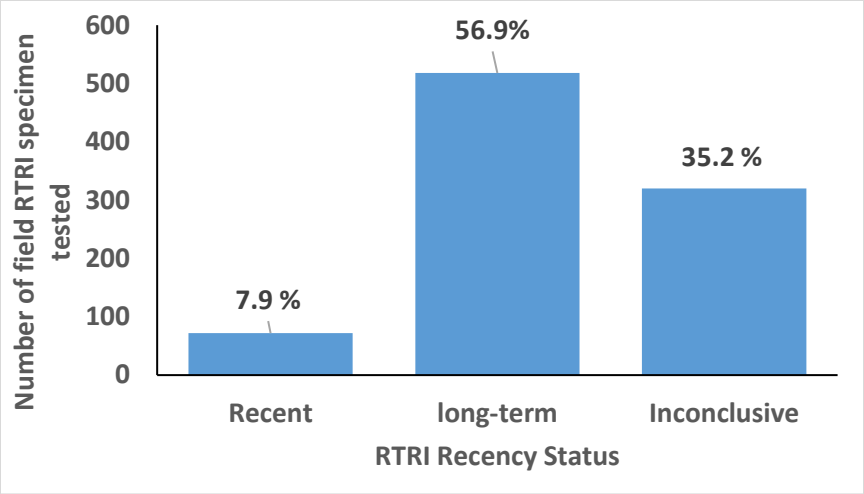


Figure 3: Results of RTRI inconclusive specimen tested on Asante recency assay to confirmation recency status, Uganda, September 2025

Malawi

I. The team agreed on a prospective sampling of voluntary participants to archive the 110 RTRI inconclusive samples. This is because, Malawi does not have archived RTRI inconclusive samples as part of their routine National HIV testing protocols.
II. Approval for the RTRI inconclusive project amendment protocol has been received from the local IRB; however, it is still awaiting from the US CDC ADS.
III. AFENET released a total of $85,725.00 to our sub-contracted implementing partner Malawi AIDS Counselling and Resource Organisation (MACRO) which has completed (100%) procurement of reagents and consumable for the project implementation.
IV. Training project support staff and implementation of the project on schedule awaiting protocol approval from US CDC ADS.

Kenya

A total of 165 (0.3%) field specimen were detected as RTRI inconclusive out of 58,040 specimen tested from the Kenya AIDS indicator survey (KAIS) and the Kenya population-based HIV impact assessment (KENPHIA). Of the 92 RTRI inconclusive, 54 (58.7%) were confirmed HIV positive after a repeat test on the HIV national testing algorithm with 34 (63.0%) and 12 (22.2%) being confirmed as HIV-1 positive and HIV-1 indeterminate respectively using the Geenius test as shown in Figure 1.

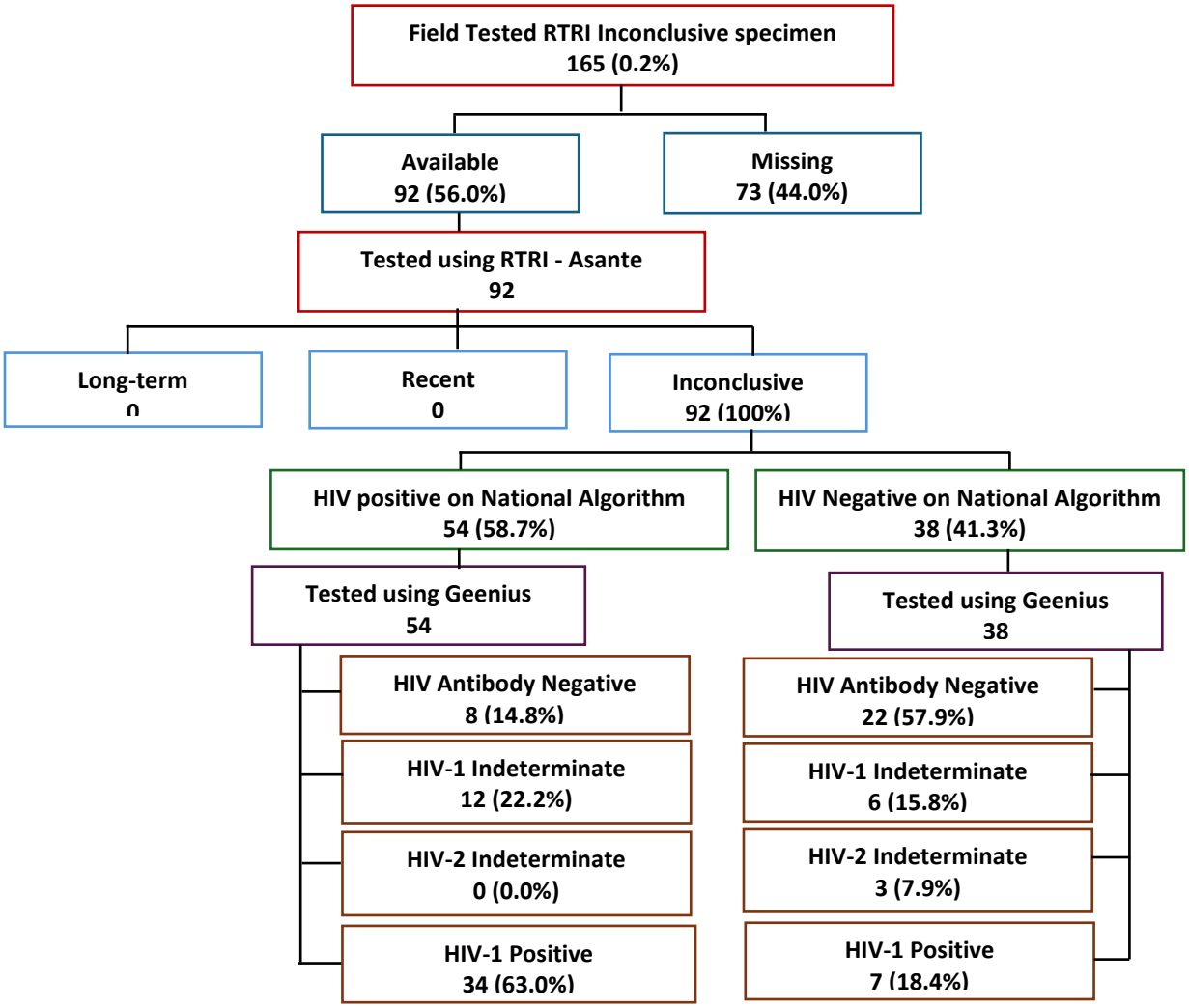


Figure 1: Flow chat indicating results of specimen tested using RTRI Asante recency, National HIV testing algorithm and Geenius assays, Kenya, January 2025

Challenges

I. Delayed approval processes at both country level and US CDC ADS
II. General delay in the amendment or adaptation of the umbrella protocol, where in the case of Malawi the amended protocol was incorporated with other studies, which had to be finally separated due to ethical issues.

Activity three: 2. Cameroon Population-Based HIV Impact Assessment (CAMPHIA) Study Field Validation of new Bead-Based Multiplex Assay for HIV Diagnosis, Serotyping, and Rapid Test for Recent Infection Detection Assay for HIV Surveillance in Cameroon

The HIV Triplex assay was developed by CDC ILB and has demonstrated robust performance according to in-house and field validation data in Nigeria and Ivory Coast. The ability of the assay to provide simultaneous HIV diagnostic, typing and recency characterization data can greatly improve and streamline testing in

surveillance. A direct comparison of this test against the assays used in the surveys can help provide cost/benefit assessments to inform its potential use in future population-based surveys. The main objective of this project was to validate the performance of the bead-based Multiplex Assay in a survey for the prevalence of HIV and the detection of recent infection to estimate HIV-1 incidence.

Achievements

- Protocol development: CDC HQ, Cameroon CDC, NPHL and AFENET collaboratively developed the study protocol. The protocol has been submitted for approval through the local Ethics Board and CDC ADS office.
- Initial kick-off meeting with all relevant stakeholders at the National Public Health Laboratory, Yaounde, Cameroon, where testing will take place. A laboratory space was identified for set up, and administrative personnel has been designated by AFENET to work within the premises. A timeline was developed for all activities. However, the delays in protocol approval have affected their implementation.
- Equipment and supplies from the Nigeria study have been designated to be re-purposed for the study in Cameroon. They are stored at the AFENET Nigeria office storage.

Activity Four: Acute HIV Infection Screening in Nigeria Using Determine™ HIV Early Detect Rapid Test Kit

This study aimed to assess the utility of fourth-generation rapid tests in the detection of Acute HIV Infection in Nigeria. Also, this study aims to provide important information to the Nigerian Ministry of Health (MOH) on early HIV diagnosis and early initiation of patients on life-saving ART with the use of 4th generation HIV rapid tests and help the MOH assess the cost of integrating the test into existing testing algorithms. This will be conducted through the retrospective and prospective screening of the National Integrated Biological & Behavioral Survey (IBBSS 2020) stored HIV Negative samples and samples collected from KP clients who tested HIV negative same day in selected One-Stop-Shops respectively. The screening will be for the presence of free p24 Antigen using the Determine™ HIV Early Detect RTK.

Status: AFENET has supported and completed procurement of 70 units (100 tests/kit) of Determine HIV Early Detect test kits and EQA controls.

ANGOLA

Through PEPFAR support, AFENET – LAB has the main goal to assist Angola Ministry of Health in all HIV programs, namely the first lady´s initiative “Born Free to shine”. In FY24, AFENET implemented the following activities in supported 22 health facilities across four Angola Provinces namely Benguela, Lunda-Sul, Huambo and Cunene.

For reporting purposes, we present bellow the specific objectives arranged in the following scopes outlined for COP24:

1. Quality Improvement of POC testing
2. Expand HIV Viral Load Testing (HIV-VL/EID)
3. Improve Monitoring & Evaluation for Viral Load and Early Infant Diagnosis
4. Strengthening laboratory network

SUCESSES AND CHALLENGES

The successes and challenges between October 2024 to March 2025, will be resumed below for each scope.

1. SCOPE: Quality Improvement of POC testing

1.1 Training and supervisions

AFENET mentors have been providing in-service training in accordance with SIMS assessment requirements, including annual refresher courses to support continuous quality improvement in HIV testing. Between October 2024 and March 2025, AFENET conducted 82 trainings led by junior mentors at health facilities and 3 trainings facilitated by senior mentors at the provincial level.

As part of mentorship activities, junior mentors carried out daily supervision visits to health facilities, monitoring testing procedures. In the first two quarters of FY25, they completed a total of 516 supervision visits and conducted 119 competency assessments.

Senior mentors conducted quarterly visits to the four provinces to oversee routine laboratory activities and conducted 22 internal assessments to the facilities laboratories. During these visits, they also held 15 meetings with facilities and provincial health department directors to present the results of AFENET's technical assistance, discuss challenges, and provide recommendations.

Figure 1: Junior mentors performing supervision visits of sample collection in CMI Caála Huambo (A) and laboratory records in CS Graça Benguela (B).

1.2 Implementation of VL/EID at POC testing

In the first 2 quarters of FY25 AFENET supported MoH with the national pilot for VL testing in GeneXpert platforms. The selected health facilities were Hospital Municipal Cáala - Huambo and Hospital Municipal de Saurimo (ATIP) - Lunda Sul. The pilot started on August 2024, and the detailed report was submitted to CDC with activities, results, challenges and recommendations.

As part of the implementation of viral load (VL) testing on the GeneXpert platform, AFENET provided comprehensive laboratory technical assistance to INLS/MINSA at both central and provincial levels. Key activities included developing and updating quality assurance packages, supporting comparative studies between GeneXpert and Abbott platforms, acquiring and testing verification and EQA panels, and delivering targeted training for laboratory and clinical staff. In the provinces of Huambo and Lunda Sul, AFENET conducted situational analyses, facilitated the rollout of VL testing, provided hands-on training and supervision, monitored testing quality and data management, and ensured the supply of essential materials and reagents. Additionally, AFENET mentors supported troubleshooting, process improvements, and

coordination with local health authorities to strengthen VL testing capacity and ensure reliable, high-quality results across supported facilities.

The implementation of GeneXpert VL testing at HM Caála in Huambo and at ATIP of H. Municipal de Saurimo in Lunda Sul provided a valuable alternative for monitoring antiretroviral treatment in HIV patients, addressing previously underutilized equipment and demonstrating the capacity to meet local testing demands. Over the six-month pilot, productivity varied due to factors such as human resource availability, workflow management, and occasional shortages of supplies and reagents. Despite these challenges, GeneXpert significantly reduced laboratory response times compared to traditional reference laboratory testing and even outperformed nearby point-of-care options.

In the reporting period AFENET also provided technical assistance to CDIA-AISA for implementation of HIV viral load testing in Xpert at a military laboratory in Catumbela (*Clínica Regional Sul Região Aérea Sul/ Força Aérea Nacional*)
Concerning the testing in mPIMA equipment, AFENET continued to support the implementation of this methodology in Lunda Sul and Cunene provinces despite the challenges with equipment. Key activities included monitoring and reporting service interruptions, coordinating with YAPAMA for equipment repairs, facilitating the transport of malfunctioning mPIMAs to Luanda for servicing, and supporting the delivery of replacement equipment and supplies. AFENET also provided ongoing monitoring of VL/EID POC testing performance and managed stock levels and reporting to ensure uninterrupted testing services in both provinces.

Figure 3 summarizes the productivity of point-of-care (POC) testing using both mPIMA and GeneXpert machines up to the second quarter of FY25. In the initial years, the number of available devices increased, leading to a corresponding rise in testing productivity. However, in FY24, mPIMA machines began experiencing technical issues, and by FY25 only 3 out of the original 7 devices remained operational. After the introduction of 2 additional GeneXpert machines for VL testing, we observed that in the first two quarters of FY25, overall POC testing productivity reached only 32% of the previous year's level.

As shown in Figure 4, peak point-of-care (POC) testing was reached in FY23, accounting for 38% of total tests. Since then, this percentage has declined primarily due to reduced equipment availability, forcing health facilities to increasingly depend on referring samples to central laboratories for testing.

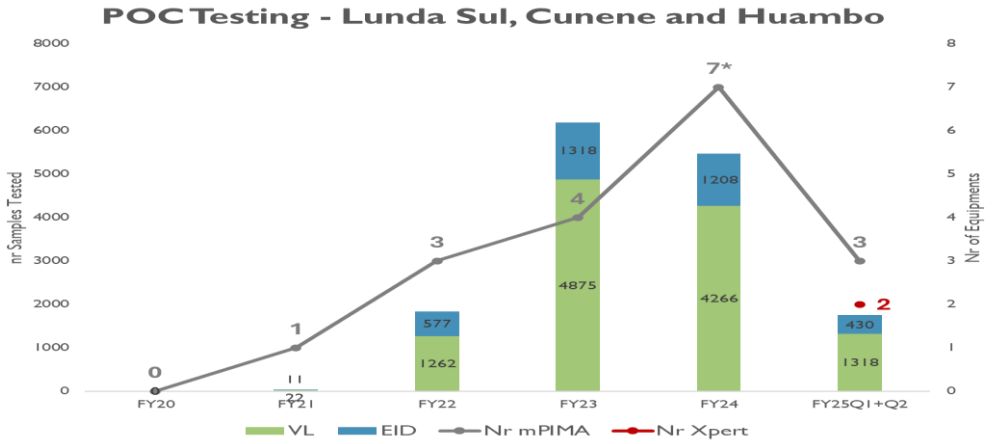


Figure 2: VL/EID POC testing productivity in Lunda Sul, Cunene and Huambo PEPFAR supported facilities.
The figures show the total productivity pattern after POC implementation in these 3 provinces. To note that the FY25 column only includes 2 quarters.

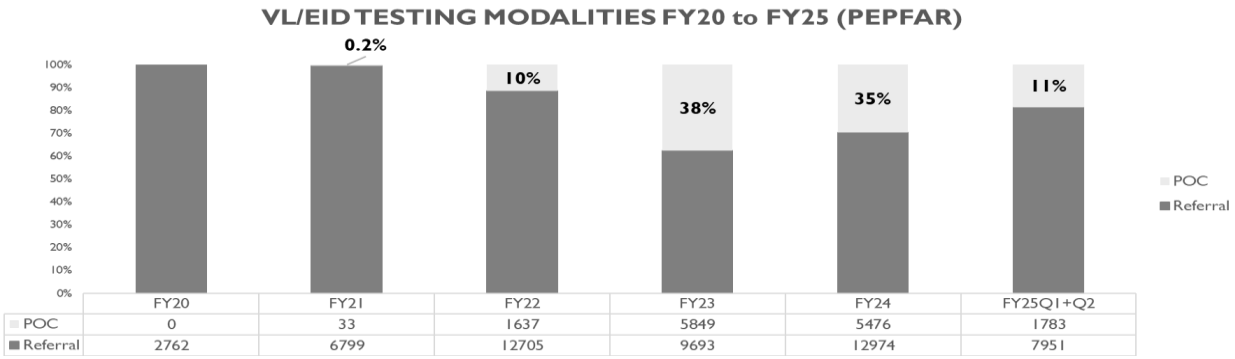


Figure 3: Comparison between samples tested in POC vs the samples sent to referral testing in Regional Laboratories. The POC testing has been affected by equipment downtimes and in the last 2 quarters it only covered 11% of testing demand.

External Quality Assurance Programs for POC

To ensure the quality of HIV testing, and to comply with LAB_PTCQI indicator reporting on DATIM, AFENET is implementing Proficiency Testing Schemes for POC testing in the 4 provinces for the following tests: HIV-RT; VL/EID and MTB/RIF.

For **HIV-RT**, AFENET develops a Proficiency Testing (PT) program which includes producing, distributing and analyzing an annual panel of HIV-DTS samples. This type of program was developed in the past with INIS but recently it is under INLS responsibility.

The HIV-RT EQA FY24 scheme was conducted in a larger number of testing sites including civilian, military and community sites supported by PEPFAR. From the 161 enrolled, 153 responded and 145 achieved the passing score of 80%. The results are shown in the picture below:

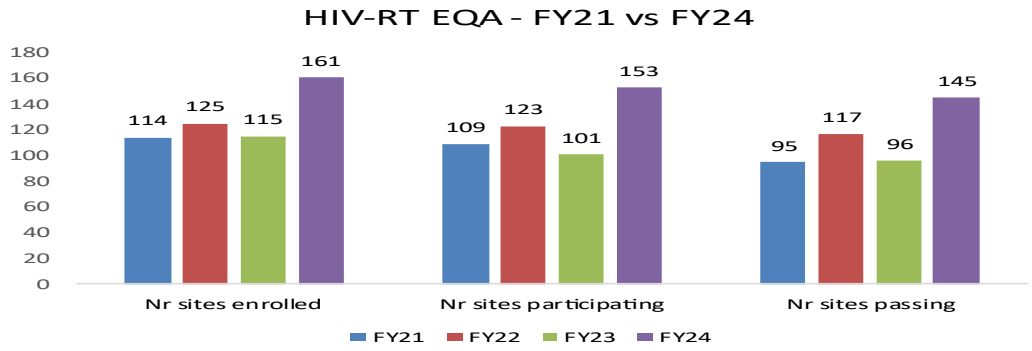


Figure 4: HIVRT-EQA Proficiency results over 4 years. *The latest EQA was conducted in 161 HIV-RT testing sites, 153 participated and 145 passed.*

Concerning EQA for **VL/EID in POC**, AFENET enrols the POC testing sites in SmartSpot EQA schemes for mPIMAs and GeneXpert machines. These EQA schemes comprise 3 annual cycles. The 3rd cycle of 2024 (2024-03) was provided in November 2024, and the 1st cycle of 2025 (2025-01) was scheduled for May 2025.

The 2024 results are illustrated in Figure 6. In mPIMAs the EQA participation and EQA results have been affected by VL/EID reagents stockouts and equipment errors. In GeneXpert since the VL pilot only started late August, they only participated in the 2024-03 panel, but the results were satisfactory despite the lack of maintenance from the equipment provider.

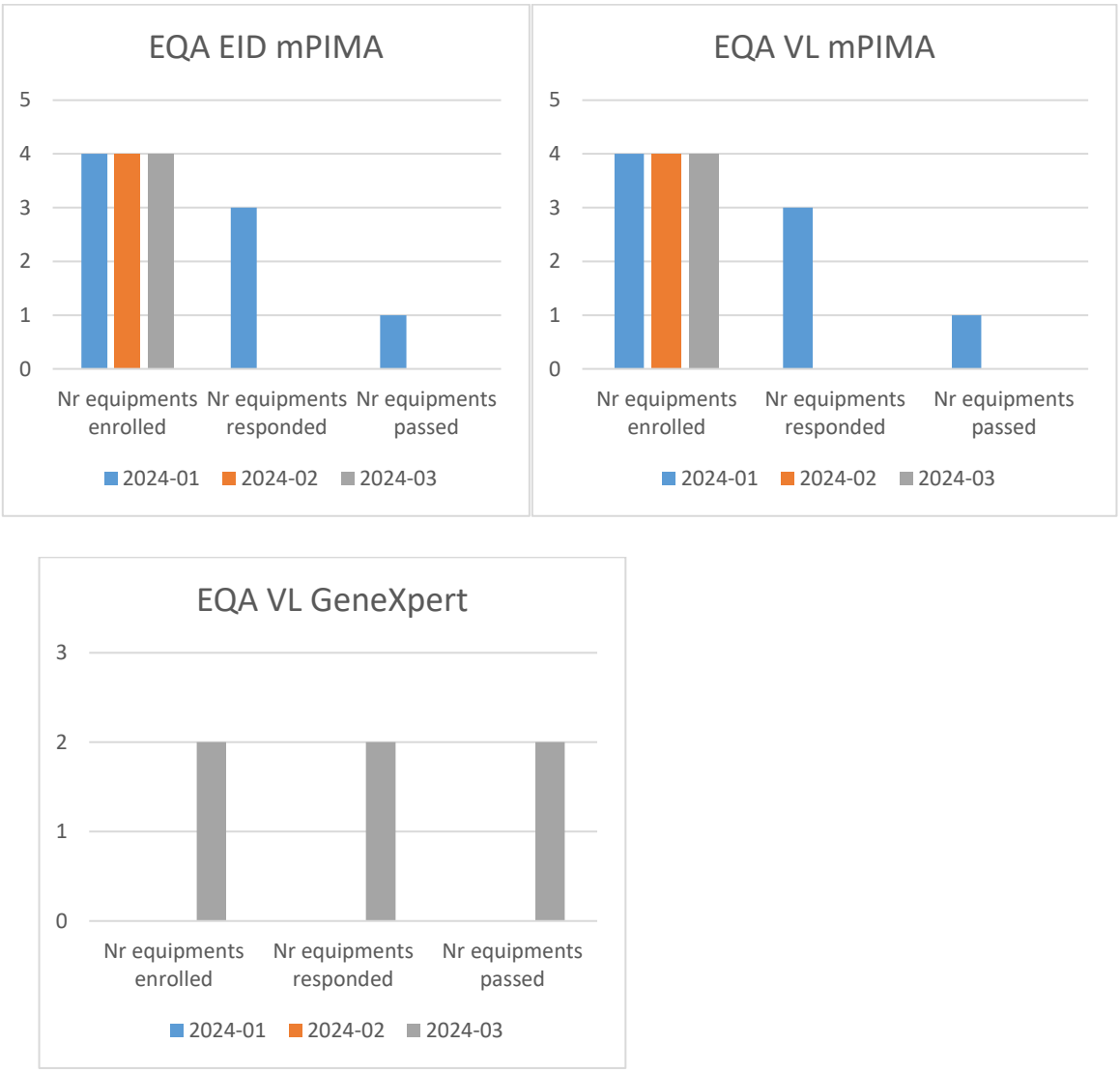


Figure 5: EQA results for VL & EID testing at POC sites both in mPIMA and GeneXpert machines.

As for **MTB/RIF** in FY24Q1 we conducted the CDC panel 2024-B at PEPFAR supported sites both at civilian and military PEPFAR supported labs, and other sites supported by UNDP. In total 19 sites participated and AFENET technical assistance included EQA distribution, training and corrective actions to participating sites. Unfortunately, since the stop work order, we have limited access to the results platform.

Major challenges of Scope 1 were:

- Stockouts of HIV rapid tests in particular for Bioline test
- Deficient supply chain of mPIMA reagents at POC sites
- Equipment problems and availability of mPIMA machines

2. SCOPE: Expand access to Viral Load Testing

In addition to POC testing available in some health facilities, VL/EID testing is currently available in the 22 PEPFAR supported facilities by referring samples to central laboratories based in Luanda and Benguela. Table 1 resumes the current network for VL/EID testing.

Table 1: VL/EID testing modalities in PEPFAR supported sites.

Provinces	POC Testing for VL/EID at sites	Referral testing to Central labs
Benguela	*(not implemented)*	DBS/Plasma to Benguela Regional Lab
Cunene	• mPIMAs at HG Ondjiva and HM Ombadja	DBS to Benguela Regional Lab
Lunda Sul	• mPIMAs at Maternidade and HM Saurimo • Xpert in ATIP (VL only)	DBS to Luanda CDLV Lab
Huambo	• Xpert at HM Caála (VL only)	DBS to Luanda CDLV Lab

In FY25 AFENET continued to expand access and ensure quality of VL/EID testing, which encompassed the following activities:

2.1 Training and supervision for sample collection and referral

In FY25 AFENET continued to provide technical assistance to all PEPFAR supported health facilities for VL and EID sample collection and referral. Main activities included trainings to laboratory technicians in sample collection and referral, supervision of collection and referral, monitoring of VL laboratory records and transmittal forms, follow up to ensure that all results are received and to monitor of turn-around-time of results. The trend of VL & EID sample referral is illustrated in Figure 7. We observe in dark blue the Nr of samples referred for VL testing and in dark green the Nr of samples referred for EID testing in central labs. The Nr of samples referred as increased over time except in FY23 because the health facilities had POC largely available and this was the preferred technology for testing due to the reduced turn-around-time of results. Although in F24, referral testing regains a larger preference due to POC constraints.

If we combine in the same analysis the volume of testing done at POC (light blue and green) plus the referral testing done in central labs (dark blue and green) we see that throughout the years the number of health facilities collecting samples and testing samples show a steady increase both for VL and EID. In FY25 in the first six months we see that we achieve more than 50% when compared with previous year.

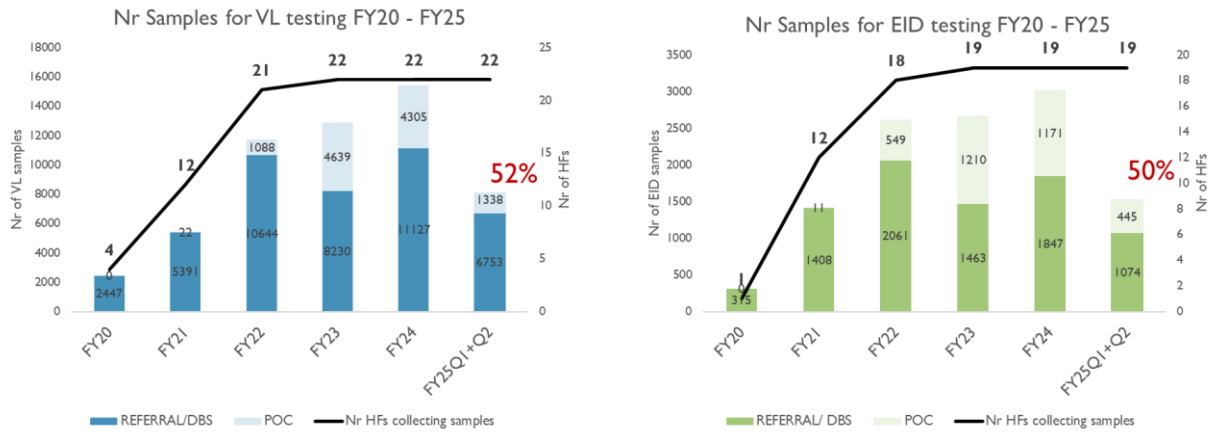


Figure 6: Nr samples from PEPFAR supported facilities collected for VL/EID testing both at POC and referral to central laboratories.

2.2 Support to sample transport networks

In FY25 AFENET continued to support the sample transport between the PEPFAR supported sites either by paying for the services or by providing training and supervision, and the role of AFENET in each province is as follows:

- In Benguela the intra-provincial transport service between health facilities and Benguela Regional Laboratory is conducted by *Rosalina Express* (Benguela) paid by AFENET.
- In Huambo the intra-provincial sample transport service to provincial hub is conducted by *Cardimar Service, Lda* paid by AFENET, and then the samples depart the provincial hub to Luanda Regional Lab – Centro de Diagnóstico Laboratorial de Viana via MACON, a regular goods transport company, provided by contract with INLS.
- In Cunene the intra-provincial transport is mainly delivered by AFENET mentors to provincial hub and then MACON office were the samples are shipped to Benguela Regional Lab (LRVM).
- In Lunda Sul the intra-provincial sample transport has been conducted by provincial health department and health facilities with AFENET supervision. And inter-provincial transport between Lunda Sul and Luanda is made by MACON.

AFENET also has been supporting emergency requests from INLS to send VL/EID supplies or equipment to PEPFAR supported provinces.

Figure 8: Training in sample transport and biosafety provided by junior mentors to Cardimar – Huambo.

2.3 Continuous quality improvement practices at Benguela Laboratories

AFENET continued to support quality improvement activities in Benguela regional laboratory (LRVM), the lab responsible for the testing of VL/EID samples from 2 PEPFAR supported provinces (Benguela and Cunene).

AFENET activities supported by PEPFAR at this laboratory mainly included mentoring, EQA, training in Quality SOPs, troubleshooting, and technical assistance for stock monitoring and reporting.

In the last semester, 5 training sessions were held for the 7 LRVM technicians, new records and SOPs were implemented such as: internal auditing, contamination control, terminal cleaning, service interruption and internal quality control.

AFENET has also supported human resources by hiring 3 laboratory technicians who helped with sample processing and management and 2 technicians for data management.

Currently, AFENET has included the Molecular Biology Laboratory of the Lobito Regional Hospital (LBM-HRL) in its quality improvement activities. There, 1 internal audit was carried out, records and SOPs were implemented, such as document control, equipment management, biosafety and personnel files, and 4 training sessions were held for 3 laboratory technicians.

AFENET was requested to extend LIS implementation to this lab and made the initial payment to Confidentia.

Figure 8: Example of AFENET activities at Benguela Regional Laboratory: A- Senior mentor providing in service training in QMS SOPs; B- Lab technician doing double-verification of solicitations with sample transmittal forms; C – Data clerks recording solicitation information into the LIS system; D- Lab technicians doing sample triage and

Besides the internet implementation other supplies were donated to the LBM-HRL: 4 office chairs, 3 waste buckets, file covers and office supplies, 1 cork board, 3 computers, 1 printer, toner, 1 router, 2 UPS, 1 Switch and 1 racker.

2.4 External Quality Assurance Programs for VL/EID in central platforms

To ensure the quality of VL/EID testing, and to comply with LAB_PTCQI indicator reporting on DATIM, AFENET enrol central laboratories for EQA at SmartSpot-South Africa. The equipment available is Abbott m2000 and the assays evaluated at LRVM were VL in plasma and DBS and EID in DBS. In INLS lab only VL plasma was procured due to the available budget and because they already receive panels for other assays from different providers.

In FY25Q1 we conducted the 3rd cycle of SmartSpot 2024 program, and in Q2 the sites were enrolled for the 2025 SmartSpot program with expected distribution of 1st cycle in May 2025. AFENET technical assistance includes EQA panels procurement, distribution and training and corrective actions to the participating laboratories.

The 2024 EQA results are shown in Figure 10. In the first cycle, all assays achieved 100% proficiency. However, in the second cycle, scores declined, primarily due to the use of an incorrect protocol with the Abbott m2000 (LRVM) and the non-participation of INLS because of a lack of reagents. In the third cycle, laboratory scores improved overall, with only the EID assay in LRVM scoring below 80%. These results were targeted for corrective actions.

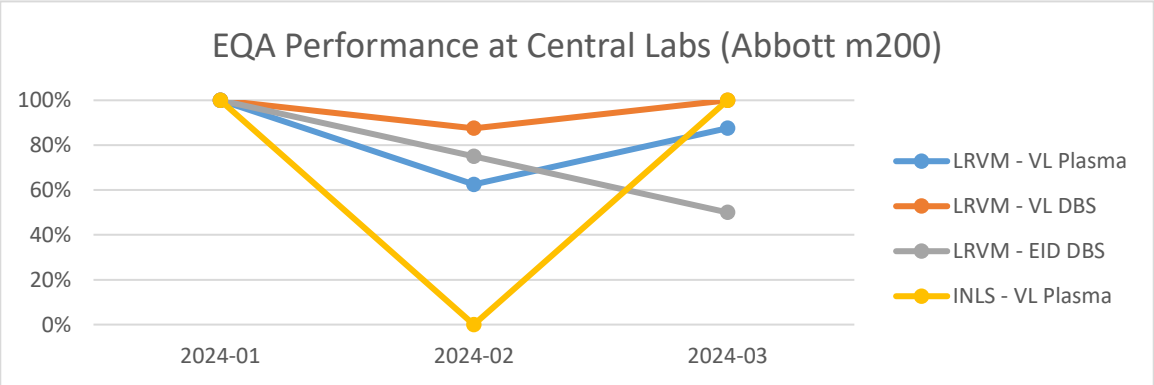


Figure 9: EQA results for VL & EID testing at central labs. EQA proficiency results improved in the 2024 3rd cycle for all tests, except EID at LRVM.

2.5 Support to DBS community testing:

In FY25 AFENET continued to support in Huambo the pilot study for community sample collection of DBS samples for EID testing of newborns aged 4 to 6 weeks.

The AFENET mentorship team played an active role by providing technical support and supervision. Their responsibilities included ensuring laboratory quality, sample integrity, proper storage and transport, and accurate form completion. They accompanied both community teams and frontline health unit staff during collections.

Community collections took place at different times and locations, resulting in approximately 103 samples collected over 8 to 9 months. Activities occurred 2 to 3 times per week, totaling about 72 hours of work per month.

AFENET's support included:

- Continuous training and reinforcement of good laboratory practices for community and laboratory technicians
- Checking sample integrity before dispatch
- Direct supervision and, when necessary, performing field collections (DBS and venous puncture)

3. SCOPE: Improve Monitoring & Evaluation for Viral Load and Early Infant Diagnosis

3.1 Activities for LIS implementation:

In the first semester of FY25 the Ministry of Health's selected Laboratory Information System (LIS), Appolo, remained operational at both the Benguela Regional Laboratory and the INLS laboratory, which was relocated to CDLV in Viana during FY24Q1.

AFENET continued to support several activities for LIS maintenance to strengthen LIS Appolo operations, enhance result delivery, and support continuous quality improvement across the laboratory network:

- Pay for the annual service contract with Confidentia
- Provide internet connectivity between the laboratories and MoH data center.
- Provide technical support to Appolo users and mediates communication between laboratories and Confidentia.
- LIS database analyses and communication between Health Facilities, laboratories to identify missing results

As part of the FY25 workplan, AFENET expanded the implementation of WebAppolo to provincial hubs to improve the turnaround time for VL/EID results. This involved close collaboration with Confidentia, INLS, and provincial health departments, conducting site assessments, and procuring necessary IT equipment. Installation of WebAppolo has commenced at H. Geral Ondjiva-Cunene in FY24 and in FY25Q1 it was implemented in two additional Provinces: Hospital Geral do Huambo and Hospital Municiapl de Saurimo – Lunda Sul.

INLS requested support from CDC to expand Appolo to the Regional Molecular Laboratory in Lobito. In the first quarter, AFENET began developing the necessary local IT and network infrastructure to support this expansion and formalized an agreement with Confidentia to implement the LIS at the new laboratory. Although the first payment to Confidentia was completed, they were unable to initiate the implementation process due to limitations with the Ministry of Health (MoH) server. At the end of March 2025, the MoH server stopped functioning entirely, and as of now, no solution has been provided by the MoH to restore Appolo's functionality. As a result, laboratory staff have been generating results manually. This manual process has not only increased the turnaround time (TAT) for laboratory results but has also compromises the ability to aggregate data effectively in the future.

During the reporting period, the main milestones for LIS implementation included three key achievements. First, the Appolo System Improvement Report was finalized, consolidating all data and insights from the technical assessment visits. This comprehensive report was validated and distributed to relevant stakeholders, offering actionable recommendations for system enhancements. Second, the WebAppolo platform was implemented at all three provincial hubs to enable real-time printing of laboratory results. Local technicians received training to ensure proficient use of the platform, supporting efficient and reliable workflows. Third, the Lobito Laboratory was equipped with essential IT infrastructure, including the procurement and installation of servers, computers, networking devices, and UPS units.

Figure 10: Implementation of webAppolo in Hospital Geral do Huambo (A) and Hospital Municipal de Saurimo - Lunda Sul (B)

3.2 Facility level M&E tools for VL/EID

AFENET has been supporting the health facilities with the implementation of standardized laboratory logbooks and forms such as: VL Laboratory logbook; EID Laboratory logbook; Sample transmittal forms; General QMS records

The technical support includes tool training, monitoring, analysis, and indicators reporting. A web-based form and database are maintained to improve monthly indicators reporting.

- Improving database to monitor Turn-Around-Time
- Supporting the health facilities with the implementation of VL/EID laboratory logbooks including tool training, monitoring, analysis, and indicators reporting.
- A web-based form and database are being developed to improve monthly indicators reporting.

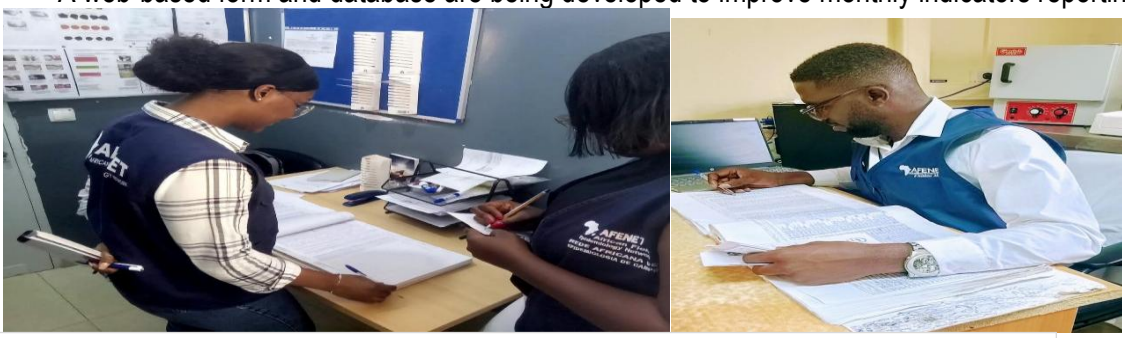


Figure 11: Monitoring and evaluation of laboratory logbooks in Huambo (A) and Cunene (B).

In Scope 3 the major challenges were:

- MoH server limitations affected LIS implementation and functionality
- The current server setup is *inadequate* to meet operational demands, severely limiting Appolo's performance and reliability.
- Communication gaps and delayed LIS incident resolution further compound the issue, prolonging system downtimes and user frustration.
- Functional Limitations of Appolo and WebAppolo with insufficient features to streamline workflows and enhance efficiency in using the platforms.
- Appolo generates inaccurate statistical data for the MoH reporting indicators.
- Lack of standardized and central printing of laboratory logbooks and records; health facilities have deficient resources and rely on partners' support for printing.

4. SCOPE: STRENGHTENING LABORATORY NETWORK

AFENET has played a role in strengthening the laboratory network by implementing a variety of activities that address public health priorities and align with the needs of the Ministry of Health.

In response to Mpox, AFENET hired a consultant who planned and coordinated training on the collection and referral of Mpox samples. This consultant also supported the dissemination of laboratory procedures for sample collection at the provincial level and coordinated laboratory assessments across 12 provinces to evaluate the diagnostic capacity for Mpox. During these assessments, a total of 13 laboratories equipped with 46 GeneXpert machines were evaluated in areas such as infrastructure, working environment, equipment details, work plans, human resources, diagnostic capacity, and documentation, using an adapted checklist from FIND. The findings revealed that only 32% of the GeneXpert machines were operational, while the remaining devices were out of service due to a lack of maintenance.

In addition, AFENET supported INIS in sending Mpox samples via DHL for sequencing at the Ugandan reference laboratory. AFENET also assisted INIS and INLS consultants in finalizing the review of laboratory packages for HIV and TB testing, which are being prepared for uploading to an online laboratory portal and repository developed by AFENET. These initiatives contribute to a more robust and responsive laboratory network, supporting the country's public health objectives.

TB Diagnostic Test Continuous Quality Improvement (CQI)

Under this scope, the following were planned:

TB Clinic-Lab Interface Continuous Quality Improvement (CLICQ!) ECHO Project

AFENET in conjunction with CDC and Ministry of Health in Uganda rolled out the TB Clinic-Lab Interface Continuous Quality Improvement (CLICQ!) ECHO program. This program guided healthcare workers and laboratory staff through review of their clinic-laboratory data and identified gaps within their patient cascade

AFENET and MOH Uganda, continued holding weekly ECHO virtual training sessions for six health facilities The one-hour sessions included didactic presentations from numerous presenters on a variety of topics aimed at increasing participants' knowledge in various elements of TB diagnosis and management. Mentors also supported facilities in implementation of the chosen improvement projects and facilitated peer to peer mentorships. During these sessions' facilities presented progress of their Quality improvement projects.

Transfer to MOH

AFENET supported the transfer of the TB CLICQI project to the Ministry of health. AFENET supported: presentation of the results of the TB CLICQI pilot, discussions of the benefits especially in improving TB program indicators and develop a TB CLICQ rollout plan, review and approve the 3 regions, districts and

facilities to be supported by CDC-JCRC support and participated in the training of ministry assessors for Mentors to carry out the DiCE

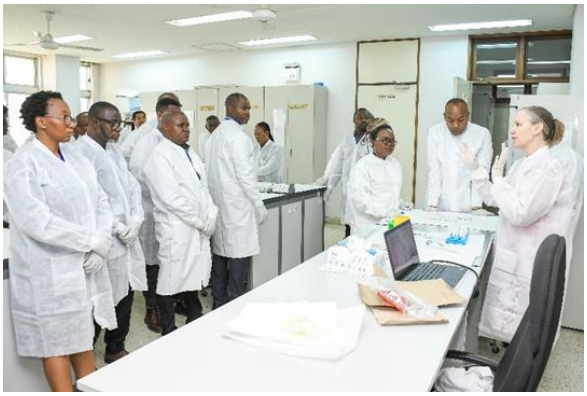
Achievements

AFENET successfully transitioned TB CLICQ! to Uganda MOH as part of the national CQI tools. TBCLICQ! Has now been rolled out to additional TB testing sites and regions within Uganda (Tooro and Ankole region)

TB Proficienncy Testing Program Providers' Community of Practice (COOP)

The AFENET in collaboration with CDC supports various country reference laboratories which are using Dried Tube Specimens for Proficiency Testing across Africa has set up a monthly Community of practice. This collaborative aims at building a community of practice where participant laboratories share best practices on implementation of activities to the DTS PT reference laboratories We have been able to have several online sessions except for January to March 2025. Participant numbers have over time grown with an average attendance of 9 countries per session. AFENET also had an in-person COP from August 27th – 30th 2024 at Kenya Medical Research Institute (KEMRI).The objective was to train on: DTS preparation for mTB-PT, adaptation of current mTB DTS procedure for LF LAM QC panel preparation lab (BSL2), online data management tool practical implementation and expansion of molecular TB PT programs to include additional assays.

Participants included lead mTB-PT laboratory staff - involved and trained in DTS PT panel preparation (Ministry of Health (MoH), and implementing partner (IP) as appropriate) and mTB-PT program management staff- involved in coordinating PT program (MoH and IP staff as appropriate). Participants were selected from Tanzania, Zambia, Botswana, Zimbabwe, Uganda, Ethiopia, Malawi, Nigeria, Lesotho, Kenya and CDC country offices (Tanzania, Botswana, Uganda, Ethiopia and Nigeria)



1. **DiCE Toolkit Digitization, Dashboard Development & Launch Campaign**

   The DICE toolkit digitisation is currently in progress, CDC HQ TB CLICQ! Is making the necessary adjustments before it can be ready for use in project supported countries.

2. **Technical support and maintenance of the TB ePT platform**

   During this reporting period, we worked in collaboration with Deforey technologies to migrate the TB ePT platform from an ASLM server to the AFENET hosted server. We have been to support implementation of the following enhancements to existing functionalities or features

   a) ePT files and folders restructured to make it more maintainable
   b) Fixed calculation issues in TB chart generation
   c) Set up the PT round for 2025.
   d) Fixed server issues that were blocking administrators from updating participant data

e) Fixed download PT form issue. Now administrators can download the PT forms generated on the platform.
f) Minor fixes to ensure the application works on the new version of OS
g) Improved translation coverage
h) Improved training mode messaging and functionality

Country specific support was provided to Malawi, Myanmar, Cameroon, Rwanda, Namibia, Cote d'voire, Democratic Republic of Congo, Burkina Faso, Sierra Leone, Zimbabwe and Philippines.

3. **Technical support and maintenance of the HIV VL/EID ePT platform**
   a) Supported the migration of data and files from the ASLM server
   b) Monitored and responded to the support inbox for this project.
   c) Set up 5 PT rounds for 2025 (3 HIV VL and 2 EID).
   d) Supported report generation, finalization from the ePT platform and implementation of modifications as and when requested by countries.

4. **Advanced HIV Disease package of care (TB/HIV Test Assessment and Quality Assurance Support)**
   During this reporting period, AFENET in collaboration with CDC HQ TB team developed a TB Lateral flow urine lipoarabinomannan (TB LFLAM) Quality Assurance tool kit package. The TB LF-LAM QA tool kit package was fully approved by GLI and is now ready for use by different countries. See link https://www.stoptb.org/sites/default/files/user_guide_for_the_lf-lam_quality_assurance_package_dec_2023_0.pdf

Laboratory Continuous Quality Improvement (LCQI)

During this budget year, AFENET was to support implementation of SLMTA 3: Illuminating the Path to ISO 15189 and repurposing of the Quality Control and Method Validation training curriculum for online delivery
During this budget year, AFENET was to support implementation of SLMTA 3: Illuminating the Path to ISO 15189 and repurposing of the Quality Control and Method Validation training curriculum for online delivery

i. SLMTA 3: Illuminating the Path to ISO 15189 online training sessions

Due to COVID 19 restrictions, SLMTA 3 training curriculum was repurposed for online delivery. The SLMTA 3 curriculum was composed of four modules – QMS 1, QMS 2, QMS 3, and QMS4. Each module was further divided into sections and activities. The *on-line version* included an off-line/self-study component (lecture recordings and homework assignments) and an on-line/live component, as well as optional office hours and peer support discussion forum. The total time for completing the mandatory components of the on-line curriculum was 64 hours, as opposed to 86 hours of delivery time in the classroom-based version.
Four facilitators' i.e. Dr. Katy Yao, Mr. Elde Paladar, Ms. Beatrice van der Puije and Ms. Janet Scholtz delivered the course.

Selection of participants

There were 27 participants at the start of the course, and all completed the course from 17 countries spanning 18 time zones (Ghana, Colombia, Jamaica, Dominican Republic, Kenya, Dominican Republic, Haiti, South Sudan, Malawi, Zambia, Ethiopia, Ukraine, Zimbabwe, Philippines, Brazil, Tanzania, Argentina, Ukraine, Kenya, Cambodia, Philippines).

Curriculum overview

The e learning course had 5 components ie

- Offline self-study: this included 185 recorded lecture videos (19 hours) and Homework (20 hours).
- Weekly live group zoom sessions; this included 15 weekly sessions of approximately 2.5 hours per session.
- Weekly office hours: There participants got assistance on homework and got to ask any questions they had.
- Peer support group: this was on WhatsApp platform and an online discussion forum on the course website.
- ECHO Series; Tele-mentoring for Improvement projects. This section is yet to start in June 2021

Course score card

Below are the statistics from the course activities over the 14-week duration the course was running Although office hours were optional, it registered an average attendance of 25/27 (92%). Average attendance of live session was 99% and average submission of homework timely was at 90%. The attendance of webinar timely was 87%.

Class photo

ii. Translation of SLMTA Tool kit to Spanish

During this reporting period, we supported translation of SLMTA 1 tool kit from English to Spanish. This initiative was important to ensure that Spanish speaking countries have access to SLMTA resources to facilitate implementation and scale up of SLMTA activities

iii. Pre service Curriculum

AFENET with support for CDC is tasked with the development of the Laboratory preservice curriculum under Strengthening Laboratory Management Toward Accreditation (SLMTA), a structured quality improvement program is meant to teach preservice laboratory personnel how to implement practical quality management systems in resource-limited settings using available resources. This course will be incorporated by institutions of learning on the laboratory training courses or offered independently as an additional course to laboratory trainees.

Achievements

During this year these activities were conducted: Research on Laboratory Management Systems (Gather information on best practices, studied existing curricula and industry standards, defined learning objectives

for each module, identified resources and materials needed (SLMTA 1 and/or 3 curriculums/Textbooks, articles, software, case studies) and reviewed, input and refine newly developed modules i.e. Module 1 to 7

Upcoming events

Develop material module 8, make final draft, present draft to Technical Working Group and Finalize package.

HIV Rapid Test Continuous Quality Improvement (HIV RTCQI)

HIV Rapid Test Continuous Quality Improvement is a comprehensive and data driven approach to ensure the quality of HIV testing in PEPFAR supported countries. The initiative is based on the Quality Assurance Cycle (QAC), a continuum of integrated planned activities that supports and promotes effective rapid HIV testing leading to accurate and reliable test results.

During this reporting period, AFENET's scope of work included:

1. Support the maintenance and routine updating of the RT-CQII website maintenance and tools namely:
   a) All demo software (ePT, SPI-RT Tablet and Dashboard, Certification Training, Logbook Data management)
   b) Continue supporting the tester Certification and enhance current reports and SOP for implementation
2. Implementation and evaluation of Project ECHO® HIV RT CQI in 5 PEPFAR-supported countries
3. Strengthen data Use and management to support policy decisions and patient care management.

Achievements/success

1) RTCQI-HIV Best Practices Workshop – Africa and Western Hemisphere

Since 2014, the RTCQI (Rapid HIV Testing Continuous Quality Improvement) Program has been implemented at different levels in countries with support of the United States President's Emergency Plan for AIDS Relief (PEPFAR). The Centers for Disease Control and Prevention (CDC) and the International Laboratory Branch (ILB) in partnership with AFENET organized two regional RTCQI workshops for PEPFAR-supported countries to share best practices and lessons learned on the implementation of RTCQI, as well as the tools available to analyze and use the data. The workshop was attended by Representatives from Ministries of Health, the Centers for Disease Control and Prevention (CDC) and their implementing partners from PEPFAR-supported countries in the

- Africa Region workshop was conducted in Cape Town, South Africa - June 3 - 7, 2024
  The Africa regional workshop attracted over 108 participants from Angola, Botswana, Burkina Faso, Burundi, Cameroon, Cote d'voire, Democartic republic of congo, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, South Africa, South Sudan, Uganda, Tanzania, Zambia,Zimbabwe, CDC HQ, GHSD- PEPFAR, APHL and AFENET. The following key issues were raised during the workshop
    1. Lack of coordination at country levels on discussions relating to algorithm switch
       a. WHO and MOH should ensure involvement of all stakeholders
    2. Stakeholders should work together at country and CDC HQ levels for practical guidance
    3. Lack of commodities to support algorithm switch evaluations
    4. Interruption in testing when one test in the algorithm is not available

5. Poor performance of some tests in retesting-clients on ART retesting

- Western Hemisphere region workshop was conducted in Panama City, Panama - August 26 - 30, 2024. Participants were selected from Dominican Republic, Haiti, Panama, Guatemala, El Salvador, Honduras, Jamaica and Trinidad. To foster south to south collaboration, additional participants were invited from Ivory Coast, Ethiopia, Kenya, Malawi, and Nigeria.

Key Achievements/Outcomes of the Workshop

- **Collaborative Learning:**
  The workshop facilitated knowledge sharing and mutual learning among participating countries, enabling the identification of effective strategies to strengthen RTCQI-HIV while adapting them to diverse contexts.
- **Continuous Improvement:**
  Consensus was reached on the need to drive concrete actions to ensure quality and sustainability of results. Proposed actions include revising protocols, expanding training programs, forming evaluation teams, and strengthening quality control mechanisms. Recommendation was made to establish a community of practice to continue fostering knowledge exchange and support.. The following link grants access to the different presentation made during the workshop https://drive.google.com/drive/folders/1bYtqUmsYTBzPAdS4v3ol7umDKDJ2zOEb?usp=drive_link

2) Implementation of RTCQI tools

AFENET continued to engage services of Deforay Technologies to carry out maintenance and routine updating of the RTCQI website in addition to development of all the relevant tools. A simplified agile methodology was utilized during which development is done in short cycles and feedback is received continuously.

Regular engagements were conducted with the key stakeholders and discuss/demo and then work on feedback received. This helps us in getting real-time feedback as and when we develop.

Achievements:

The following are the various projects maintained/developed during this period.

a) RTCQI Website

During this reporting period, the project was able to develop an RTCQI website that will be used to showcase RTCQI activities being implemented by different countries. The RTCQI website has different sections containing resources such RTCQI tools (ePT for proficiency testing, HIV-RT tester certification, SPI-RRT

checklist and HTS register/Logbook. Enhancements to the website are currently being done in collaboration with CDC HQ HIV serology team and Deforey. See link to the website https://www.rtcqi.org/.

Next Steps: This will include

1) Continue performing content updates content as and when required

2) Install demo instances of the tools and continue working on content and functionality for the tool's pages

b) ePT

During this reporting period, the Project supported the addition of a COVID 19 module, Recency Module on to the ePT page. See detailed activity description in Table.

ePT is available on GitHub as a free and open-source project: https://github.com/deforay/ept

The project was also able to

- Provide country support as and when requested through training or demonstrations as requested by AFENET and CDC
- Ensured that the test instances of ePT, RT Tester Certification, ODK, SPI RT Dashboard were up and running and available when needed

4. Implementation and evaluation of Project ECHO® HIV RT CQI in 5 PEPFAR-supported countries

CDC and in collaboration with AFENET are implementing the Extension for Community Health Care Outcome (ECHO) to support Malawi Ministry of Health in capacity building of HTS providers and other health care workers. This project evaluates impact and feasibility of Project ECHO model in capacity building of HIV Testing Providers in 45 facilities from all 29 districts in Malawi.

Key activities and achievements:

During this reporting period, the following were achieved:

i. Development of training curriculum, assessment checklist and other guidance documents

AFENET, UMB and representatives from Malawi Ministry of Health developed a training curriculum for the ECHO sessions, sites assessment checklist, participant consent forms, ECHO self-administered checklist, spoke site readiness checklist among other documents.

ii. ECHO Exist Assessment

AFENET in collaboration with UMB conducted an exit assessment in selected testing sites from 25-30 November 2024. These testing sites include Ndirande, Chiranzulu, Machinga, Mangochi, Nkhotakota, Rumphi, Bwengu, Nkhatabay, Mzuzu H/C and Chilumba sites. The main objective of the assessment was to determine the impact of ECHO and document lessons learnt, challenges and existing opportunities.

i. Lessons learnt
   a. ECHO has facilitated south to south collaborations (within the facility and other sites enrolled in the project)
   b. Gap fill training for the HTS providers who had not attended training on the 3 tests algorithm/refresher training
   c. Supported 100% training coverage for all HTS providers in ECHO testing facilities
   d. ECHO has minimised service disruptions as compared to when participants needed to travel for trainings
   e. Facilitated system wide strengthening through utilisation of ECHO equipment beyond HIV RTCQI.
   f. Improved Clinical and Laboratory interface

ii. Existing opportunities
   a. Peer to peer mentorship and review of uploaded presentations
   b. Task shifting to address participation rates

c. Innovative approaches (what's app, quarterly)
d. Cascade trainings to lower facilities
e. Sustainability (management involvement, cost sharing)

DOMINICAN REPUBLIC

Since 2018, the Centers for Disease Control and Prevention (CDC) has provided ongoing technical and financial support to the Dominican Republic in its response to HIV/AIDS. In collaboration with the African Field Epidemiology Network (AFENET) and in line with UNAIDS objectives, a project is being implemented to strengthen the quality of HIV services. This project seeks to ensure reliable and timely results of diagnostic tests and HIV Viral Load (CV-HIV). This report details the activities and results achieved during this reporting period.

During this reporting period, AFENET in collaboration with CDC Dominica Republic supported Dominican Republic Ministry of Health to achieve the following objectives:

1. Strengthen the quality of PEPFAR-supported rapid HIV testing services for reliable and timely results through progressive training, mentoring, and Continuous Quality Improvement (CQI), including Rapid HIV Proficiency testing.
2. Support the External Quality Assessment program of the National Health Laboratory to achieve ISO 15189 certification for viral load and ISO 17043 for rapid HIV tests.
3. Support the improvement of the quality of laboratories that collect and process CV-HIV and CD4 tests to deliver reliable and timely results.
4. Support the management of HIV and CD4 Viral Load samples, including dried blood sampling (MSS) for AND-PCR to strengthen integrated specimen reference systems.

Achievements

- Technical assistance was provided to improve the quality of data recorded for HIV testing and sample tracking, with a particular focus on strengthening internal quality control processes. Additionally, support was given for the follow-up and analysis of results from the External Quality Assessment Program for HIV testing (PEEC-HIV).

- Ongoing support was also provided in addressing cases involving false test results—both false positives and false negatives. This continuous intervention has contributed to developing resolution capacity in over 90% of these cases.
- Follow-up on the concordance rate between HIV diagnostic tests demonstrated consistent performance across nearly all laboratories visited, with concordance levels exceeding 98% and no reports of invalid test results.
- Significant progress was also achieved in the collection and documentation of HIV and CD4 Viral Load samples. At the beginning of the project, several areas for improvement were identified, particularly inconsistencies in the recording of sample data—both in sample logbooks and shipping forms—which often resulted in incomplete information being available to users regarding samples taken and processed. As a result of ongoing monitoring and technical support, more than 90% of these discrepancies have been resolved across the participating laboratories.
- Monthly verification of HIV Viral Load (CV-HIV) sample rejection rates has been maintained, with all laboratories visited reporting a sustained rejection rate of less than 3%.
- Additional support was provided through follow-up on work plans developed from the application of the SPI-RT-HIV Checklist and the assessments for HIV and CD4 Viral Load services during the fourth quarter (Q4) of the project's first year. These follow-up visits enabled evaluation of progress in the implementation of corrective actions. To date, more than 90% of planned activities within the laboratories' control have been executed. However, progress in areas such as staff training has remained limited, as it depends on external stakeholders rather than laboratory personnel.
- Biosecurity practices were also reinforced, with an emphasis on proper sharps disposal, segregation of contaminated and non-contaminated waste, and consistent use of personal protective equipment (PPE). Given the risk of lapses in these areas, continuous monitoring is essential to ensure adherence to safety protocols.
- Efforts to expand HIV Viral Load sample collection coverage have also shown tangible results. At Morillo King Hospital, the service hours on Mondays were extended to 5:00 p.m. to address high patient demand—previously, only 45 out of over 70 patients could attend. With the extended hours, all patients who arrive for sample collection can now attend. Similarly, José de Jesús Jiménez Almonte Hospital has addressed coverage limitations by extending sample collection hours to 4:00 p.m. on Tuesdays and Thursdays.

Survey on HIV Viral Load (CV-HIV) and CD4 Sample Management and Result Delivery – Key Findings and Opportunities for Improvement

To update current information and identify areas for improvement in the processes of sampling, shipment, and result reporting for CV-HIV and CD4 testing, a comprehensive survey was conducted in 36 of the 38 laboratories supported by AFENET. The findings are summarized below:

Electronic Module for Results

- **Optimal Functionality:** 83% of facilities report that the electronic results module is functioning effectively.
- **Partial Implementation:** 11% of sites have the module installed but experience operational issues, including:
    - **Connectivity issues:** Divina Providencia
    - **Equipment-related limitations:** Cabral y Báez Hospital and CEPROSH
- **Not Implemented:** The module has not been implemented at:

- Fundación Activo 20-30 (installed but not in use), IDEV, San Lorenzo de Los Mina.

Prioritization of High Viral Load Results (≥ 1,000 copies/ml)

- **Prioritization Active:** 64% (23/36) of facilities prioritize these results, either by separate delivery or through direct UPS notification.
- **No Prioritization:** 11% (4/36) do not prioritize, often because all results are delivered on the same day or identification is left to medical staff.
- **UPS-Based Prioritization:** 25% (9/36) reports that prioritization occurs at the UPS level or is unnecessary due to same-day delivery.

Feasibility of Increasing Sample Shipment Frequency

- **Not Feasible:** 58% (21/36) of laboratories cite constraints such as limited transportation, budget restrictions, rigid scheduling, or insufficient staffing.
- **Feasible with Conditions:** 4 centers consider it possible, contingent upon improved courier or messaging services.

Quality Assurance in HIV Testing

The follow-up of the HIV testing quality assurance process continues to demonstrate consistent strength. This is evidenced by a thorough review of key documentation, including logbooks, test concordance reports, and internal quality control records.

Overall, there has been a notable increase in the level of commitment from personnel responsible for the collection and referral of HIV Viral Load (CV-HIV) samples. This heightened sense of responsibility extends across the entire testing continuum—from supply management and test administration to result reporting and data integrity—reflecting a strengthened culture of quality and accountability in service delivery.

Technical Support and Processing Center Performance

Ongoing technical assistance has been provided to support the implementation of improvements identified through the use of standardized checklists for HIV and CD4 Viral Load testing. This support includes assistance in developing and updating essential documentation such as standard operating procedures (SOPs), data collection forms, and other process-related tools to enhance laboratory performance and compliance with quality standards.

Performance of HIV Viral Load Processing Centers

HIV Viral load Sample Processing Summary (Q1 and Q2: October 2024 – March 2025)

Across the six national processing centers, a total of **43,019 CV-HIV samples** were received from PEPFAR-prioritized service facilities.

- **Samples Processed:** 43,008 (99.97%), **Results Released:** 42,988 (99.95%), **Samples Rejected:** 11 (0.03%)

These results reflect a high level of performance across most centers, despite isolated technical issues, and underscore the overall resilience and efficiency of the national laboratory network in processing and reporting HIV Viral Load test results.

External Quality Assessment for HIV Viral Load Testing

In June 2024, the six processing centers received external quality assessment panels for HIV viral load (HIV VL) testing from the CDC in Atlanta. These panels were processed and reported; however, the centers are still awaiting the final results from CDC.

Regarding the accreditation process for HIV VL and COVID-19 testing, the National Public Health Reference Laboratory "Dr. Defilló" was evaluated by A2LA and **received accreditation under the 2012 version of the relevant standards**. This accreditation was granted with the condition that the laboratory transition to the updated ISO 15189:2022 standard. Currently, the laboratory is preparing for a follow-up audit by A2LA to achieve compliance with the 2022 version of ISO 15189, which is scheduled for July 3.

HIV Viral Load Coverage

Through follow-up visits and continuous support by the project, Q3 has managed to maintain a good performance in updating viral load tests despite the limitations due to the different circumstances already mentioned above, reflecting a good operational capacity, although there are some centers that need constant monitoring more than others to improve patient coverage.

It is important to note that one of the reasons why coverage has been affected in several centers is due to the practice of dispensing medications for six months, which causes an outdated viral load test in most of the centers where this practice is carried out. This limits the ability to monitor up to date on each user.

While notable progress has been made in updating processes and strengthening monitoring systems, it remains essential to continue building operational capacity—particularly in the context of increasing migration, reduced external support, and evolving dispensing practices. These factors pose ongoing challenges to maintain consistent, high-quality care across all prioritized service delivery points (UPSs).

Surveillance

AFENET in collaboration with IRESSEF and Heart to Heart International (HHI), provided administrative and operational management support for the PHIA Fellowship initiative from July 2024 to June 2025.

Achievements

The Following achievements were realised during this reporting period:

A. Administrative and operational activities
   1. Logistical arrangements for fellows:
      - Fellows' travel arrangements were facilitated both for in country and international missions.
   2. Recruitment, onboarding, and offboarding of fellows
      - We completed the recruitment and onboarding of one in-country fellow each for Kenya and Uganda.
      - We finalized the offboarding of one in-country fellow in both DRC and Kenya as of 30 May 2025.
      - We processed a new contract to transition one in-country fellow in DRC to the role of Associate Fellow
   3. Continue to participate in the scheduled status report meetings:
      - Monthly calls with the fellows were organized each month, except for January and February 2025, which were not organized due to the work stoppage.
   - Ongoing learning opportunities through webinars were identified for the fellows. Fellows are currently in the process of submitting certifications in the following courses with a final deadline

set for 30th November. Here is the list of trainings:

- Ethics, Fire Safety, Chemical Safety, Workplace security awareness, Bloodborne pathogens
- Fundamentals of laboratory safety, GCLP, Travel Safety,

In December 2024, all fellows were registered to get access to the Healthcare Ethics training provided by the Citi program.

B. Fellows' field deployments and activities

This section of the report outlines the activities undertaken by fellows across program countries, focusing on laboratory assessments, technical support, survey monitoring, and training progress. Key challenges, outcomes, and recommendations are summarized to inform ongoing and future program efforts.

a) Democratic Republic of Congo (DRC)
   - T3 training was finalized in September 2025.
   - T4: Central Laboratory Training in October 2025
   - Continuous monitoring of the field, central, and satellite laboratory activities

b) Cameroon
   - Lot-to-lot testing was conducted for new HIV Determine test strips; recommendation made to source glass capillary tubes for consistency
   - Essential supplies were distributed, resolving prior shortages
   - One regional fellow travelled to Yaoundé to provide end-of-survey monitoring for CAMPHIA
   - Successful transition to final satellite labs, including Fulzone, Kumba Regional Hospital, Bonassama District Hospital, and Bertoua Regional Hospital

c) Cote d'Ivoire
   - From July to August 2024, CIVPHIA finalized training and survey preparation activities.
   - As of January 2025, four labs remained operational with regular sample shipments
   - Field discrepancies were identified and resolved
   - Prepared 493 DBS and 6 plasma samples for shipment in May 2025; shipment delayed pending CDC internal approvals

d) Uganda
   - T0 Training was conducted from 14–25 April 2025 at UVRI, Entebbe. Challenges with Stat-Pak reactivity in DTS led to protocol adjustments (increased plasma volume from 20µL to 50µL) and a four-day extension of training.
   - Key outcomes included the preparation of 300 DTS training tubes and 2,025 DTS survey tubes. QC strategies were strengthened based on lessons learned.
   - From 8–17 April 2025, fellows participated in the recruitment and interviews of 207 qualified Field Lab Technicians, whose final list was submitted to MOH.

Component: HIV Viral load and Early Infant Diagnosis

During this reporting period, the following activities were implemented

a) Strengthen implementation of continuous quality improvement for HIV VL/EID for conventional platforms and high-volume point of care technologies in PEPFAR supported countries

AFENET finalized subcontracts with the following institutions to provide VL/EID PT panels for conventional platforms:

- Institute for Health Research - Epidemiological Surveillance and Training (**IRESSEF**) to provide VL/EID PT panels for conventional platforms to 120 PEPFAR supported testing sites in Western and Central Africa Region
- National Health Laboratory Services South Africa to provide VL/EID PT panels for conventional platforms to 100 PEPFAR supported testing sites in Southern Africa Region

b) Conduct WHO prequalification of HIV VL/EID testing platforms through continued provision of support to National Public Health Institutes.

Achievements

Under this scope of works, AFENET supports the following objectives:

1. Provision of VL/EID PT panels for conventional platforms to 120 PEPFAR supported testing sites in Western and Central Africa Region (2025 AfriQualab EQA Production)
2. Provision of VL/EID PT panels for conventional platforms to 100PEPFAR supported testing sites in Southern Africa Region through the National Health Laboratory Services (NHLS)
3. PEPFAR Prequalification and evaluation of diagnostics

Objective one: Provision of VL/EID PT panels for conventional platforms to 120 PEPFAR supported testing sites in Western and Central Africa Region (2025 AfriQualab EQA Production

Under objective one the following is the list of activities completed:

1. Sending announcement letters

Following the notification of resumption of activities on February 28, 2025, the technical team resumed activities. Invitations for confirmation of participation in the AFRIQUALAB PT 2025 program were sent to the laboratories on **March 18, 2025.** In the announcement letter, laboratories were asked to confirm their participation via an online form link before **March 27, 2025,** with a notification of the distribution of panels in **April 2025.** The initiative to create WhatsApp groups for each dialectic community (French, English, and Portuguese) made it easier to remind people of the confirmation of participation a few days before the closing.

2. Organization of training and information, and exchange seminar

As part of strengthening communication between IRESSEF and program participants, a virtual seminar was organized. One session in French was held on April 3, 2025, and another on April 10, 2025. This innovation, which participants showed great interest in, included a comprehensive presentation of the program with its objectives and activities, a short training session on the use of the ePT platform, and finally, a forum for discussion on the specific concerns of the participants.

It should be noted that the session with French-speaking participants was a success. However, the session with English-speaking countries had to be rescheduled as only four people were connected.

3. Production of VL and EID 2025 panels for the first round of shipment

The technical activities of the production began as established in the timeline on March 17 with the validation of blood bags.

As of this date, we have completed all the tasks assigned according to the schedule of activities for the first production:

- Printing labels,
- Finalizing the database
- Production of panels:
    - 232 EID requests
    - 284 hp
- Printing information notes

The following table summarizes the number of participants per country in the first production 2025. The total was 260.

Country	# Laboratories	Country	# Laboratories
Benin	7	Nigeria	14
Burkina Faso	14	Democratic Republic of Congo	24
Cameroon	9	Central Republic of Africa	1
Central Africa	1	Republic of Congo	1
Ivory Coast	20	Sierra Leone	17
Ghana	104	Togo	7
Guinea Conakry	1	Uganda	6
Mali	3	USA	1
		Senegal	30

4. Shipment of panels to enrolled laboratories

The shipment of both the Viral Load and EID panels to the enrolled laboratories was finalized on 25th April 2025, with the expectation that the laboratories will receive the panels between 2-6 May 2025.

5. Testing and submission of results by enrolled laboratories

We are working closely with the laboratories to assist them with any questions they may have on the online submission platform. Due to some customs clearance delays of the panels in some countries, and to give laboratories ample time to conduct their testing and submit their result, the submission deadline has been extended to 29 May 2025.

6. Analysis of results and posting of the report for the first round of shipment

We are currently working on the result analysis and posting of results.

I. <u>Next steps (see calendar for more details)</u>

For the following activities, we will follow the chronology of activities

- Report being made available to participants
- Preparation of the second production

Objective two: Provision of VL/EID PT panels for conventional platforms to 100PEPFAR supported testing sites in Southern Africa Region through the National Health Laboratory Services (NHLS).

Under objective two, AFENET is supporting NHLS to • Prepare and distribute HIV EID PT panels (two sets of Dried Blood Spot (DBS) cards labelled 1-5 with each package containing a negative and positive DBS control card); Prepare and distribute HIV VL PT panels (two sets of Dried Tube Specimens (DTS) labelled 1-5 and a PBS buffer for diluting the samples).

The PT Schemes run by the NHLS have been designed to measure laboratory performance against established (and best practice) criteria. To achieve the highest levels of objectivity, the management of these PT Schemes is carried out by the Quality Assurance Division. Accreditation of the PT Schemes infers parity with similar international PT Schemes. To achieve this accreditation, many stringent technical requirements must be satisfied, which include integrity of data, accuracy of results and preservation of the confidential nature of participant results.
Under financial year FY24/25, CDC ILB in collaboration with AFENET are supporting NHLS to conduct the following activities for countries in the Southern Africa Region.

- Prepare and distribute HIV EID PT panels (two sets of Dried Blood Spot (DBS) cards labelled 1-5 with each package containing a negative and positive DBS control card)
- Prepare and distribute HIV VL PT panels (two sets of Dried Tube Specimens (DTS) labelled 1-5 and a PBS buffer for diluting the samples).
- Conduct training sessions for PT scheme participants on the NHLS web-based system to enable laboratory teams enter results on the platform and retrieve reports.
- Grant Country coordinators access to the NHLS web-based system to monitor results entry and view reports on the system.
- Provide technical assistance and corrective actions to poorly performing laboratories

The table below shows the number of laboratories and countries participating in the HIV Viral load PT and HIV Early Infant Diagnosis PT scheme.

Countries	# VL Participants	# EID Participants
Angola	4	2
Botswana	16	2
Lesotho	32	31
Malawi	17	1
Mozambique	14	12
Namibia	9	18
Swaziland	13	1
Tanzania	23	11
Zambia	26	17
USA	1	1
Zimbabwe	9	11
South Africa	19	13

Achievements

I. PT panel preparation is ongoing for the first round
II. Purchase of needed consumables and supplies completed

Objective three: PEPFAR supported diagnostics evaluation and prequalification.

Under this scope of work, AFENET in collaboration with CDC ILB team, is supporting prequalification of diagnostics. Under quarter One and two, CDC ILB and AFENET were able to support the Clinical performance evaluation of the Alinity M HIV-1 Assay using DBS for prequalification. The overall objective of this activity was to evaluate the clinical performance and operational characteristics of the Alinity M HIV-1 assay intended for the quantification of HIV Viral load in HIV infected individuals using DBS samples.

The specific objectives of the evaluation were to assess the Alinity M HIV-1 assay's agreement with the Cobas HIV-1 assay on paired DBS and plasma specimens including:

1. Quantitative assessment of bias limits of agreement and correlation
2. Misclassification above or below the clinical threshold
3. To describe the operational characteristics and ease of use of the assay and their suitability for use in countries with limited infrastructure.

This was a prospective performance evaluation with all collected samples tested at the Uganda Central Public Health Laboratory (CPHL). Study samples were collected from Kiruddu National Referral Hospital, Butabika National Referral Hospital, Kisenyi H/C IV, TASO Entebbe, St Balikundembe Market Clinic, Reachout Mbuya, Reachout Kinawataka, Reachout Banda, Family Hope Clinic Kampala, Rubaga Hospital, Kisugu H/C IV, Allied Medical Center, Kitebi H/C IV, COU Mukono H.C IV, Mukono General Hospital, Bombo Military Hospital, Kawaala H/C IV, Mbarara General Referral Hospital and China- Uganda Friendship Hospital. The comparator test used was the Cobas HIV-1 Assay (using plasma)

Achievements:

- The evaluation was successfully conducted at CPHL and results shared with CDCILB and the manufacturer.

HIV Drug Resistance and Genomic Surveillance

The main objective of this scope of work is to support and close out gaps of HIV finding using novel genomic surveillance (Hotspot) tools. Targeted countries included Kenya, Malawi and Uganda

Achievements

During this reporting period, only Uganda and Malawi have been supported with testing regents as shown in table below:

Item name	Cat No	Manufacturer	units
Malawi NGS order list for using Arrow Diagnosis kit target test volume: 300 samples, with 84 extra for training, repeat…			
HIV-1 Solution v2 (32 rxn)	AD-003.032	Arrow Diagnosis	12
MIDI Magnet® (for 0.8ml 96-deepwells plate)	A000430	Alpaqua	1
Agencourt AMPure XP (60 mL Kit)	A63881	Beckman Coulter	2
MiniSeq Mid Output Kit (300 cycles)	FC-420-1004	illumina	12
TruSeq® Index Plate Fixture	FC-130-1005	illumina	1
PhiX Control v3	FC-110-3001	illumina	1
Sodium Hydroxide	72068-100ML	Sigma	1
Abgene™ 96 Well 0.8mL Polypropylene DeepWell™ plate (50)	AB0765	ThermoFisher	1
UltraPure™ DEPC-Treated Water (1L)	750023	ThermoFisher	1

Qubit Assay tubes (500 tubes)	Q32856	ThermoFisher	2
Uganda NGS order list for using ABL kit targeting test volume: 300 samples, with 84 extra for training, repeat…	**Cat No**	**Manufacturer**	**Units**
DeepChek® Assay, HIV-1 Full PR/RT/INT Drug Resistance (24rxn)	198B24	ABL	16
DeepChek® NGS Library preparation, v2 (24 rxn)	116BX	ABL	16
DeepChek® Assay Adapters, v2 (24 rxn)	124BX	ABL	16
DeepChek® NGS Clean-up beads (60mL)	N411-02	ABL	2
DeepChek® HIV software (ask for free use with the kit test numbers)	S-12-023 (HL)	ABL	1
MiSeq Reagent Nano Kit v2 (500 cycles)	MS-103-1003	illumina	16
PhiX Control v3	FC-110-3001	illumina	1
Sodium Hydroxide	72068-100ML	Sigma	1
Qubit™ 1X dsDNA High Sensitivity (HS) and Broad Range (BR) Assay Kits (100rxn)	Q33230	ThermoFisher	4
MicroAmp™ Optical 8-Tube Strip with Attached Optical Caps (0.2 mL 125 strips)	A30588	ThermoFisher	3
MicroAmp™ TriFlex 96-Well PCR Reaction Plate (20)	A43673	ThermoFisher	1
DYNAMAG-2 (for 1.5ml tube)	12321D	ThermoFisher	1

Activity two: HIV-1 Drug Resistance Genomic sequencing best practices community of practice

Status: The AFENET Laboratory Team together with US CDC stakeholders led the organization of the HIV-1 Drug Resistance genomic sequencing workshop in Kenya. As part of the scope of work, AFENET implemented the HIV-1 DR Community of practice (COP) to serve as a platform for the sharing of HIV-1 DR genomic sequencing progress status and planned targets for improvement plan.

The COP is scheduled to hold on every second Tuesday of every month. Through its implementation, there were four sessions which received presentation from nine African countries.

Countries which have presented their status of improvement include Tanzania, Kenya, Malawi, Mozambique, Nigeria, Rwanda, South Africa, Uganda, Zambia, Ethiopia, Vietnam, Zimbabwe and the Team from ThermoFisher presented on “HIV-1 Drug Resistance good lab practices”.

The average attendance at the COP was 40 participants from 24 countries per session within a one-hour meeting space.

Democratic Republic of Congo

Under the funding of PEPFAR, 3 major activities have been carried out and broken down as follows:

The cohort 25

The training was aimed at health agents responsible for epidemiological surveillance working in the Health Zones of the Provincial Health Division of Kinshasa. A total of 34 participants took part in this training which began on August 24, 2024, and ended on March 13, 2025.

According to their roles, this cohort consisted of five (5) Zone Chief Doctors, two (2) Medical Directors, and one (1) treating physician; sixteen (16) Medical Biologists and eleven (11) Laboratory Technicians.

Men and women had the same proportion of 50%, with a sex ratio of 17 men to 17 women (1M/1F).

Profile	Number
Chief Medical Officer of Health Zone	5
Medical Directors	2
Treating doctor	1
Medical biologists	15
Laboratory technician	11
Total general	**34**

The cohort 26

The training was intended for health agents responsible for epidemiological surveillance working in the Health Zones of the Provincial Health Divisions of Haut Katanga and Lualaba. A total of 34 participants took part in this training, which started on September 14, 2024, and ended on December 7, 2024.

According to their roles, this cohort consisted of one (1) Veterinarian, eighteen (18) Medical Biologists, sixteen (16) Laboratory Technicians, and one (1) free participant Technical Assistant at RTI. A total of 36 participants included 34 from PEPFAR Health Zones of the Provincial Health Division of Lualaba and Haut Katanga, 1 from RTI, and 1 from the Provincial Veterinary Laboratory of the Ministry of Fisheries and Livestock.

Women represented 31% compared to 69% of men (ratio of 11F/25H).

Profile	Number
Veterinary Doctor	1
Bachelor's degree in public health	1
Medical biologists	18
Laboratory technician	16
Total general	**36**

Please note: Exceptionally compared to the previous cohorts, all fieldwork conducted by participants of cohorts 25 and 26 was related to HIV.

Training of laboratory technicians and medical biologists in PEPFAR provinces and others most affected by the Mpox epidemic in the DRC. The training was intended for agents in charge of biological surveillance (medical biologists and laboratory technicians) working in PEPFAR provinces and those most affected by MPOX. This training session was organized for laboratory providers working in 6 priority provinces, of which 3 are covered by PEPFAR and 3 others most affected by MPOX in the DRC in Kinshasa from May 12 to 16, 2025. According to their roles, 9 participants were Medical Biologists and 1 was a Laboratory Technician.

Regarding their origins, 4 came from Kinshasa, 2 from Haut Katanga, 1 from Lualaba, 1 from Tshopo, 1 from Equateur, and 1 from Sankuru. Men made up 40% while women accounted for 60%.

N°	Name	Institution	Profession
1	KIMBUTA LUVUVAMU Rachel	INRB	Laboratory Technologist
2	KAMALA MILONGA Jolie	LPSP/Equateur	Medical Biologist
3	NTSHISHI LUBEMBU Josué	CME/Bumbu	Medical Biologist
4	KASONGO BIYELIMBOLI Souzanne	LPSP/Tshopo	Medical Biologist
5	MPUTU BOLENZA Glodie	CSR André Kimbuta	Medical Biologist
6	KASONGO MULE Yannick	HGC Kipushi	Medical Biologist
7	KAHIZA KAPENDA Lydia	HPR/Lualaba	Medical Biologist
8	LEKIA KITANGULU Leta	HASC	Medical Biologist
9	LUTUNDA MATANDA Lyly	LPSP/Haut Katanga	Medical Biologist
10	WALO ONATSHUNGU Hélène	HGR Lodja	Medical Biologist

Facilitators and participants in front of the P3 laboratory of the INRB before the guided tour of the different departments on May 16, 2025.

Facilitators are giving directions to participants during the group exercise on data display at Workshop 1 of the FETP Cohort 26, Lubumbashi, on September 17, 2024.