

Expanding and sustaining GIS Laboratory mapping program in Africa: Case of Cameroon and Tunisia

Rising costs and the need for program sustainability are major challenges for health programs, particularly in the context of increasing demands and unpredictable funding landscape. In this quarter, ASLM in collaboration with Africa CDC supported the Ministries of Cameroon and Tunisia to implement their Geographical Information System (GIS Laboratory mapping program (LabMaP). The goal of LabMap is to sustain and optimize laboratory and information sharing systems using GIS-Laboratory mapping for effective and efficient clinical and public health laboratory services for early disease detection and surveillance of public health threats in Africa.

A workshop was held from 17-20th June 2025 in Mbalmayo, Cameroon. The workshop built upon an earlier phase of data collection, utilizing remote training and a self-assessment model, an innovative and sustainable approach to expanding LabMap coverage in country and across Africa.



Participants engage in a strategic data review during the June 2025 GIS Laboratory Mapping (LabMaP) workshop in Mbalmayo, Cameroon

This was a second round of updating the existing data, expanding to more sites and generating evidence for laboratory systems and networks in line with the draft framework for LabMaP systems and network capacities in Africa sustainable solutions requirements. The objective was to identify gaps and generate insights to strengthen Cameroon's national public laboratory network and support the country's progress toward universal health coverage and regional health security goals. Cameroon's journey with LabMap began modestly in 2018, with 13 labs mapped, growing to 360 by 2020 and in the second phase 535 in 2025. This phase adopted a virtual training and self-assessment models—a first for the program—providing participants with access to materials and expert support via the ASLM Academy platform. In this move, Cameroon became the first country to adopt a remote training model for laboratory mapping, ensuring cost-effectiveness and sustainability. This approach enabled data collectors to complete their training remotely, making it a scalable and efficient solution for strengthening laboratory systems. Following training, the team of collectors, visited each site to collect data.

In order to ensure evidence-based laboratory strategic planning, the MOH and stakeholders were equipped with necessary skills to review and generate insights that will inform the next planning circle from 2026, and strengthen priority disease detection, surveillance and responses using existing diagnostic capacities identified across the network and one health sectors. The review of the data covered human health, animal health, and private laboratories. The review assessed both data collected via self-assessment and physical visits.

The generation of evidence for planning is an on-going process and is being integrated with Cameroon national structures. It is envisaged that following the generation of the insights, the findings will be shared and validated by the MOH leadership and the Laboratory Technical Working Group prior to using it for strategic planning.

By pioneering the remote training model, integrating self-assessment into data collection, diversifying funding sources and ensuring institutionalising the processes and evidence generated from the from the program within national structures, Cameroon is paving the way for a resilient and responsive laboratory system that will serve as a model for other nations. The program has funded by Gates Foundation through ASLM LabCoP, Jhpiego, and Global Fund.

From 16 - 20th June 2025, Tunisia became the 29th LabMaP member state and the first country to adopt the program in North Africa. This follows a GIS sensitisation workshop held in June 2024 with all the North Africa with Algeria, Libya, Morocco, Tunisia, and Sudan. Additionally, and Western Sahara. The Ministry of Health Tunisia worked identified 20 data collectors with laboratory background ensure quality data and where trained in key components of laboratory mapping such as available workforce, infrastructure, test menu, quality management systems, biosafety and biosecurity, referral system, equipment, supply chain and calibration.

Following training, the data collectors were deployed to collect data from 5 sites and have continued to 13 sites after completion of first phase. This phase targeted tertiary laboratories which are critical for diagnosing priority diseases in line with Africa CDC. The data is being reviewed to identify capacity gaps and resources necessary to build ability to test based on national essential diagnostic list norms. It is expected that using sustainable solutions such as self-assessment models, Tunisia will expand the data collection to other sites in their network.

GIS LabMaP is flagship program of Africa CDC and ASLM. Since 2018, data from 5,518 laboratories have been collected across the continent as part of this flagship initiative. The program plays a critical role in supporting early disease detection and surveillance of public health threats in Africa.



Group photo of Tunisia's newly trained GIS LabMaP data collectors and partners following the successful LabMaP workshop

Lab Lessons from the Frontlines: April-June 2025 in Review

Between April and June 2025, the Laboratory Systems Strengthening Community of Practice (LabCoP), with support from the Gates Foundation and partner organizations, convened ten impactful ECHO sessions. These webinars brought together laboratory professionals, policymakers, and public health stakeholders to exchange knowledge and share strategies for strengthening diagnostics across Africa. Topics ranged from funding instability and leadership in laboratories to the integration of diagnostics and the detection of drug-resistant tuberculosis.

programs more efficient, and treat foreign assistance as a supplementary rather than primary source of support. These sessions served as a timely call to action for policymakers to prioritize sustainable health security.

Another key highlight from the quarter was the April 30 session presenting ASLM's Status Report on Laboratory Leadership in Africa. The findings underscored how governance and leadership are essential to delivering quality lab services and ensuring

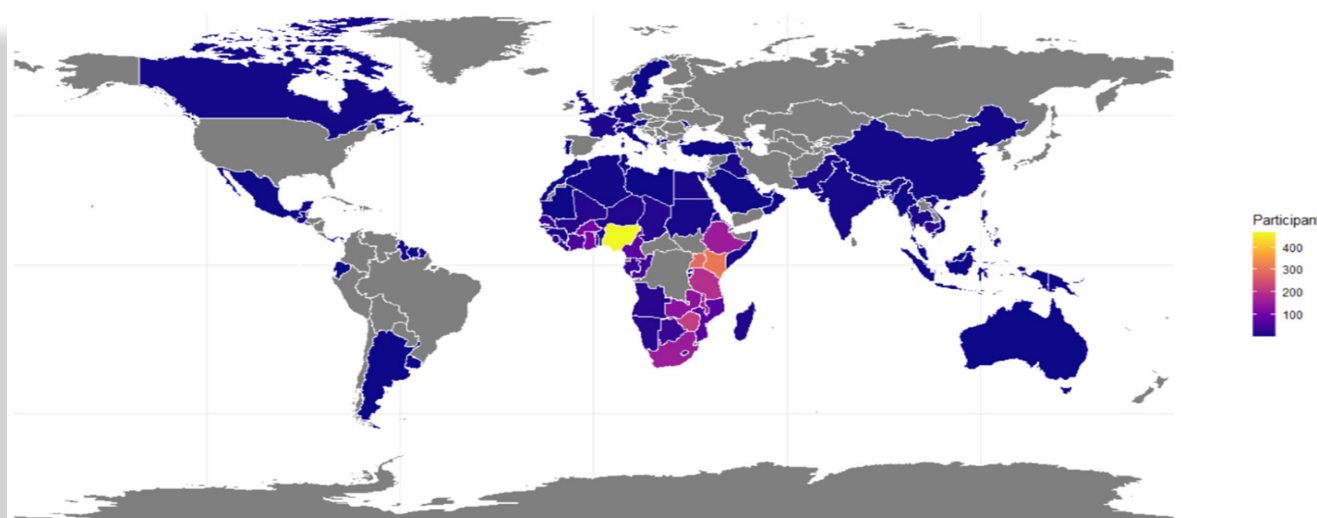


Fig 1. Heat Map Showing number of participants who attended the 10 sessions by country

Across the ten sessions, more than 2,800 participants tuned in, an average of 281 per session. Attendees primarily joined from LabCoP-supported countries, with many staying engaged for nearly the full duration of each session. This level of participation reflects the growing importance of peer learning in navigating today's complex laboratory landscape.

Several sessions focused on current challenges in foreign health assistance and the implications for national laboratory systems. Experts outlined how recent funding shifts, including the PEPFAR suspension in early 2025, have exposed vulnerabilities in health financing. The conversations emphasized the urgent need for African countries to strengthen domestic investment in laboratory systems, make

PEPFAR achievements to date

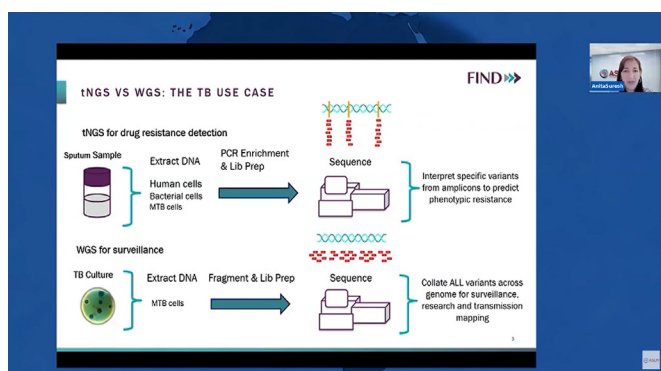


Fig 2. Screen Shot showing PEPFAR achievements prior to the Jan 2025 funding suspension

ethical, efficient resource use. Yet, these elements are often underrepresented in policy discussions. Encouragingly, several capacity-building initiatives are now underway to fill these gaps and support a new generation of lab leaders across the continent.

TB Sessions

In response to the ongoing global threat of drug-resistant tuberculosis, LabCoP also launched a five-part TB Genomics series. The sessions explored how targeted next-generation sequencing (tNGS) is changing the game for early detection. Unlike conventional methods, tNGS can identify resistance to multiple drugs directly from patient samples, significantly reducing diagnostic delays.



A Slide from Anita Suresh's presentation showing the TB use case for tNGS vs WGS during the May TB ECHO session

The sessions examined policy frameworks, needs, workforce development, and cost considerations. Country presentations from Eswatini and Mozambique offered powerful real-world insights particularly around the pressing need to detect emerging resistance to newer drugs like bedaquiline. Watch the sessions [here](#).

About Bedaquiline...

- Bedaquiline as a Critical Drug in DR-TB Treatment**
 - Bedaquiline (BDQ) is a core component of WHO-recommended regimens for MDR- and XDR-TB.
 - Increasing global rollout: >150 countries have introduced BDQ since WHO endorsement in 2013.
- Emerging Resistance: A Growing Threat**
 - BDQ resistance-associated mutations (e.g., in *Rv0678*, *atpE*, *pepQ*) increasingly reported.
 - Cross-resistance with clofazimine due to *Rv0678* mutations complicates treatment options.
- Diagnostic Gap**
 - No WHO-endorsed rapid molecular assay for BDQ resistance currently exists.
 - WGS and MGIT-based DST are limited by infrastructure, cost, and long turnaround times.
 - Absence of point-of-care diagnostics impairs timely resistance detection and regimen optimization.

Can TNGS be a solution?

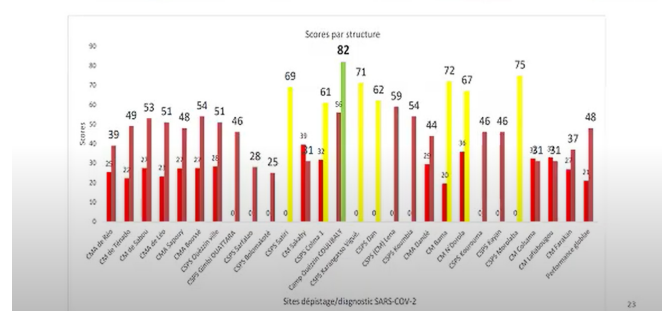
A Slide from Dr Sofia's presentation showing Bedaquiline in Focus during the June TB ECHO session

M&E Session

The Monitoring & Evaluation Sub-Community of Practice (SubCoP) also held two sessions focused on strengthening laboratory surveillance for priority pathogens.

One session, held on May 27, featured experiences from Burkina Faso and São Tomé, where teams are making measurable progress through data-driven planning and inclusive stakeholder engagement. Another discussion highlighted achievements from the Resolve to Save Lives project, which has improved sample transport, border surveillance, and the local testing capacity of public health labs. Watch this sessions [here](#).

Amélioration de la capacité de diagnostic de la COVID au niveau périphérique évaluation SPI-RT



A Slide from Mr Lenli Lompo's presentation showing the Improvement in COVID Diagnostic Capacity in Burkina Faso during the May LabCoP ECHO session

Across all sessions, one thing remained clear: the LabCoP platform continues to be a critical space for learning, collaboration, and practical problem-solving. From high-level strategy to technical know-how, these exchanges are helping shape a future where laboratory systems are more resilient, better led, and sustainably financed. As we look ahead to the next quarter—including sessions on non-sputum-based diagnostics for TB, the LabCoP community remains committed to ensuring diagnostics are at the core of Africa's health transformation.

Estimating the Demand for Tuberculosis Diagnostics Closer to the Point of Care

Despite being declared a global emergency in 1993, tuberculosis (TB) still claims the lives of over 1 million people each year. Additionally, approximately 2 million people who have TB are not diagnosed or put on treatment each year, stemming from challenges such as inaccessible facilities, difficulties in obtaining sputum samples, or health system inefficiencies which result in multiple visits to the facility before a diagnosis is made. Furthermore, just over 20% of national TB testing sites are equipped with WHO-recommended rapid molecular tests (WRD) (WHO 2023). As a result, only 48% of people diagnosed with TB are initially tested with a WRD. Therefore,

Uganda and Vietnam, showed acceptable performance in line with the WHO Target Product Profiles for TB. Adopting such platforms has the potential to improve TB diagnosis for children, elderly, and people living with HIV who are unable to produce sputum and improve access to testing at lower levels of the health system.

To better understand the potential demand for such tests, the Global Fund commissioned the Clinton Health Access Initiative (CHAI), the Foundation for Innovative New Diagnostics (FIND), and the African Society for Laboratory Medicine (ASLM) to conduct a demand forecast across 13 countries, including 10 in Africa. ASLM worked closely with the national TB programs in Burkina Faso, the Democratic Republic of Congo, the Republic of Congo, and Zambia.

Over four months, teams reviewed strategic plans, facility lists, diagnostic network optimization and mapping reports to assess each country's diagnostic network and identify gaps. The team also analyzed data submitted to WHO from 2021 to 2023 on WRD usage. Meetings, both virtual and in person, were held with country teams to validate data and reach consensus on the demand estimation methodology and outputs.

WRD testing varied from 9% to 100% between 2021 and 2023, with only one country on track to reach the target for universal WRD testing for all people with TB (See Figure 2). This indicates a need to improve access to WRDs to meet global testing targets. To estimate the number of tests required if countries tested all notified TB cases with a WRD, the team developed a four-year

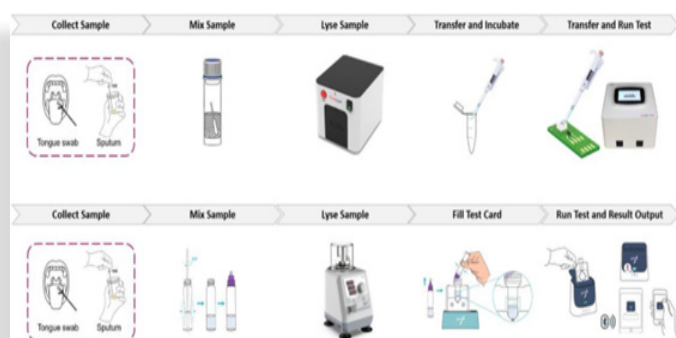


Figure 1: Operating procedures for two of the non-sputum-based tests that are in the pipeline. The top panel shows the MTB Ultima (Molbio Diagnostics, India) and the bottom panel shows the MiniDock MTB (Pluslife Biotech, China). Figure downloaded from Steadman A, et al MedRxiv, 2025.

<https://www.medrxiv.org/content/10.1101/2025.04.12.25325603v1.full-text>

enhancing access to quality, timely diagnostics closer to where people first seek care is crucial to reduce the large number of people who are “missed” from care. Simple molecular tests that are battery-powered, can test swab samples (tongue or sputum swab), and provide a result within 30 - 45 minutes will soon be on the market (See Figure 1). Evaluations of two of these assays at outpatient health centers in India,

forecast of the required tests for each of these scenarios:

- volumes based on the notified cases that are currently tested with WRDs (using data submitted to WHO in 2023)
- volumes assuming all notified TB cases receive a WRD (using a forecast from the notification rate in 2023)
- volumes aligned with National TB Program (NTP) notification targets (provided by the NTP from their NSP)
- volumes required to achieve 100% WRD coverage for all incident TB (based on the forecasted TB incidence).

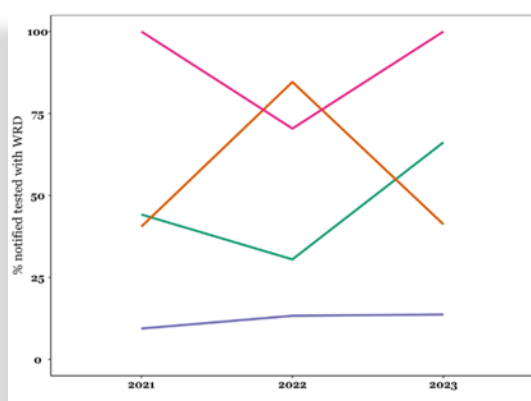


Figure 2: Percentage of notified TB cases that were tested with a WHO-recommended rapid diagnostic (WRD) test between 2021 and 2023. The data shown here is for four LabCoP countries was obtained from the WHO global TB datasets and verified by the countries.

Results showed that, if WRD coverage remains at 2023 levels (41–98% across the four countries), just 2.3 to 3.7 million tests will be performed annually, well below the estimated 5 million needed for full coverage (see Figure 3). Achieving universal WRD testing would require a 95% increase in capacity, effectively doubling current volumes.

However, the scenario-based approach provides countries with a roadmap to scale up strategically. A realistic first step is ensuring that every diagnosed TB case is tested with a WRD. Aligning testing efforts with national notification targets will bring countries even

With over 90% of health facilities in these countries classified as primary care or lower, there's enormous potential to deploy a combination of existing WRDs and the new near-point-of-care tests. But technology alone won't solve the problem. Strengthening diagnostic networks will require sustainable financing, and investments in staffing, supply chains, sample referral systems, and data management.

Country teams welcomed this exercise, highlighting its value in supporting strategic planning. The demand estimates offer a practical tool for aligning diagnostic goals with procurement planning, budgeting, and network optimization. All project outputs were shared with country stakeholders for adaptation and use in their ongoing planning processes.

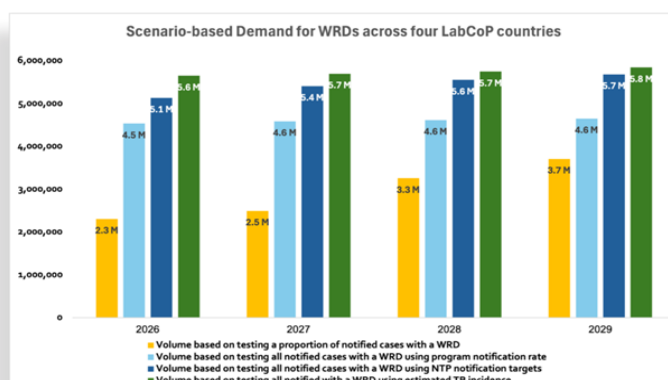


Figure 3: Forecasted test volumes across four LabCoP countries under different scenarios for WRD testing (forecast period: 2026-2029).

Expert Experience



The LabCoP Management team recently sat down with Anafi Mataka, Head of Division at ASLM, to discuss the newly established [Global Diagnostics Coalition](#). This coalition was officially launched at the 78th World Health Assembly in May 2025.

ASLM: Can you tell us why the Global Diagnostics Coalition was formed?

Anafi Mataka: The idea for a global diagnostics alliance that would coordinate and advocate for diagnostics internationally was proposed in the [Lancet Commission on Diagnostics](#) that was published in 2021. The Commission was set up to analyse issues affecting pathology and laboratory medicine and revealed that close to half of the world's population had little to no access to basic diagnostic tools. This was across seven diseases, from diabetes, maternal and newborn care, to HIV, malaria and tuberculosis (TB). For low- and middle-income countries, this access gap increased to 81%, suggesting diagnostics are not equitably distributed, particularly at the primary health care level.

ASLM: Had there been any steps taken on the continent to address this diagnostic gap?

Anafi Mataka: Yes – several key milestones and initiatives stand out. In 2008, African ministers of health identified poor access to [diagnostic testing as a challenge that needed to be addressed](#). They therefore committed to expand and further develop quality-assured laboratory services as part of a greater framework of health system strengthening within resource-limited settings. In addition, the [Freetown Declaration of 2015](#) is another key declaration that emphasized the importance of strengthening diagnostic systems in Africa, specifically by focusing on the development of functional, integrated national laboratory networks. This declaration highlighted

the need for cost-effective and widespread diagnostic service delivery in resource-limited settings. These declarations and many other related calls of action set the stage for laboratory strengthening and highlighted the critical role diagnostics play in outbreak control, as clearly demonstrated during the COVID-19 pandemic.

ASLM: What will the Diagnostics Coalition do?

Anafi Mataka: The Coalition will support the implementation of the WHA resolution on Strengthening Diagnostics Capacity (WHA76.5) so that diagnostics remain integral to any universal health coverage programs. It will also advance the WHO's 14th General programme of work as well as the 2025-2030 Roadmap for access to safe, effective and quality assured health products and technologies. The Coalition aims to achieve three objectives; raise awareness of the importance of diagnostics capacity; conduct advocacy activities to elevate diagnostics as a global health priority and promote sustained investment in diagnostic infrastructure and workforce capacity; and strengthen networking and knowledge sharing.

ASLM: How can ASLM support achievement of these objectives?

Anafi Mataka: ASLM is uniquely positioned to play a pivotal role in the Global Diagnostics Coalition by supporting advocacy for national diagnostics strategies, promoting investment in affordable diagnostics, and facilitating integration of diagnostics into health systems across Africa. Leveraging strong regional networks, and partnerships with WHO AFRO, Africa CDC and Ministries of Health, ASLM has been contributing to working groups on regional pooled procurement, regulatory

harmonisations and future of diagnostics in Africa to support innovation, streamline procurement and accelerate access to quality diagnostics.

ASLM: What role is ASLM playing to support sustainability of these efforts under the current situation of limited funding for national laboratory networks and diagnostics systems?

Anafi Mataka: In the recent past, funding for diagnostics systems in LMICs has drastically reduced as support from traditional funders shifted. These [funding cuts](#) severely threaten access to diagnostics, with an ASLM survey showing that over 80% of countries reported they cannot sustain current laboratory services without replacement funding. ASLM is actively working with the laboratory directors through the Laboratory Director's Forum to develop minimum packages of laboratory services, tailor essential diagnostics lists in line with program reprioritisation, and strengthen coordination between ministries of health and stakeholders to advocate for domestic funding for diagnostics. More important than ever is diagnostic network optimisation (DNO) and integrated testing approaches ensuring the available resources are efficiently used. Many of the LabCoP countries have conducted DNOs and can leverage these data to design lean, sustainable and responsive systems to ensure access to quality testing. Sustained funding and partnerships, including with the private sector, will be crucial to consolidate gains and ensure the momentum from the WHA is not lost.

What's New

Guidance for prioritization of laboratory systems and services

ASLM is developing a minimum package of laboratory care framework that provides a structured and evidence-based approach to prioritize and sustain critical diagnostic services in the face of reduced funding. It will enable laboratory leaders, policymakers, and partners to identify and protect essential tests and capacities that are vital to public health, while optimizing the use of limited resources through integration, standardization, and strategic investment. This framework will also support informed decision-making, enhance system resilience, and ensure continuity of care—particularly for high-burden and epidemic-prone diseases—thus safeguarding health outcomes even in resource-constrained environments.

The minimum package is based on insights gathered during the [Laboratory Directors Forum \(LabDF\) survey](#) and identifies four priorities to ensure continuation of laboratory services:

1. Procurement of tests for priority diseases guided by the National Essential Diagnostic List (NEDL)
2. Basic equipment maintenance services
3. Core staff training and retention
4. Quality control and assurance measures

National programs are currently reprioritising activities in line with Global Fund GC7 Programmatic Reprioritization Approach as well as UNAIDS and IAS HIV sustainability guidance. National laboratory leadership (e.g. Directorate of Laboratory services) should be actively involved in these planning and discussion processes to ensure alignment of programmatic and laboratory-specific priorities. This will guide the laboratory leaders to make informed decisions to implement sustainable and cost-effective laboratory networks and services. Stay tuned for the upcoming release of the minimum package for laboratory services!



Looking Ahead

2025 Annual LabCoP Meeting

Preparations for the 2025 LabCoP Annual Meeting which will take place in Nairobi, Kenya from 22 to 24th October 2025 are well underway. This year's gathering will offer a platform for knowledge exchange, innovation sharing, and peer-to-peer learning. In the lead-up to the event, country teams will conduct self-assessments to guide discussions and highlight progress made in laboratory systems strengthening. Updates on the meeting's venue, and agenda will be shared shortly. Stay tuned for details!

Upcoming ECHO sessions

Some exciting ECHO sessions are scheduled in the coming weeks. Topics will range from country-level innovations aimed at averting the impact of funding cuts, to the integration HIV/TB diagnostic monitoring, and new approaches in tuberculosis diagnostics. These sessions provide opportunities to explore practical solutions and share experiences from across the continent. If you missed earlier webinars, you can catch up in the LabCoP ECHO archive [here](#).

