



2024
ASLM
AFRICAN SOCIETY FOR LABORATORY MEDICINE

Special Convention on Diagnostics

**Transforming Diagnostics
Systems in Africa:**
Harnessing innovation and
quality assurance to elevate
equity and excellence



ASLM SPECIAL CONVENTION ON DIAGNOSTICS
Nov 4-7, 2024
Abidjan

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Table of Contents

| | |
|---|-----------|
| List of Abbreviations and Acronyms: | 5 |
| ASLM 2024 Special Convention on Diagnostics at a Glance | 6 |
| 1.0 Overview | 7 |
| 1.1 Introduction | 7 |
| 1.2 Objectives of the Meeting | 8 |
| 1.3 Meeting Outcomes | 8 |
| 2.0 Session Summaries and Key Messages | 10 |
| 2.1 Opening Ceremony | 10 |
| 2.1.1 Special Recognition | 16 |
| 2.2 Laboratory Systems Strengthening Community of Practice (LabCoP) | 17 |
| 2.2.1 Introduction | 17 |
| 2.2.2 Annual Meeting Sessions and Structure | 17 |
| 2.2.3 Opening Remarks | 17 |
| 2.2.4 LabCoP Achievements and Updates | 18 |
| 2.2.5 Harnessing Data for Decision Making: Navigating Dashboards for Strategic Insights | 18 |
| 2.2.6 Country Experiences | 19 |
| 2.3 LabCoP Breakout Group Discussions | 20 |
| Parallel Breakout Group I: Building on Existing Challenges and Opportunities for Future Plans | 20 |

| | | |
|------------|--|-----------|
| 3.0 | Parallel Breakout sessions | 22 |
| 3.1 | Overview of PEPFAR Grant: Building Sustainable HIV and tuberculosis Laboratory Systems to Achieve 95-95-95 Targets: Achievements, Lessons Learnt and Future Directions. | 23 |
| | Opening Remarks | 23 |
| | Overview of PEPFAR Cooperative Agreement | 23 |
| | Session 1: Effective Waste Management Strategies for Viral Load Testing: Addressing Current and Complex Waste Streams from Emerging Diagnostic Platforms | 25 |
| | Session 2: Assuring Excellence in HIV Testing: The Impact of Equipment Maintenance and Calibration | 26 |
| | Session 3: Building Resilient HIV & TB Laboratory Networks: The Continued Role of Laboratory Quality and Accreditation | 27 |
| 3.2 | Tuberculosis Symposium | 30 |
| 3.3 | Early Infant Diagnosis | 32 |
| 3.3.1 | Perspectives from Recipients of Care | 32 |
| 3.3.2 | Improving HIV EID Access through Laboratory Mapping and Diagnostic Network Optimization | 33 |
| 3.3.3 | Eliminating mother-to-child-transmission of HIV and Hepatitis B | 33 |
| 3.3.4 | Best Practices in Achieving 95% Maternal Viral Suppression Towards Elimination of Mother-to-Child Transmission of HIV | 34 |
| 3.3.5 | Paediatric HIV Surveillance in South Africa: Monitoring the Path to Elimination of Vertical Transmission and the End of AIDS in Children | 35 |

| | | |
|------------|--|-----------|
| 3.4 | Laboratory Directors Forum | 36 |
| | Call to Action | 37 |
| 3.5 | Global Health Security Agenda/PGI Symposium/NPHIs | 38 |
| | Session 1: Symposium on Pathogen Genomics and Global Health Security | 38 |
| | Session 2: Genomics for Public Health Use – Experience from Member States | 40 |
| | Session 3: Implementation of Genomics Use-cases in Public Health Laboratories and Institutions | 40 |
| | Session 4: Strategic Frameworks and Resources to Strengthen Pathogen Genomics in Africa | 41 |
| | Panel Discussion: Towards optimisation of the supply chain for routine genomic surveillance in Africa | 42 |
| | Session 5: Quality Management systems for public health sequencing facilities | 44 |
| | Actionable Items | 45 |
| 3.6 | Future of Diagnostics | 46 |
| 3.7 | Integrated Diagnostics Consortium Meeting | 53 |
| 3.8 | Diagnostic Equity Consortium | 55 |
| 3.9 | Closing Ceremony | 56 |
| | Annexes | 57 |
| | Annex I. Convention Programs | 57 |
| | Annex II: Conference Speaker Bios | 57 |
| | Annex III: DEC Statement and Call to Action | 59 |
| | Annex IV: Link to Conference Presentations | 61 |
| | Annex V: List of Conference Posters | 62 |
| | Annex VI: Sponsors | 65 |

List of Abbreviations:

| | |
|----------|---|
| AFCAD | African Collaborative Initiative to Advance Diagnostics |
| AI | Artificial Intelligence |
| AMR | Antimicrobial Resistance |
| ASLM | African Society for Laboratory Medicine |
| BMGF | Bill and Melinda Gates Foundation |
| CDC | Centers / Centres for Disease Control and Prevention |
| CEO | Chief Executive Officer |
| COVID-19 | Coronavirus Disease 2019 |
| DEC | Diagnostic Equity Consortium |
| EID | Early Infant Diagnosis |
| EDL | Essential Diagnostics List |
| EQA | External Quality Assurance |
| FDx | Future of Diagnostics |
| GF | Global Fund |
| GHSA | Global Health Security Agenda |
| HERA | Health Emergency Preparedness and Response Authority |
| IDC | Integrated Diagnostics Consortium |



| | |
|--------|--|
| ISO | International Organization for Standardization |
| KPI | Key Performance Indicator |
| LabCoP | Laboratory Systems Strengthening Community of Practice |
| mWRD | Molecular WHO-Recommended Rapid Diagnostics |
| mpox | previously known as Monkeypox Virus |
| NHLS | National Health Laboratory Service |
| NPHI | National Public Health Institute |
| PEPFAR | President's Emergency Program for AIDS Relief |
| PGI | Pathogen Genomics Initiative |
| PMTCT | Prevention of Mother-to-Child Transmission |
| POC | Point-of-Care |
| QMS | Quality Management Systems |
| QA | Quality Assurance |
| UHC | Universal Health Coverage |
| VL | Viral Load |
| WHO | World Health Organization |



Special recognition awarded to
His Excellency, General Yoweri Kaguta Museveni,
the President of the Republic of Uganda,
as an African Champion for Laboratory Services
and Diagnosis

ASLM 2024 Special Convention on Diagnostics at a Glance



314

participants
attended in person



432

participants
attended virtually



49

worldwide countries
represented



56%

of delegates were aged
45 years or younger



97%

of delegates indicated that
the objectives of the 2024
ASLM Special Convention
were met

50

original **news stories** were generated during
the **2024 ASLM** Special Convention, and were
featured across local and international media

550,000

people were
reached through



76

social media
posts, with



6,401

engagements



6,033

reactions



48,000

impressions across
various platforms



1.0 Overview

1.1 Introduction

The African Society for Laboratory Medicine (ASLM) plays a pivotal role in strengthening laboratory systems and diagnostics across Africa. With the growing demand for robust diagnostic networks, particularly in the face of global health emergencies and infectious disease outbreaks, the 2024 ASLM Special Convention on Diagnostics convened key stakeholders to explore innovations, challenges, and strategies for scaling diagnostic systems across the continent. The convention, themed ***“Transforming Diagnostic Systems in Africa: Harnessing Innovation and Quality Assurance to Elevate Equity and Excellence,”*** brought together laboratory professionals, public health officials, researchers, and policymakers to address critical diagnostics and laboratory medicine needs, aligned with global health priorities such as Universal Health Coverage (UHC), antimicrobial resistance (AMR), and emerging infectious diseases.

Building on recent achievements and the various

ongoing workstreams in which ASLM has collaborated with governments, funders, key development partners, and other stakeholders, the 2024 ASLM Special Convention on Diagnostics was pivotal in advancing the diagnostics agenda across Africa. By convening stakeholders from diverse sectors within the health spectrum, the Special Convention sparked meaningful discussions and actions to strengthen diagnostics and, ultimately, improve health outcomes across the continent.

A total of 746 participants attended the meeting, with 314 attending in person and 432 joining virtually. The participants represented 49 countries across Africa, as well as India, Europe, and North America (Figure 1). Nearly half of the in-person attendees, 150 (48%), represented the Ministries of Health, including general, tuberculosis, HIV, laboratory directors, while 69 (22%) were from partner organizations (Figure 2). Civil society organisations accounted for 7% of the participants.

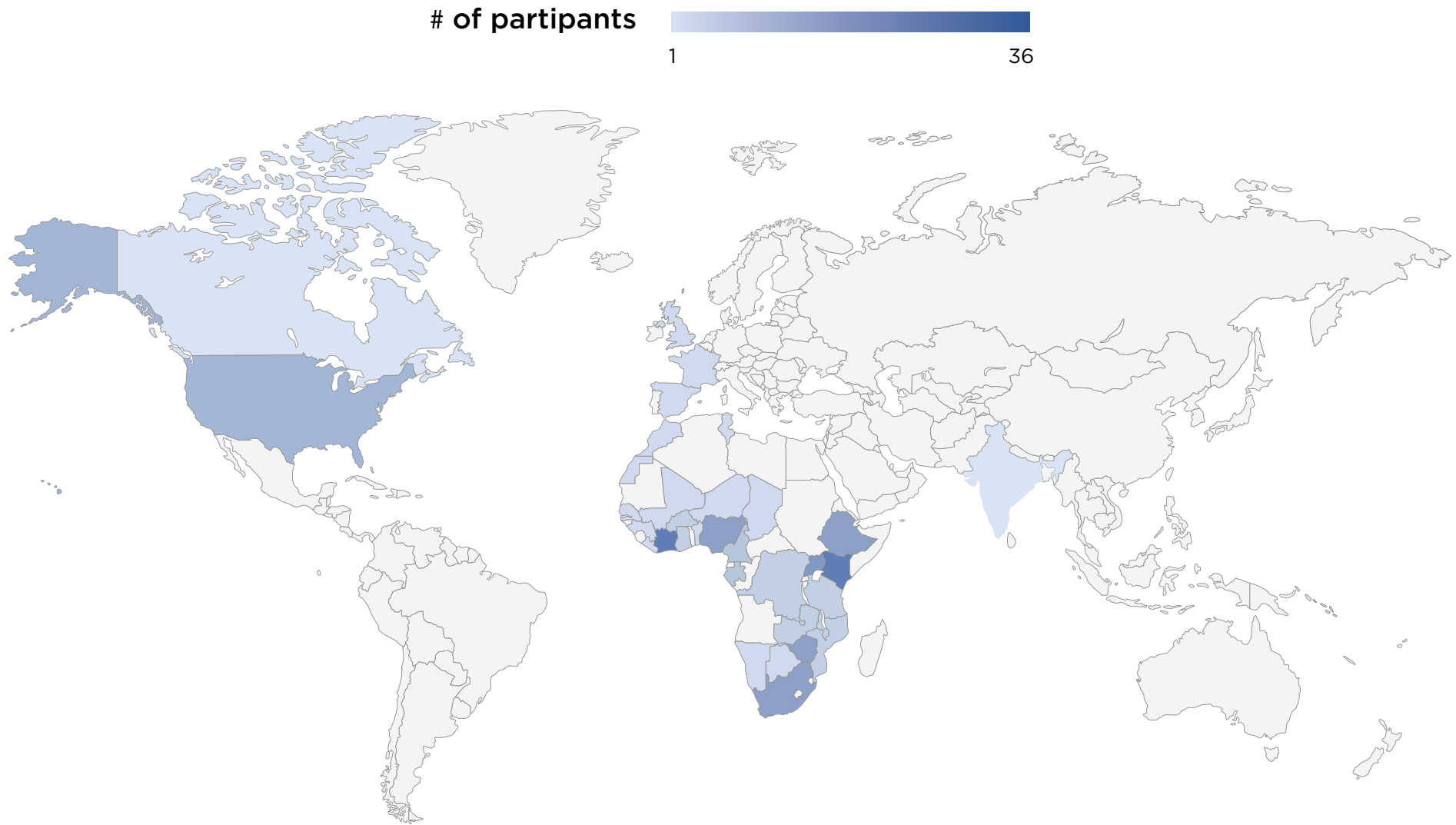


Figure 1: Number of participants who attended the 2024 ASLM Special Convention on Diagnostics by country of origin.

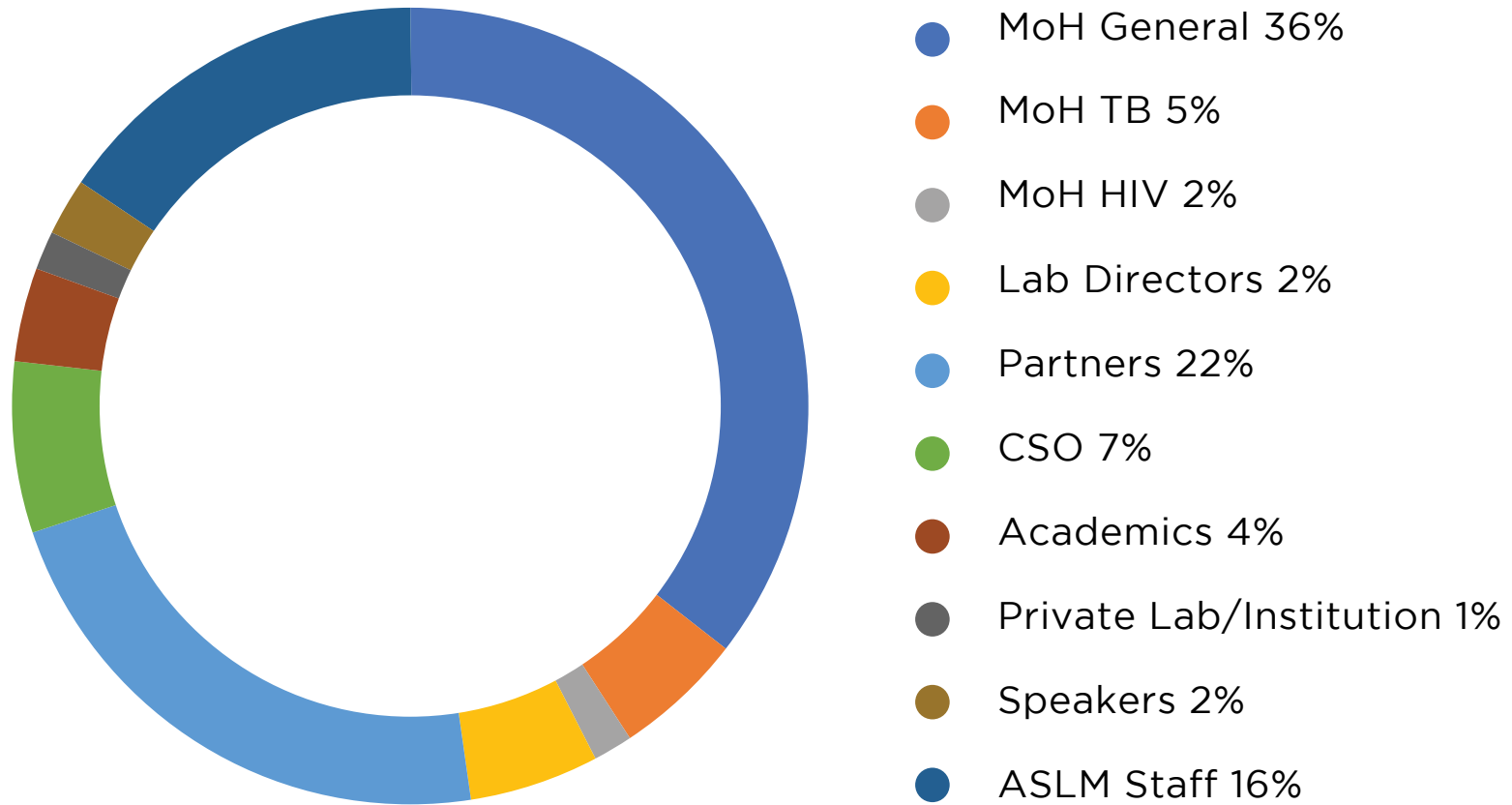
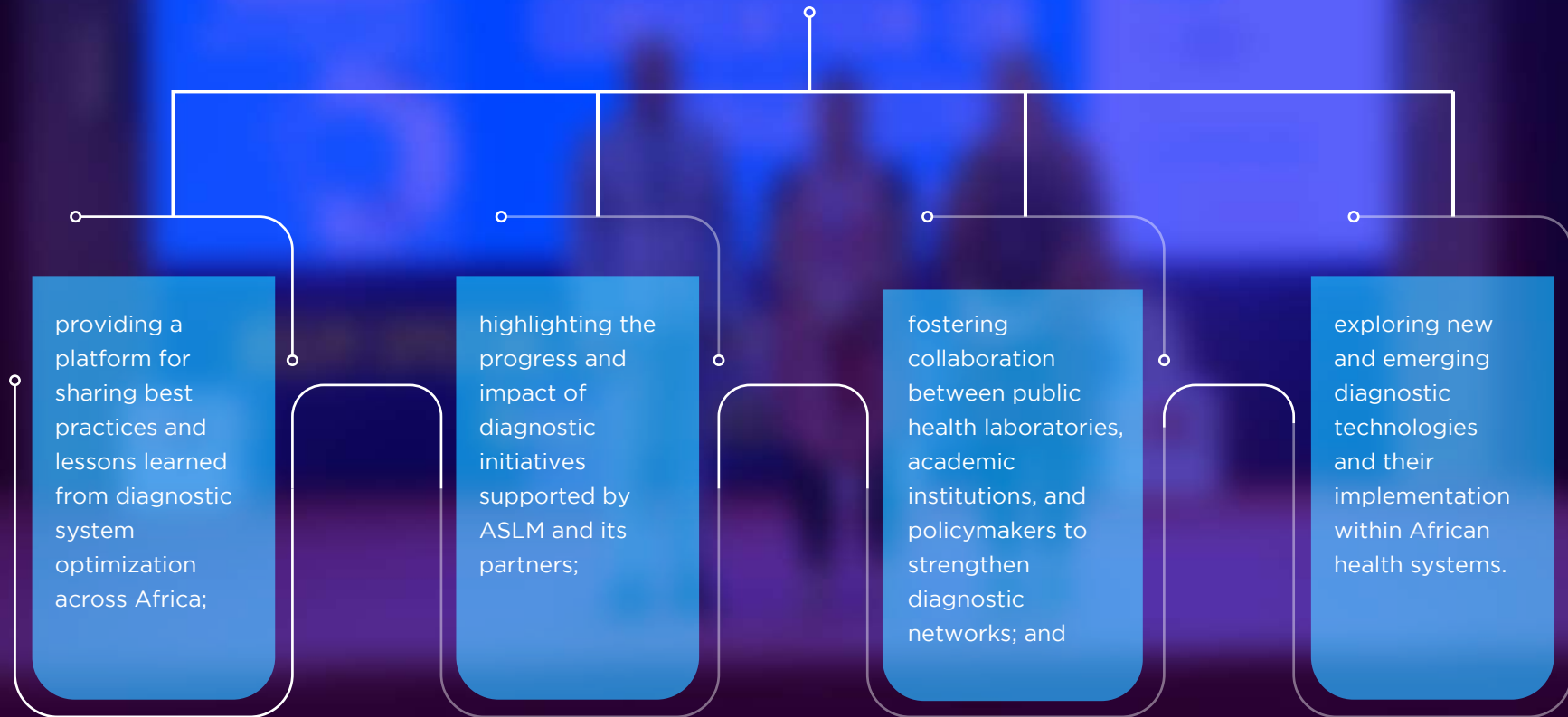


Figure 2: Distribution of participants who attended the 2024 ASLM Special Convention on Diagnostics by affiliation.

1.2 Convention Objectives

The convention objectives included:



1.3 Convention Outcomes

Four key outcomes emerged from the 2024 ASLM Special Convention on Diagnostics. These outcomes were delivered through two types of sessions: full audience sessions and breakout sessions (Table 1).

| Table 1: Summary of sessions at the 2024 ASLM Special Convention on Diagnostics. | |
|--|--|
| Full audience sessions | Breakout sessions |
| <p>LabCoP 7th Annual Meeting: Strengthening Laboratory Systems and Networks: Evaluating Progress and Exploring Opportunities for Improvement (ASLM – BMGF)</p> | <p>Symposia: focused topics, data-driven. GHSA PGI NPHIs annual symposium (ASLM, Africa CDC, BMGF, PEPFAR) New Tuberculosis Diagnostics (ASLM - Global Fund) Strengthening Quality and Safety of HIV and tuberculosis Testing (ASLM –PEPFAR)</p> |
| <p>Opening Ceremony Keynote: High level speakers and Ministers of Health</p> | <p>Satellite sessions: on a focused topic: EID and PMTCT</p> |
| <p>Plenary: Formal presentations from leaders in the field</p> | <p>Future of Diagnostics diagnostic network optimization, market shaping and partner coordination (Integrated Diagnostics Consortium) Leadership, governance and empowerment (Laboratory Directors Forum)</p> |

The high-level outcomes of the ASLM Special Convention highlight ASLM's commitment to advancing diagnostics and laboratory agendas among policymakers, emphasizing civil society's crucial role. A civil society statement called for urgent action to address Africa's diagnostic gap, urging governments, industry, global health organizations, and civil society to collaborate on building resilient and equitable

diagnostic systems. Key initiatives included launching a sub-community of practice for procurement and supply management in genomics and a call for African governments to strengthen laboratory systems and networks to improve access to quality diagnostics continent-wide.



ASLM Convention for Diagnostics Outcomes



Figure 3 : ASLM Convention for Diagnostic Outcomes

1.

ASLM's unwavering commitment to elevating and advancing the diagnostic and laboratory agenda among policymakers




2. Endorsement of civil society's crucial role in advancing diagnostics



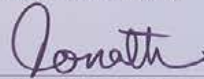
3. Launch of a Sub-community of practice on procurement and supply management (PSM) for genomics

**CALL TO ACTION TO GOVERNMENTS
TO STRENGTHEN LABORATORY SYSTEMS AND NETWORKS
IN AFRICA TO INCREASE ACCESS TO QUALITY DIAGNOSTICS**

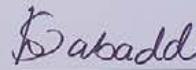
6th November 2024, Abidjan, Côte d'Ivoire



Hon. Dr. Diana Atwine
Permanent Secretary Uganda



Dr. Jonathan N. Kpaka
Deputy Director for Technical Services



Dr. Susan Nabadda
Chair LabDF

for 

Hon. Mr. Pierre DIMBA
Minister of Health, Côte d'Ivoire



Mr. Nqobile Ndlovu
CEO ASLM

4. A call to action for governments to strengthen laboratory systems and networks across Africa, expanding access to quality diagnostics

2024 ASLM Special Convention in pictorial

















2.0 Session Summaries and Key Messages





2.1 Opening Ceremony

The Opening Ceremony began with remarks from both ASLM's Director of Programs and Chief Executive Officer (CEO), and from representatives of key stakeholders.

Dr. Talkmore Maruta, ASLM Director of Programs

Dr. Talkmore Maruta highlighted the urgent need to strengthen Africa's diagnostic systems to tackle global health threats, emphasizing the ASLM Special Convention on Diagnostics' focus on innovation, quality assurance, and equity. He noted that the agenda would cover key areas such as diagnostic network optimization, scaling up access, combating antimicrobial resistance, and leveraging genomics for disease surveillance. He also mentioned a Ministerial Special Session to discuss national strategies, funding, and policy frameworks.

“The convention aims to foster collaboration, share best practices, and drive policy recommendations to enhance diagnostic capacity and access across Africa,”
he said.





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Mr. Nqobile Ndlovu, ASLM Chief Executive Officer

In his keynote remarks the CEO of ASLM, Mr. Nqobile Ndlovu highlighted the concept that “diagnostics are the eyes of healthcare. Without them, we are flying blind”.

Despite their importance, diagnostics still face many challenges, including limited infrastructure and financial resources, geographic barriers, workforce shortages, and supply chain challenges. He indicated that several initiatives have been put in place resulting in much progress, such as the rapid expansion of genomic sequencing at National Public Health Institutes. He also emphasized that communities need to be involved and participate in decision making to increase access to diagnostics. He highlighted that the future laboratory comprises of key focus areas (Figure 4) which include: **connectivity**, ensuring seamless access to and sharing of data; artificial intelligence (AI). Leveraging artificial intelligence to improve decision-making and efficiency, **data digitalization**: transitioning to digital formats for easier data handling and analysis, **automation**: utilizing automated processes to streamline operations, accessibility: making laboratories inclusive and usable for all individuals and **sustainability**: implementing environmentally friendly practices for long-term impact. These elements collectively shape the vision for a future-ready laboratory, emphasizing innovation, inclusivity, and environmental consciousness. He concluded with a call to action to transform global health.

 We need to bridge the gaps in diagnostic access needs collaborative efforts, we need to engage Laboratory Champions and empower laboratory leadership,”

he said.



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Connectivity



Sustainability



AI



Accessibility



Lab
of the
Future

Data
Digitalization



Automation



Figure 4: Laboratory of the Future.

Africa Centres for Disease Control and Prevention,

Dr. Sofonias Tessema

Program Lead Pathogen Genomics

Dr. Tessema indicated that Africa has made remarkable progress in strengthening its diagnostic and overall healthcare systems. However, the coronavirus disease 2019 (COVID-19) pandemic and recurring outbreaks of diseases like mpox, Marburg, Ebola, cholera and the more than 140 outbreaks that Africa experiences every year continue to reveal gaps in diagnostics in Africa. He mentioned that the worst outbreaks are those that circulate and spread undetected.

“Early detection saves lives, livelihoods, and economies,” he said. “It is the backbone of a surveillance system and the signal that ignites response.”





Key Points:

1. Importance of Collaboration:

Africa CDC works closely with member states, ASLM, and partners to enhance capacity in laboratory infrastructure for surveillance and early warning systems, improving laboratory systems and networks, and strengthening human resources and workforce and systems for real-time detection, diagnosis, and response to health threats.

2. Challenges Remain:

Despite collective efforts, diagnostics often remain the weakest link in disease control.

3. Ongoing Initiatives:

Africa CDC continues to improve access to diagnostics in Africa through a number of initiatives.

a. The African Collaborative Initiative to Advance Diagnostics (AFCAD) aims to expedite the adoption of critical diagnostic tools. AFCAD was founded on four

pillars: promoting local manufacturing, establishing Centres of Excellence, harmonizing regulations, and strategic market negotiations.

- b. The Diagnostics Advisory Committee, formed in 2023, supports the identification, validation, and recommendation of diagnostics kits to ensure that technologies meet the needs of diverse field conditions.
- c. The Africa Pathogen Genomics Initiative (Africa PGI 2.0) is another cornerstone strategy,

aiming to establish an integrated, resilient system for molecular diagnostics and genomic surveillance across the continent (Figure 4).

- d. The Biosafety and Biosecurity Initiative is to strengthen regional and continental structures and systems to coordinate implementation.

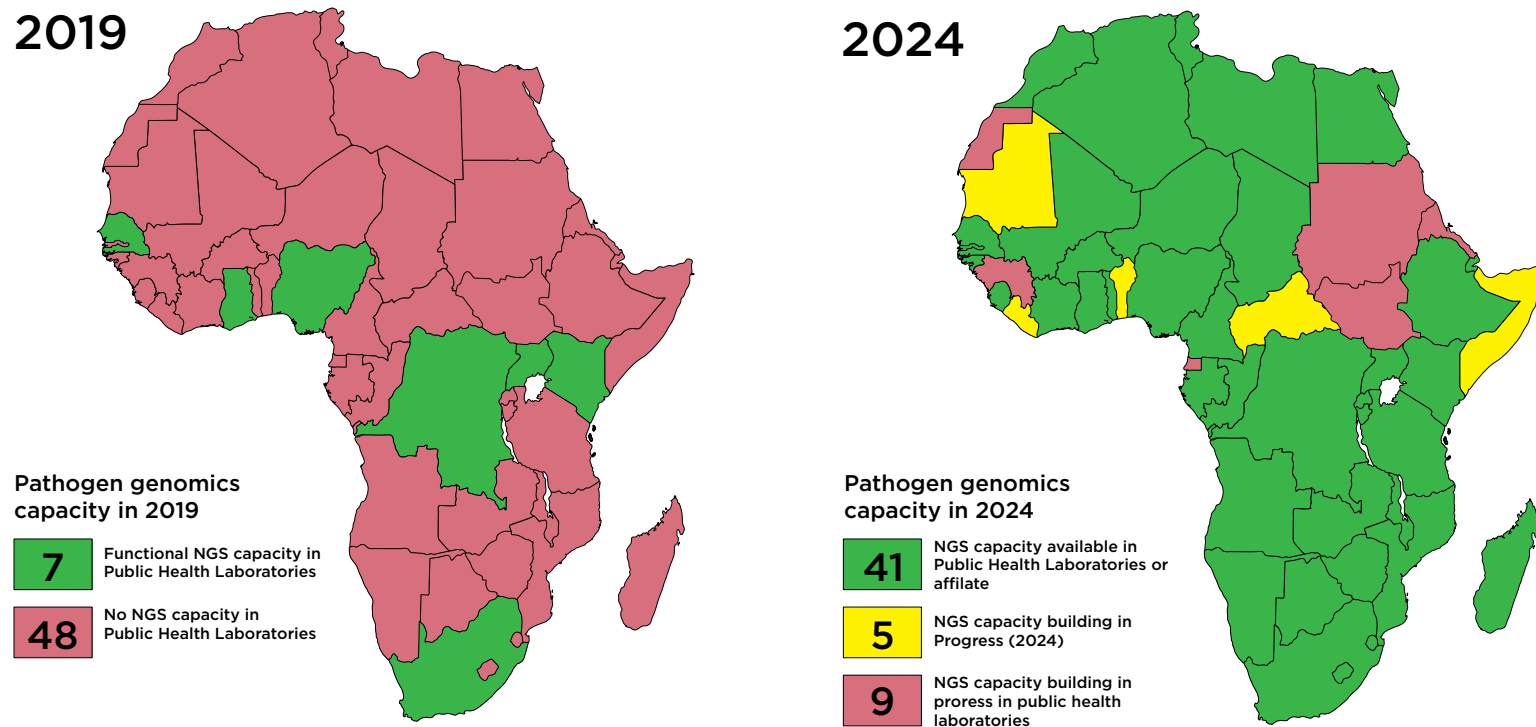


Figure 5: The Africa Pathogen Genomics Initiative has facilitated the expansion genomics capacity at National Public Health Institutes.

Bill and Melinda Gates Foundation

Dr. Thandi Onami,
Program Officer, HIV Vaccines Global Health Division

In her remarks, Dr. Onami stated that diagnostics are foundational to health equity.

“Without the ability to diagnose quickly and accurately, our capacity to treat and prevent diseases diminishes greatly,” she said.





Key Points:



Key Partnerships:

BMGF have partnered with ASLM and Africa CDC through initiatives such as the Laboratory Systems Strengthening Community of Practice (LabCoP) to support countries in integrating essential diagnostics for HIV, tuberculosis, mapping of laboratory infrastructure across Africa, enabling continuous monitoring, and strategic development of laboratory capacity.

Continued Investment in Pathogen Surveillance:

BMGF also invests in scaling up the Africa PGI 2.0, strengthening the continent's surveillance of pathogens, and preparing for public health emergencies.



Confirmed Commitment:

These collective efforts reaffirm BMGF's commitment to supporting innovative diagnostic solutions that reach even the most under-resourced areas. In closing, she emphasized that BMGF is committed to deepening these partnerships for stronger, more resilient health systems across Africa.

The Global Fund to Fight AIDS, Tuberculosis and Malaria

Dr. Juliet Bryant, Medical Laboratory Specialist

Dr. Bryant spoke about how COVID-19 has reshaped the Global Fund's (GF) approach and expanded its focus beyond HIV, tuberculosis, and malaria, commonly referred to as the "Big Three".

The pandemic resulted in a substantial increase in donor funding through the C19RM mechanism, enabling the GF to enhance their efforts in laboratory systems strengthening and work on various pathogens under the umbrella of pandemic preparedness and response.

“This is what ASLM is all about,” she said. “Providing the forum for countries to share their experiences, to champion their best practices, to motivate and inspire their neighbors to follow suit.”



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Key Points:

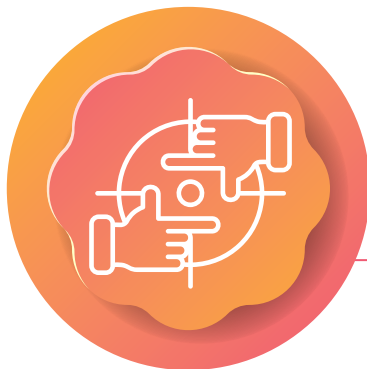
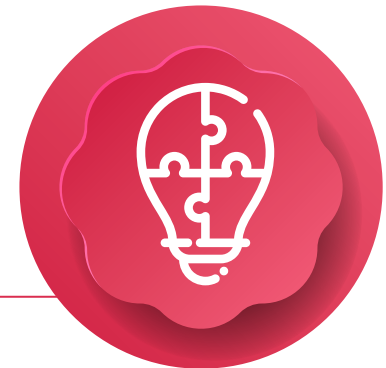


Expanded Scope and Investments:

The GF has broadened its focus beyond the “Big Three” diseases, leveraging C19RM funding to invest in laboratory systems, genomics, and surveillance.

Challenges and Urgency:

The GF faces is addressing hurdles with spending challenges deterring utilization or the COVID-19 funds that were allocated for laboratory systems by 2025, requiring collaboration to maximize impact.



Focus on Measurement and Alignment:

Efforts are underway to develop key performance indicators for laboratory investments while emphasizing diagnostics as key to resilient health systems and aligning global priorities with national strategies

President's Emergency Plan For AIDS Relief

Dr. George Alemnji

Team Lead, Laboratory and Surveillance at the
Bureau of Global Health Security and Diplomacy,

PEPFAR is committed to working with partner countries, ASLM, Africa CDC and other stakeholders to end HIV as a public health threat by 2030 by accelerating progress toward reaching the HIV goals (95/95/95, reduced new infections, reduced equity gaps) and sustaining the gains made in the fight against HIV.”





Key Points:

Leveraging Past Investments:

PEPFAR's investments in HIV laboratory systems have strengthened health systems, enabling high-quality diagnostics and responses to outbreaks like COVID-19, mpox, and Ebola.

Innovation and Local Manufacturing:

Emphasis on multi-disease platforms, AI, pathogen genomics, and African-based diagnostics manufacturing, alongside capacity building for swift regulatory approvals.



Sustainability and Policy Needs:

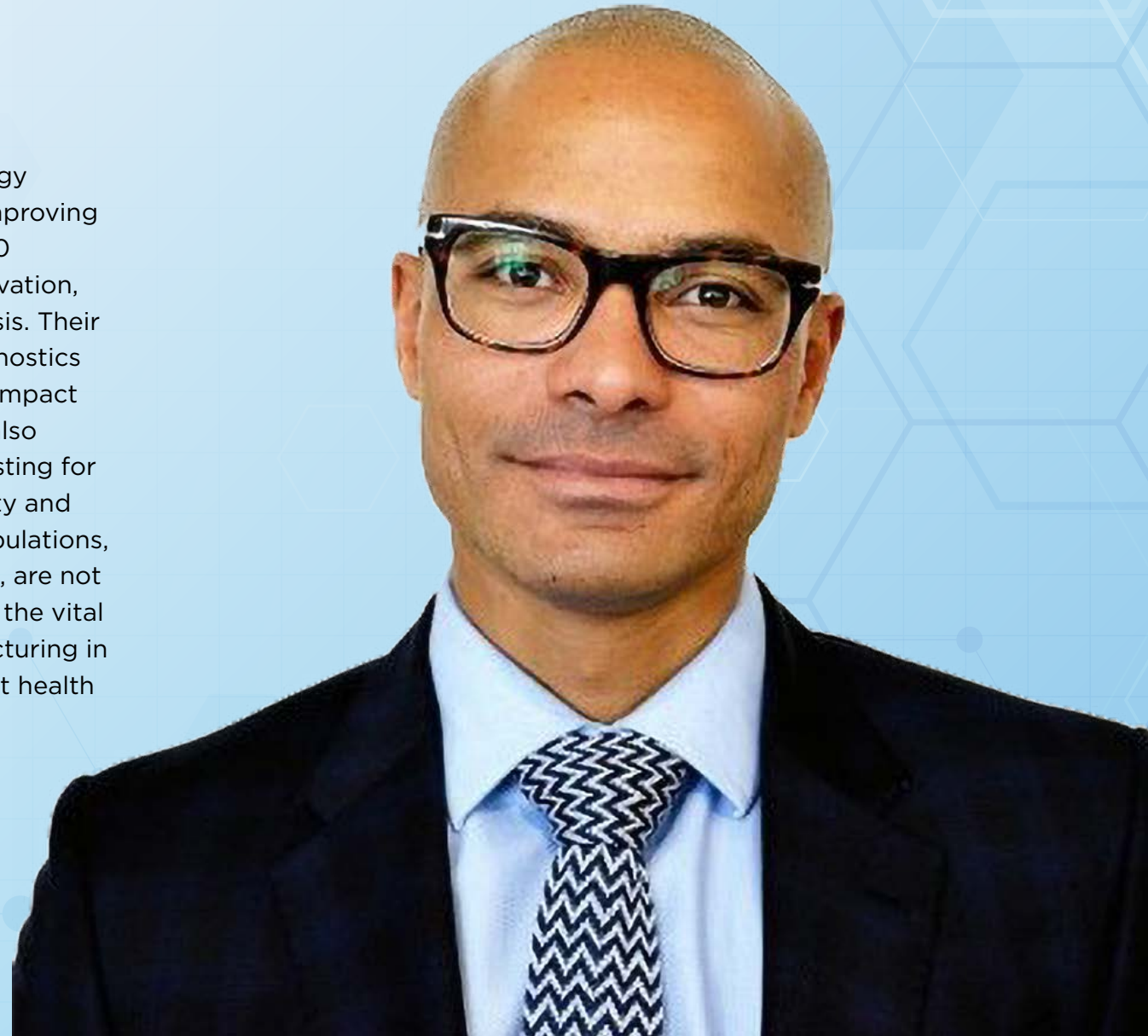
PEPFAR Country Operational Plan for 2025 (COP2025) focuses on sustainable, government-led HIV programs, while policy changes are required to advance decentralized, integrated, and innovative diagnostic strategies.

Unitaid

Robert Matiru,

Director Program, Division

Mr. Matiru shared that Unitaid's strategy prioritizes diagnostics as crucial for improving health outcomes, building on nearly 20 years of investment in diagnostic innovation, initially focused on HIV and tuberculosis. Their approach emphasizes integrated diagnostics across multiple diseases to maximize impact and strengthen health systems. They also champion self-care, promoting self-testing for various conditions, and prioritize equity and access, ensuring that underserved populations, especially in maternal and child health, are not left behind. Finally, Unitaid recognizes the vital role of regional and domestic manufacturing in enhancing access and building resilient health systems.





Integrated Diagnostics:

Unitaid promotes a multi-disease approach to diagnostics, integrating them across various diseases to maximize investments and strengthen health systems.

Self-Care:

Unitaid champions self-testing for various diseases, empowering individuals and communities and making healthcare more accessible.



Equity and Access:

Unitaid prioritizes reaching underserved populations, particularly in maternal and child health, ensuring equitable access to diagnostics and care.



World Health Organization Carl-Michael Nathanson, Global Tuberculosis Program

Dr. Nathanson emphasized the pivotal role of diagnostics in achieving the World Health Organization's (WHO) UHC goals, highlighting that effective treatment and prevention efforts are impossible without proper diagnosis. He underscored the need to make diagnostics accessible to everyone, integrating them into primary health care to build stronger, more adaptable public health systems. He called for a collaborative effort to place diagnostics at the forefront of public health planning to achieve health for all and build resilient systems for the future.



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Diagnostics fundamental to UHC Goals:

Dr. Nathanson highlighted diagnostics as fundamental to effective treatment and prevention, urging their integration into primary health care to strengthen public health systems and achieve WHO's UHC goals.

Progress in Tuberculosis Diagnostics:

WHO's rapid tuberculosis diagnostics, introduced in 2010, have improved detection and drug resistance identification, though access remains hindered by staffing, training, and funding challenges.



Collaboration and Innovation:

Achieving universal access requires innovative, cost-effective point-of-care tests, WHO-aligned standards, and a collective effort to address barriers and align health priorities globally and nationally.



Uganda's Ministry of Health

Dr. Diana Atwine, Permanent Secretary

Representing Uganda's Minister of Health, Dr. Atwine emphasized the alignment of the convention's theme with Uganda's commitment to universal, quality healthcare through evidence-based policies. She highlighted global health disparities and stressed the need for innovative solutions, prioritizing health laboratories in quality care, outbreak management, and pandemic preparedness.





Key Points:

Global Health Disparities and Investment Needs:

Africa carries 25% of the global health burden but receives only 1% of the health budget, highlighting the need for investments in technology, workforce development, research and development, and collaboration to address diagnostic challenges.

Policy and Collective Action:

Strengthening laboratory governance, raising profile of laboratories within Ministries of Health, and fostering innovation require unified efforts to enhance equity and health systems in Africa.

1

2

3

Digitalization and Data Sharing:

Centralizing laboratory data, leveraging AI, and sharing research findings, like Uganda's profiling of viruses of international public health concern, can improve treatments and health outcomes across the continent.

Official Opening

Dr. Soltié Coulibaly-Koné, Deputy Director of Cabinet in Charge of UHC, Cote D'Ivoire

In her official opening remarks Dr. Soltié Coulibaly-Koné, emphasized that key messages in the opening session established a strong sense of urgency and collective purpose, setting the stage for productive discussions and collaborative action towards improving access to quality diagnostics across Africa.



Overall Key Takeaway
Diagnostics are essential
for effective disease
management and
achieving global
health goals.



2.1.1 Special Recognition

ASLM awarded His Excellency, General Yoweri Kaguta Museveni, the President of the Republic of Uganda, with a Special Recognition as an African Champion for Laboratory Services and Diagnosis.

The award was presented by the ASLM CEO, Mr. Nqobile Ndlovu, and was received on behalf of the President by Dr. Atwine Diana, Permanent Secretary of Health, Uganda. The citation on the award read:

 ASLM is honored to recognize one of Africa's luminaries, H.E. President Yoweri Kaguta Museveni, as the ASLM Champion for improving health laboratory services in Africa. Drawing from his bold vision, strong Pan-Africanism, the African Union's Agenda 2063, and the Global Agenda 2030, President Museveni has demonstrated

outstanding leadership and impeccable commitment to improving health services generally and the laboratory sector specifically for Uganda and the entire continent.”

President Yoweri Museveni has been at the forefront of initiating and growing the African Union CDC, believing in African solutions for African problems. Uganda is currently the Chair of the Laboratory Directors in Africa, leveraging its resources and expertise to support advocacy for laboratories across the continent.

President Yoweri Kaguta Museveni delivered a compelling address emphasizing the need for Africa to prioritize local manufacturing of vaccines, medicines, and laboratory equipment. He highlighted how this approach would strengthen the continent's pandemic preparedness, create jobs, save foreign exchange, and enhance local capacities.

He underscored the importance of self-reliance, urging African nations to reduce their dependence on imported medical and laboratory supplies. Aligning with the African Union's Agenda 2063, he advocated for a vision of a resilient health system that supports a healthier

and more productive population. His speech reflected a commitment to fostering innovation, strengthening laboratory services, and promoting Pan-African collaboration to advance healthcare and diagnostics across Africa. This call to action aligns with broader efforts to achieve sustainable health systems and improve public health outcomes on the continent.















2.2 Laboratory Community of Practice (LabCoP)

2.2.1 Introduction

The 2024 LabCoP Annual meeting, held as a “pre-conference” to the ASLM Special Convention on Diagnostics under the theme, “Strengthening Laboratory Systems and Networks: Evaluating Progress and Exploring Opportunities for Improvement” brought together over 100 participants from countries across Africa and beyond. Additionally, there were representations from key implementing partners, donors and Civil Society Organizations. The meeting focused on evaluating performance, identifying capacity gaps,

and setting 2025 priorities for HIV viral load (VL), early infant diagnosis (EID), and tuberculosis for the 24 LabCoP supported countries. Participants worked in small groups to identify gaps, analyze root causes, and prioritize areas for action. Looking ahead, LabCoP aims to deepen its impact by expanding innovative approaches and leveraging technology to enhance data-driven decision-making. The outcomes of this meeting will undoubtedly play a pivotal role in shaping the future of laboratory systems, reinforcing their role as a cornerstone for robust healthcare delivery systems across supported countries.

Participants:



131

attendees from 29 countries, representing diverse affiliations

Participating Countries:

Key nations included Nigeria, Ethiopia, Democratic Republic of Congo, Kenya, Uganda, Mozambique, and others across Africa.

2.2.2 Annual Meeting Sessions and Structure

The LabCoP annual meeting was structured into four sessions including: introduction and opening plenary, two parallel breakout sessions and a fourth session focused on identifying gaps in HIV prevention of mother-to-child transmission (PMTCT) and HIV EID.

2.2.3 Opening Remarks

Representatives from the GF (Juliet Bryant), PEPFAR (George Alemnji), the BMGF (Thandi Onami), ASLM (Nqobile Ndlovu), and Côte d'Ivoire (Dr. Diomande Adama) emphasized the importance of partnerships and collaboration in strengthening laboratory systems and advancing global health priorities.



Key Points:



The success of the LabCoP initiative demonstrates the power of collaboration between country teams and funding organizations to improve laboratory services.

There is a need to focus on scaling up HIV VL, EID, and tuberculosis programs to advance public health goals.

Strengthening national governance in laboratory systems is crucial for improving oversight, data collection, and funding access, leading to more efficient and impactful health outcomes.

2.2.4 LabCoP Achievements and Updates

Dr. Collins Otieno,
 ASLM Portfolio Lead

Dr. Collins Otieno, the LabCoP Project Portfolio Lead, provided a comprehensive update, covering the project journey from its inception in 2017, the focus of each of the three phases of the project this far, implementation strategies, challenges and the projects way forward.

One key strategy highlighted during this presentation was the use of structured assessment to determine the performance of national laboratory systems and networks. It was noted that a total of 136 assessments have been conducted and results of these being systematically used to guide improvements of laboratory systems and networks.

Improvement in Laboratory Systems underlying VL testing: Country x case study

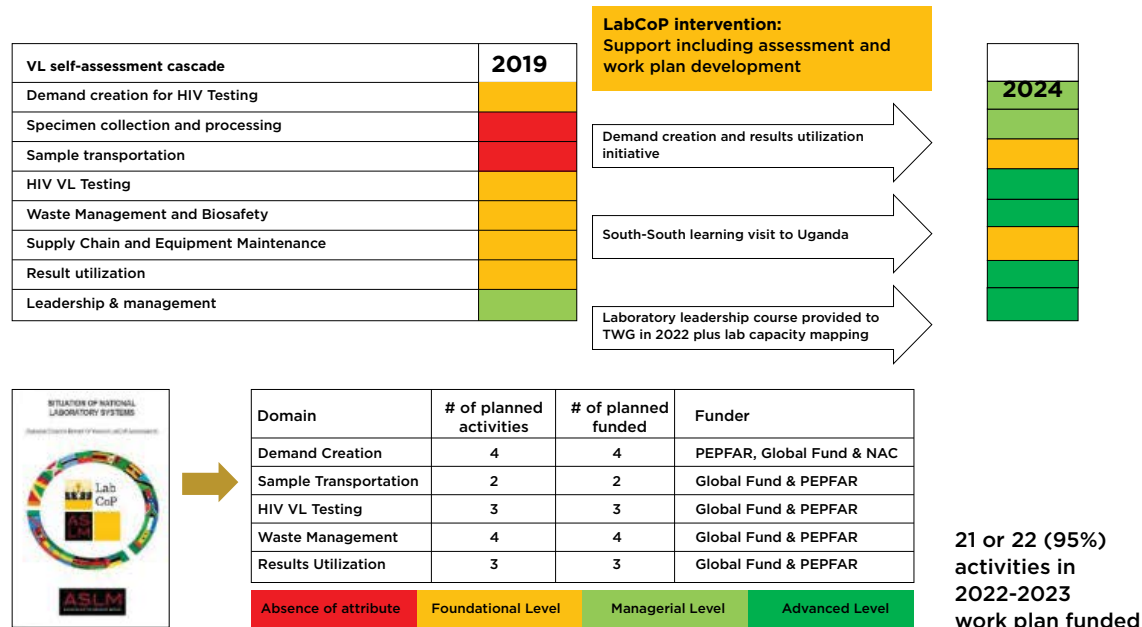


Figure 6: Sample of country performance from 2019 to date.

2.2.5 Harnessing Data for Decision Making: Navigating Dashboards for Strategic Insights

Mr. Michael Maina,
ASLM Monitoring and Evaluation

In his remarks, Mr. Maina informed the meeting participants that consolidation of assessment results (ASLM self-assessments, LabNet, Integration, laboratory mapping) into electronic dashboards promote easy access and monitoring of laboratory systems and networks. This enables evidence decision-making contributing to strengthening of laboratory systems and networks.

2.2.6 Country Experiences

Optimisation of PMTCT testing accessibility and coverage from the perspective of laboratories

Ms. Judith Mzyece,
Ministry of Health, Zambia

Ms. Mzyece attested to the utility of LabMap program, indicating that it is the best tool to assess the different components of the laboratory network

which is key for laboratory systems strengthening. Additionally, data from LabMap informs and measures the performance of the strategic plan and health policy, she said. Leveraging South-to-South Experience to Improve Laboratory Systems

Ms. Agnes Juru, Ministry of Health, Zimbabwe
Ms. Juru highlighted that employing communities of practice, such as virtual platforms (e.g., ECHO) and south-to-south learning, are efficient methods for enhancing best practices in laboratory system strengthening.

Nigeria WHO Tuberculosis Standard Implementation Experience

Dr. Amos Fadare,
WHO

Dr. Fadare notified the participants that the WHO tuberculosis standards assist countries in assessing their progress with WHO-recommended Rapid Diagnostics (WRD) implementation. They also help identify best practices for sharing, highlight gaps that need addressing, and capture lessons learned to guide future WRD placements.

2.3 LabCoP Breakout Group Discussions

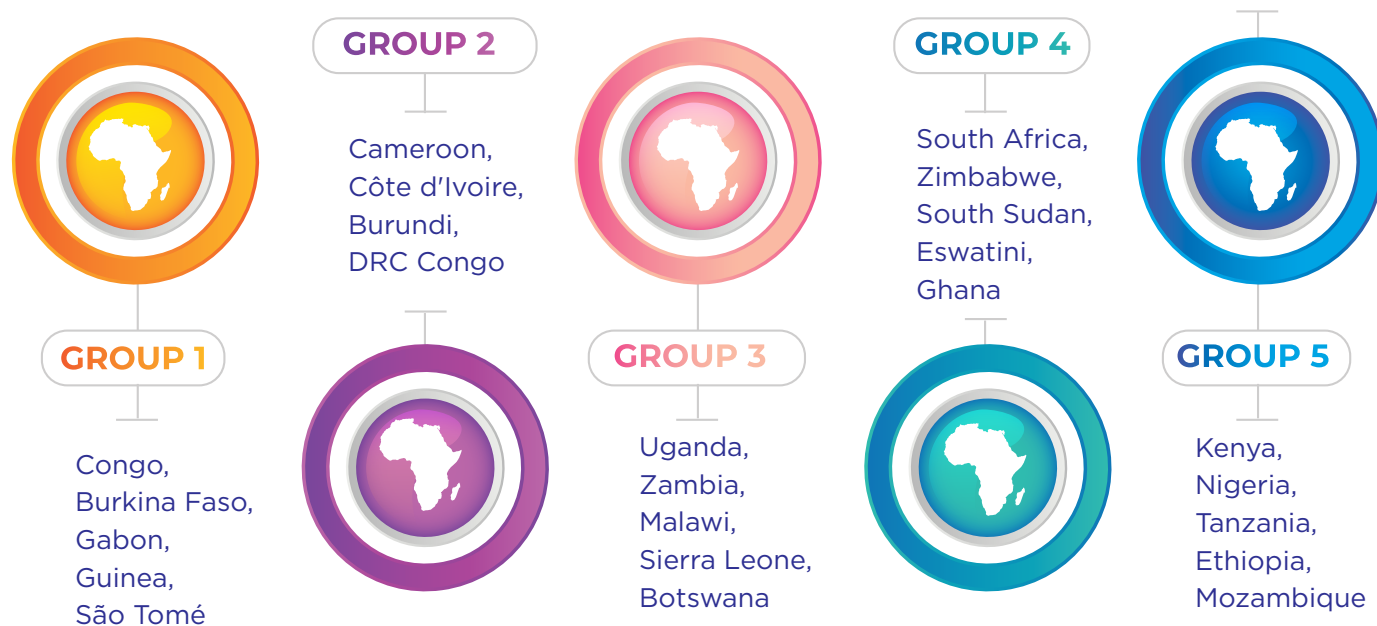
Parallel Breakout Group I:

Building on Existing Challenges and Opportunities for Future Plans

Aim:

Reflect on the prepared logic framework (from the 2024 LabCoP in-country workshop) to address prioritized gaps.

Group Assignments:



Key Questions:

What are the priorities?

For HIV, EID, or other areas?

For the entire laboratory system?



Key discussion outcomes

Summary of Weaknesses, Root Causes, and Proposed Interventions:

Supply Chain Management and Equipment Maintenance

Weaknesses: Lack of maintenance plans, insufficient qualified personnel, no computer system for supply management, poor forecasting, funding gaps, supplier delays, and regulatory hurdles.

Interventions: Develop maintenance plans, train personnel, set up supply management systems, allocate dedicated budgets, and improve communication with suppliers.

HIV VL and EID Testing

Weaknesses: Absence of quality policies, lack of guidelines and funds for quality management systems (QMS) implementation, and non-laboratory personnel performing point-of-care (POC) tests.

Interventions: Develop national quality policies, implement (quality assurance) QA programs, revise guidelines, train non-laboratory personnel, and advocate for resource allocation.

Sample Transport

Weaknesses: Lack of resources, poor coordination, no leadership, and absence of a sample transport system.

Interventions: Advocate for funding, create stakeholder consultation frameworks, establish laboratory management for coordination, and implement a sample transport system.

Key Questions:

What are the priorities in relation to the WHO tuberculosis standards



Key discussion outcomes across the countries

Summary of Weaknesses, Root Causes, and Proposed Interventions:

1. Tuberculosis Diagnostic Laboratories Achieving Turn-around Time \leq 48 Hours for $>80\%$ of Samples

Weaknesses: Lack of laboratory information management systems, reliance on paper-based systems, non-interoperable electronic systems, and non-standardized key performance indicators (KPIs).

Interventions: Establish a laboratory data and information management system, adopt standardized electronic systems, and implement interoperable solutions.

2. Access to Wide Range Diagnostics in Basic Health Facilities

Weaknesses: Non-operational sample transport plans, lack of generalized information management systems, limited decentralized testing, long turnaround times, and insufficient human resources.

Interventions: Operationalize and scale up sample transport plans, decentralize testing (e.g., POC systems), implement electronic health information systems, and increase human resources for health.

3. WRD Testing Capacity Meeting Anticipated Needs, Including Surge Capacity

Weaknesses: Insufficient supply of molecular tools, unclear procurement procedures, and lack of national procurement frameworks.

Interventions: Advocate for government involvement in machine purchases, address gaps in diagnostic tests, and utilize authorized procurement mechanisms like the Global Drug Facility.



The banner features a dark blue background with a white grid pattern on the left. It includes logos for the Bill & Melinda Gates Foundation, The Global Fund, Africa CDC, PEPFAR, and ASLM. The text 'ASLM SPECIAL CONVENTION ON DIAGNOSTICS' is written in large yellow letters, with 'Nov 4-7, 2024: Abidjan' in white on a blue circular background. Two circular inset photos show a woman and a man in lab coats using microscopes.

Supply Chain & Resource Management

Key Issues:

- Supply stockouts
- Gaps in equipment maintenance
- Stockout-related service interruptions

Interventions:

- **Budget Advocacy:** Include labs in national budget planning.
- **Coordination:** Improve supplier communication; pre-shipment clearance.
- **Service Agreements:** Dedicated budget and agreements for maintenance.
- **Regional Collaboration:** Use platforms for cross-country resource sharing.

Figure 7: Key Issues and Interventions for Supply Chain and Resource Management



The banner features a dark blue background with a white grid pattern on the left. It includes logos for the Bill & Melinda Gates Foundation, The Global Fund, Africa CDC, PEPFAR, and ASLM. The text 'ASLM SPECIAL CONVENTION ON DIAGNOSTICS' is written in large yellow letters, with 'Nov 4-7, 2024: Abidjan' in white on a blue circular background. Two circular inset photos show a woman and a man in lab coats using microscopes.

ASLM SPECIAL CONVENTION ON DIAGNOSTICS
Nov 4-7, 2024: Abidjan

Leadership & Quality Management

Key Issues:

1. Lack of lab directorates in health ministries
2. Inadequate quality management (QMS) at lower levels
3. Absence of standardized quality assurance (QA) plans

Interventions:

- **Budget Advocacy:** Include labs in national budget planning.
- **Coordination:** Improve supplier communication; pre-shipment clearance.
- **Service Agreements:** Dedicated budget and agreements for maintenance.
- **Regional Collaboration:** Use platforms for cross-country resource sharing.

Figure 8: Key Issues and Interventions for Leadership and Quality Management

2024 ASLM Special Convention in pictorial















3.0 Parallel Breakout sessions



The rest of the meeting was organized into eight parallel breakout sessions where strategic conversations focused on innovative solutions for strengthening diagnostics in Africa took place. Country programs, implementers, and community representatives had an opportunity to share experiences and insights on diagnostics.

The sessions included:

- PEPFAR Grant
- Tuberculosis Symposium
- Early Infant Diagnostics
- Laboratory Director's Forum
- Pathogen Genomics and Global Health Security
- Future of Diagnostics
- Integrated Diagnostics Consortium (IDC)
- Diagnostic Equity Consortium (DEC)

3.1 Overview of PEPFAR Grant:

Building Sustainable HIV and tuberculosis Laboratory Systems to Achieve 95-95-95 Targets: Achievements, Lessons Learnt and Future Directions.

Session Objectives:

1

Highlight the impact of the PEPFAR grant on laboratory systems across target countries.

2

Examine achievements in advancing quality, accessibility, and innovation in HIV diagnostics.

3

Identify persistent challenges and recommend strategic actions for sustainability and equity.



Opening Remarks

Dr. Heather Alexander,
Branch Chief, International
Laboratory Branch, United
States CDC and
Mr. Nqobile Ndlovu,
CEO, ASLM

- Highlighted the strong collaboration between CDC/PEPFAR and ASLM for the last 13 years
- Welcomed the participants and acknowledged ASLM for convening the conventions to bring laboratory leaders and professional together to discuss
- Areas of support include waste management quality assurance, equipment maintenance
- In order to strengthening lab systems and services
- The meeting would help to get feedback from countries to know where the gaps are and how to close them.

Overview of PEPFAR Cooperative Agreement

**Ms Beatrice van der Puije,
Project Lead, ASLM**

The PEPFAR grant, which ASLM has led over the last five years, has played a transformative role in advancing laboratory systems across Africa, aligning with global health priorities and the UNAIDS 95-95-95 targets. Through investments in quality assurance, innovative diagnostics, and human resource capacity building, PEPFAR has significantly strengthened the resilience and equity of healthcare systems in 28 countries.

These efforts have not only enhanced the quality and accessibility of HIV diagnostics but also contributed to improved integration with tuberculosis testing and broader public health goals.

The PEPFAR sessions reflects on the milestones achieved, identifies persistent gaps, and charts a forward path to ensure sustainability and greater equity in diagnostic services.



Achievements and Key Impacts

PEPFAR's targeted investments have strengthened laboratory systems across 28 African countries, addressing critical gaps in quality, infrastructure, and accessibility. These efforts have significantly contributed to achieving UNAIDS' 95-95-95 targets and improving clinical outcomes.

Key milestones include:



1. International Organization for Standardization (ISO) Accreditation and Quality Assurance:

- o Six HIV VL/EID laboratories in Ethiopia accredited to ISO 15189 standards, setting benchmarks for diagnostic quality.
- o Over 300 laboratories engaged in external quality assessment (EQA) programs, fostering continuous improvement.



2. Innovative Diagnostic Technology Expansion:

- o WHO prequalification of 10 diagnostic platforms, increasing availability of advanced technologies in resource-limited settings.
- o Scaled-up VL and EID testing expanded access for underserved populations.



3. Biosafety and Waste Management:

- o Development of regional guidance on managing hazardous and complex diagnostic waste streams, including guanidinium thiocyanate.
- o Training provided to stakeholders across 28 countries, promoting sustainable waste management practices.



4. Equipment Maintenance and Calibration:

- o Certification programs trained over 30 biomedical engineers, building local capacity.
- o Establishment of calibration centres in Ethiopia and Tanzania ensures accurate diagnostics.



5. **Data Integration through Laboratory Information Systems:**

- o Laboratory information system deployment in seven countries streamlined data management and improved integration with clinical services.



6. **Strengthening Partnerships and Collaboration:**

- o Partnerships with national ministries, WHO, and regional organizations supported sustainable advancements in laboratory systems.
- o Knowledge exchange platforms enabled multi-disciplinary collaboration for better diagnostic outcomes.



7. **Strengthening Quality and Safety in HIV and Tuberculosis Testing:**

- o Enhanced integration of diagnostics for HIV and tuberculosis co-infections improved access and equity.
- o Innovative methods, such as stool-based testing for paediatric tuberculosis, addressed diagnostic challenges in high-burden populations.



Session 1:

Effective Waste Management Strategies for Viral Load Testing: Addressing Current and Complex Waste Streams from Emerging Diagnostic Platforms



Dr. Monte Martin:

Lead, Laboratory Systems Strengthening Team, US CDC

Dr. Collins Otieno:

Portfolio lead, ASLM

Mr. Edward Krisiuinas:

Waste Not Want Not International Inc

Dr. Senam Tengay:

Jospong Group of Companies, Ghana

Dr. Slobodanka Pavlovic:

Waste Not Want Not International Inc.

Mr. Viktor Hirstov:

Waste Not Want Not International Inc

Mr. Yatich Kennedy:

Ministry of Health, Kenya

Mrs. Gladys Ngeno:

Consultant, Ministry of Health, Netherlands



Several collaborative initiatives have been put in place to address issues of waste management, with 22 waste management trainings and over 150 participants trained. Through the Public Private Partnership between Roche Diagnostic, US CDC and ASLM Waste Cost Assessment Framework (WCAF) was developed and implemented in 23 laboratories across eight countries (Eswatini, Ethiopia, Kenya, Malawi, Nigeria, Uganda, Zambia, and Zimbabwe) and independently in 7 laboratories in Lesotho.

The tools allowed laboratories to identify and categorize waste streams into solid and liquid components, covering pre-analytical, analytical, and post-analytical phases. They also validated waste types by weighing and recording using laboratory scales to standardize the true cost of laboratory waste disposal. Some of the success of this program include upskilling of local lab staff in waste management budgeting, with three countries identified being able to estimate waste management costs and were able to secure funding totalling over 500,000 USD.

As part of strengthening medical waste management, ASLM established Waste Management Sub Community of Practice, where countries share experiences, Figure 9. Ghana and Kenya shared their experiences on the application of public private partnerships in medical waste management.

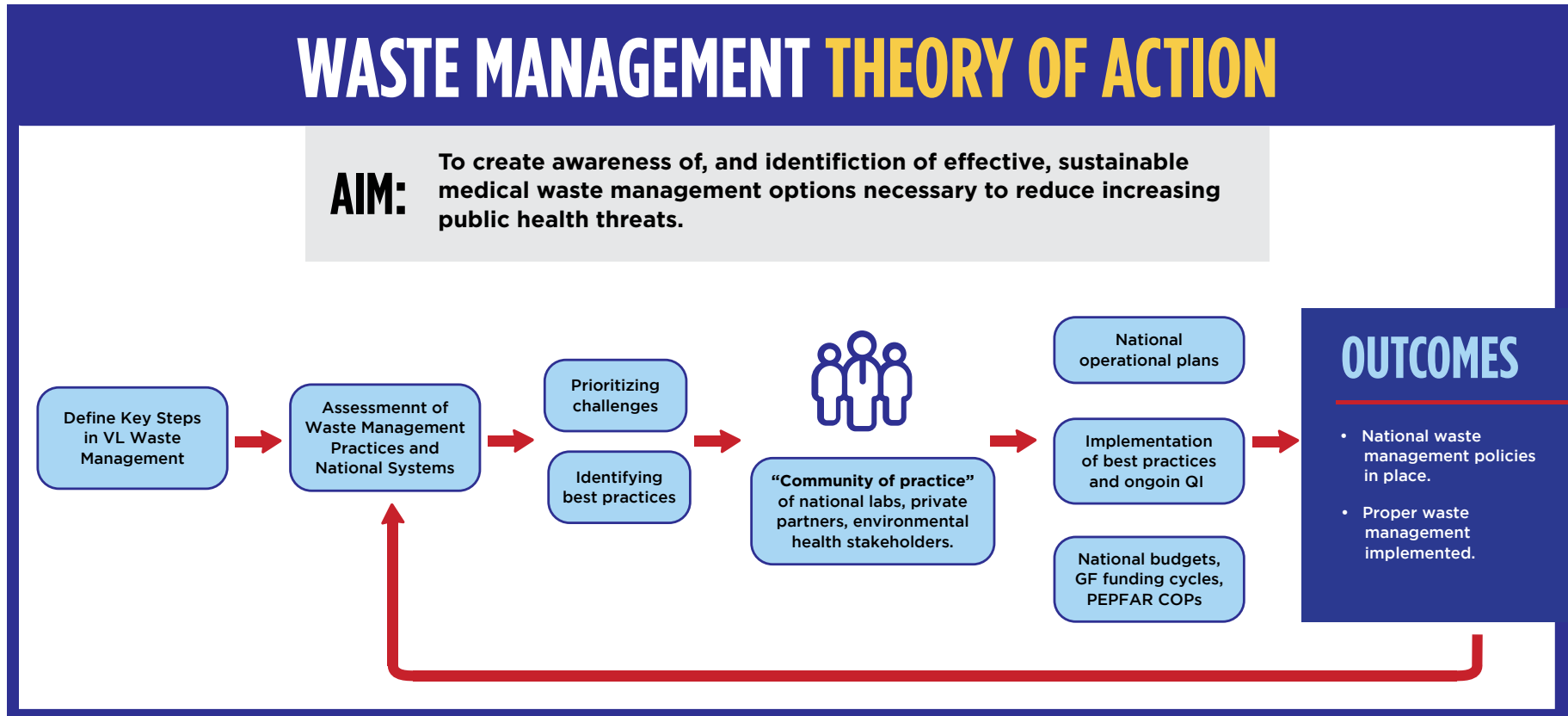


Figure 9: ASLM Waste Management Theory of Action



Session 2:

Assuring Excellence in HIV Testing: The Impact of Equipment Maintenance and Calibration



Dr Monte Martin

Lead, Laboratory Systems Strengthening Team,
US CDC

Mr Francis Ocen,

Program Manager, ASLM

Dr Visopo Harawa,

Program Manager, ASLM

Eng. Abdul Mutaka,

Head of Engineering, National Health
Laboratory & Diagnostic Services
(NHLDS), Uganda

Frequent downtime of ancillary equipment is a rate limiting step toward improved efficiencies leading to delayed response to public health threats, decreased quality of testing and reduced community trust. The equipment maintenance project was launched in 2016 focusing on strategy development, equipment calibration trainings and procurement of ancillary equipment.

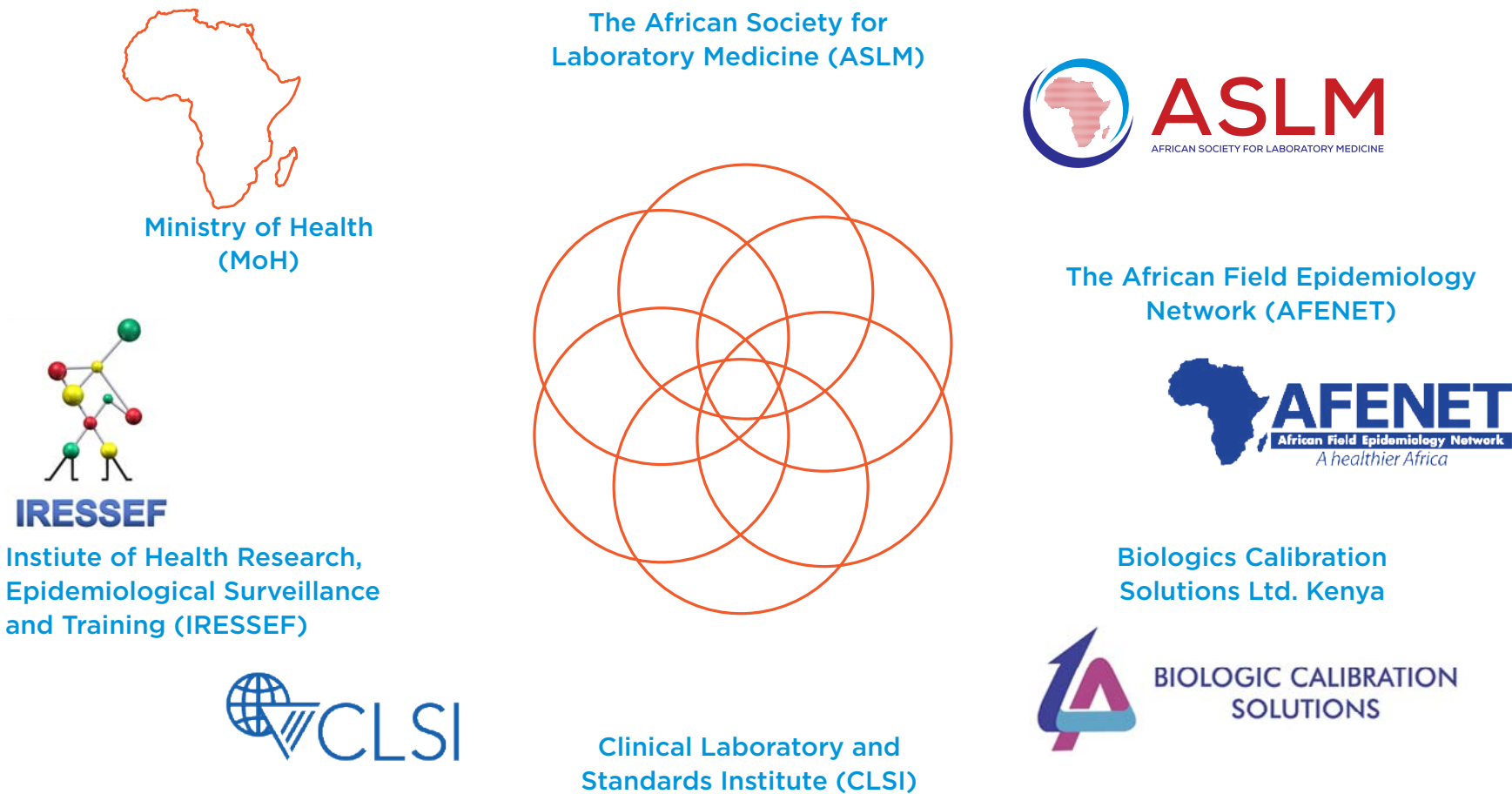


Figure 10: Equipment Calibration implementation partners.



Establishment of Regional Calibration Centers (RCC's) of ISO 17025-accredited RCCs in Uganda, Kenya and Nigeria to serve as regional hubs for equipment calibration. established a network of Centers of Excellence, with plans to expand RCCs across five strategic locations and establishment of a technical working group to provide technical expertise.

A comprehensive capacity building approach to a sustainable laboratory equipment management and for this to happen technical skills, mentorship and supervision with provision of resources for continuous learning development



Session 3:

DIAGNOSTICS
Nov 4-7, 2024:
Abidjan

Building Resilient HIV & TB Laboratory Networks: The Continued Role of Laboratory Quality and Accreditation



Ms. Beatrice van der Puije,
Project Lead , ASLM

Mr. Awad Mohammed,
Gutema Bulti, Ethiopia Public Health Institute

Country Experience:

Ethiopia's journey towards ISO 15189 accreditation of VL and EID laboratories through collaborations with ASLM. Through this collaboration, more than 200 laboratory professionals have been trained on different components of laboratory quality management system. A baseline assessment using SLIPTA checklist was conducted at 10 HIV Viral load/EID laboratories. Some of the success include accreditation of three HIV viral load/EID laboratories. The presenters highlighted that collaboration and partnership with ASLM and other partner is very important to achieve sustainable public health improvements.

Session Stool-Based Testing for Paediatric TB Diagnosis



Dr. Petra de Haas, Dr. Mansa Mbenga

The team presented the results of a survey on stool based testing for diagnosis of tuberculosis among paediatrics, which showed varying levels of implementation across countries, Figure 11.

Number of countries per implementation phase

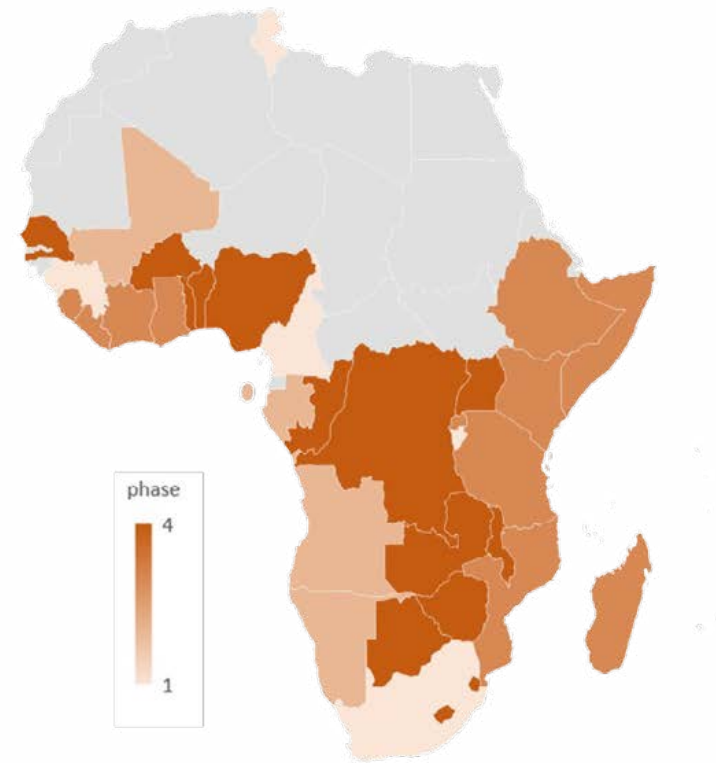
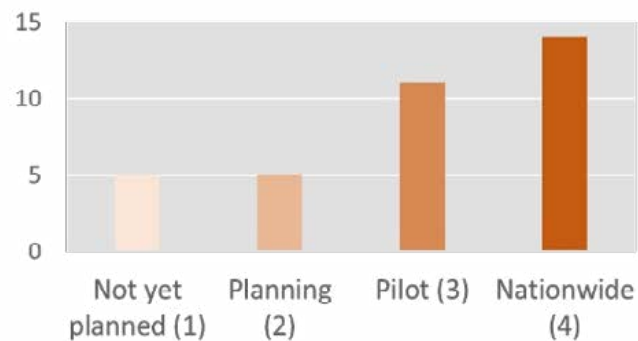


Figure 11: Phase of implementation of stool-based testing among African countries.

Key Discussion Points on HIV and Tuberculosis Testing



Diagnostic Integration and Multi-Disease Testing:

Enhanced co-infection diagnostics were recognized as crucial for expanding testing access.

Decentralized models and point-of-care platforms were explored as pathways for improved coverage.



Challenges in Tuberculosis Diagnosis:

Persistent bottlenecks in sputum sample collection and processing hinder accurate diagnosis.



Innovative Approaches:

Less invasive diagnostic methods (e.g., stool, urine, tongue swabs) show promise in improving case detection for both tuberculosis and HIV.



Stool-Based Testing for Diagnosis of Pediatric Tuberculosis

Stool-based testing emerged as a transformative solution for diagnosing paediatric tuberculosis, addressing the challenges of sputum collection in children.



Key Insights



Comprehensive resources, including standard operation procedures and training materials, needed to support stool-based testing.

Laboratory staff report stool testing as practical and comparable to sputum testing workflows.



Simplified collection methods, such as on-the-spot stool sampling, enhance feasibility and adoption.

Challenges and Strategic Opportunities

Despite these successes, the sessions identified several persistent barriers to sustaining progress:

- **Limited Country Ownership:**
Inadequate financial commitments threaten the longevity of achievements.
- **Gaps in Biosafety Practices:**
Evolving diagnostic technologies require updated waste management frameworks.
- **Equity Gaps:**
Disparities in access to advanced diagnostics persist, particularly in rural and underserved regions.
- **Retention of Skilled Human Resources:**
Challenges in retaining biomedical engineers and laboratory professionals impact capacity.
- **Policy Fragmentation:**
Lack of harmonized regulations hinders scalability and adoption of innovations.

Call to Action:

Prioritizing Sustainability and Equity

The session concluded with a call for strengthened collaborations to address persistent gaps in HIV and

tuberculosis diagnostics, ensuring equitable access to quality testing services for all populations.

1. **Promote National Ownership:**
Empower governments to lead the funding and management of laboratory systems, transitioning donor support to capacity-building efforts.
2. **Foster Innovation and Equity:**
Invest in cost-effective, scalable diagnostic technologies to ensure equitable access across all populations.
3. **Strengthen Regional Collaboration:**
Develop cross-border frameworks for equipment maintenance, waste management, and EQA implementation.
4. **Enhance Workforce Retention:**
Create career pathways and retention strategies for biomedical engineers and laboratory personnel.
5. **Harmonize Policies:**
Align national regulations with global standards to support seamless and sustainable adoption of diagnostic advancements.

“Without Diagnostics we
are navigating blindly.”

3.2 Tuberculosis Symposium:

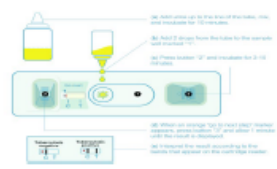



Tuberculosis-related deliberations were held under three themes: tuberculosis diagnostics, WHO Diagnostic Standards, and stool-based testing for pediatric tuberculosis diagnostics.

Tuberculosis Diagnostics:

ASLM partners with countries and donors to strengthen the quality and safety of tuberculosis testing to increase detection of missed cases, which are estimated at 31 million per year. Sputum sample collection, handling and management is still a bottleneck to tuberculosis diagnosis. Less invasive and easy-to-collect samples such as tongue swab, urine and stool were suggested as alternatives that can be explored to improve tuberculosis detection. Decentralization of testing through rapid molecular and POC methods in high-burden countries will improve access and coverage.

WHO Diagnostic Standards: Discussions focused on the importance of WHO Diagnostic Standards, including molecular WHO-recommended rapid diagnostics, in planning a comprehensive approach to diagnosis of tuberculosis. The Global Fund presented on its Next Generation Market Shaping Strategic Initiative, which will provide information needs and demands for tuberculosis testing (Figure 12).

The NextGen SI Country Readiness Interventions for Tuberculosis (TB) aims to support improved access to quality diagnostics

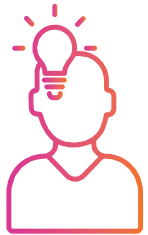
| Component | | Activities | Eligible Products | |
|-----------|---|---|---|--|
| 1 | Market size estimation to support and enable at-scale introduction of new TB Diagnostic tools | <ul style="list-style-type: none"> Support baseline assessment of WHO Diagnostic standards Use existing DNO/DNAs to identify potential procurement needs for new low complexity NAATs, near POC platforms Landscaping/mapping of CXRs & CAD in country <p>20 TB priority countries + 5 WCA</p> | Urinary Point Of Care tests <ul style="list-style-type: none"> 3rd Generation LAM tests in trials Larger market if indication broadens to outside PLHIV GDG 2026 may give guidance |  |
| 2 | Regional engagement to support demand for introduction of new diagnostic tools | <ul style="list-style-type: none"> Facilitate regional platforms for knowledge sharing to support potential demand generation and implementation planning <p>All interested countries in the region can participate</p> | New sampling techniques with near Point of Care tests <ul style="list-style-type: none"> Tongue swabs Potentially very large market, depending on the indication Use in new near point of care platforms WHO GDG 2025/26 may give guidance |   |
| 3 | Technical assistance to translate normative guidance into national strategies and planning | <ul style="list-style-type: none"> Provide technical support for guideline updates, trainings, etc. for new diagnostic tools. <p>Open to all countries, likely towards end of GC7</p> | Low complexity diagnostics <ul style="list-style-type: none"> Multi-disease platforms Similar space as GeneXpert and TrueNat Additional competition to market with potential lower prices and better S&M GDG Q2 2024 gave guidance on class with new products in mid-late 2025 |  |

Notes (1)Component 1, 2 and 3 to be implemented with support from TB partners.
 (2)Continuous engagement & alignment among TB partners in this space will be ensured to avoid duplication.
 (3)Tools used for component 1 can be made available for countries to adopt and use to map procurement needs and/or CXR mapping.

Figure 12: The Global Fund’s Next Generation Market Shaping Strategic Initiative framework.



Stool-based testing for pediatric tuberculosis diagnosis: This session focused on gaining insights into existing policies and guidance regarding tuberculosis among children in Africa, related to strategies, treatment, and the use of stool-based testing. It was noted that despite its benefit in improving access to testing, uptake of stool-based diagnosis of tuberculosis is still low among countries.



Availability of Guidance and Resources: WHO and Global Laboratory Initiative provide guidance on childhood tuberculosis and stool-based testing, along with training materials, standard operating procedures, and data capture tools.



Feasibility and Acceptance: Stool testing is feasible at all Xpert sites and beyond, with laboratory staff finding the stool method as easy as sputum testing. Clinical staff generally accept stool as a diagnostic sample.



Impact on Detection and Access:

Increased access to stool testing has led to more children being recorded in laboratory registers and tuberculosis being detected. It also benefits adults, including people living with HIV and very ill hospitalized patients.



Importance of Awareness and

Innovation: Raising awareness among clinicians about the value of stool as a sample is crucial. Innovative methods like on-the-spot stool collection (e.g., stool swabs) and testing on Truenat and Xpert XDR assays further increase access and implementation of stool-based testing and reduce barriers that countries are facing, while planning, introducing or scaling up stool-based testing for tuberculosis.

3.3 Early Infant Diagnosis

The objective of this satellite session was to identify gaps in HIV PMTCT and EID, best practices, and updates on progress of ongoing initiatives. In his opening remarks, Dr. Collins Otieno (ASLM) indicated that EID has been integrated into country self assessments and these have shown that EID testing coverage for infants under two months is still a challenge in LabCoP countries. He further emphasised that there is a need to strengthen leadership capacity of in country laboratory technical working group by enrolling more countries on LabNet Lead courses; develop operational plan for adoption to country context; provide consolidated assessments reports that include LabNet assessments, expand country team stakeholders to include private sector stakeholders. The knowledge products need to be translated into French and Portuguese to increase uptake and share diagnostics innovations.



3.3.1 Perspectives from Recipients of Care



Ms. Annah Sango,
 Global Network of People Living with HIV (GNP+)

The GNP+ is part of the Global Alliance to end AIDS in Children by 2030. Ms. Sango presented highlights from the 2024 report that showed ending AIDS in children is possible, but progress is too slow and not inclusive enough (Figure 13).

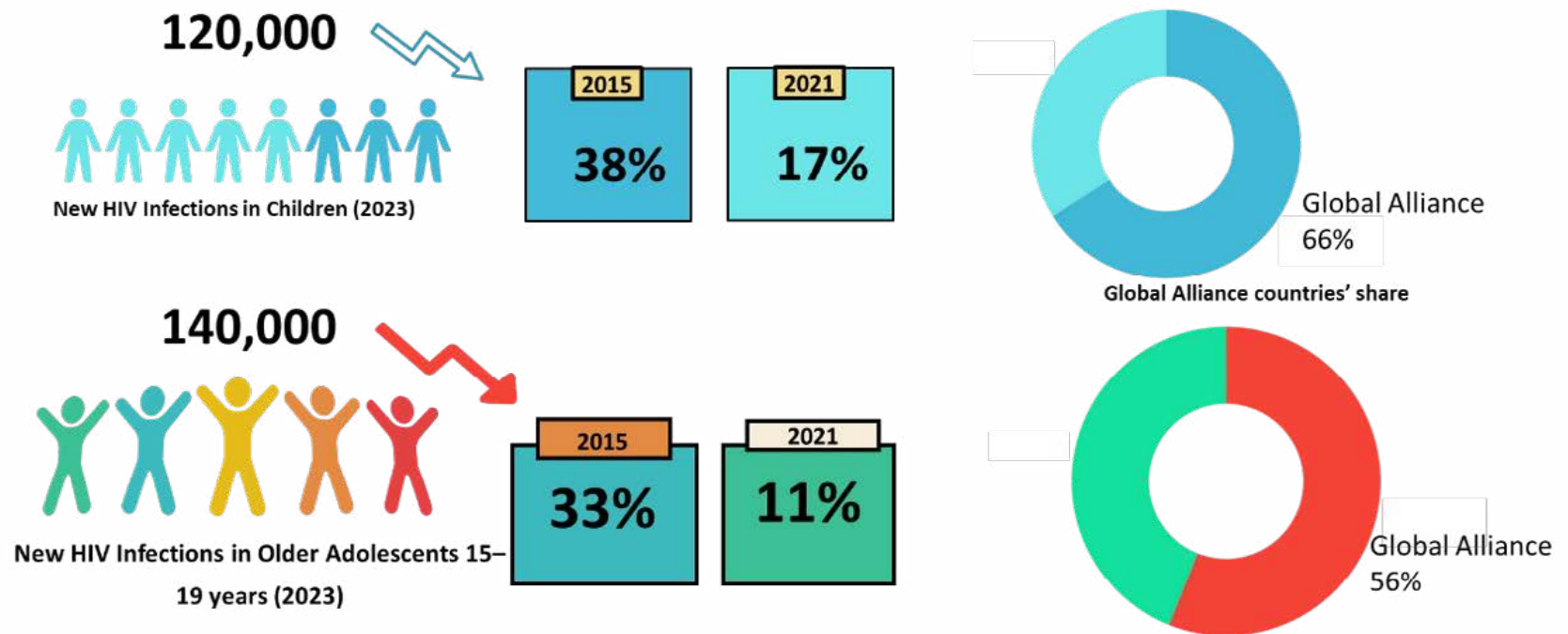


Figure 13: 2024 Global Alliance report showing improvements as well as significant remaining challenges.

She also highlighted that challenges in the provision of diagnostics include poor healthcare infrastructure, low community awareness and education, stigma and discrimination, and social inequalities. She emphasized that gaps in supply chains, policy, and funding also contribute to low access to diagnostics in most African countries. To address these challenges, **community awareness** campaigns are needed to reduce stigma, to educate on the importance of PMCT and EID programs, and to encourage male participation.

Partnerships with local organizations are needed to foster trust and build community ownership of PMCT programs.



Funding for communities: increase funding support to community initiatives, expert mothers, mothers-to mothers, peer mentors, young mothers' mentors and community adolescents' mothers.



Cultural sensitivity and community

engagement: incorporate community sensitivity in training programs for health workers, engaging community members and promoting role models within the community to reduce cultural barriers.



Family centered approaches: implementing programs that support families, including male partners to create supportive environment for PMCT adherence.



Engaging policy makers: supportive policies that prioritize PMCT and **EID:** direct resources on adolescent parents, children of key populations and other groups facing exclusion and poverty.



Innovative approaches: Integration of PMCT services into routine antenatal, postnatal and child immunization can improve coverage and uptake of PMC and EID services.

3.3.2 Improving HIV EID Access through Laboratory Mapping and Diagnostic Network Optimization



Dr. Felix Pinto,
Ministry of Health, Mozambique

Dr. Pinto informed delegates that EID and HIV laboratory mapping helped Mozambique to identify gaps in and areas for improvement of testing for EID and pregnant women, in order to reach the 95-95-95 goals. Through this program, the country was able to determine that among women enrolled for prenatal services, 5% were HIV-positive and only 10% of infants aged less than 2 months had access to PCR testing. The molecular testing capacity using conventional platforms covers 27% of testing needs and coverage of POC testing for EID and HIV VL on Gene Xpert ranges from 34% to 36%, and is 43% when using mPIMA devices. These areas will be incorporated in the country's National Laboratory Strategic Plan.

3.3.3 Eliminating mother-to-child-transmission of HIV and Hepatitis B



Dr. Marien Naude,
 Ministry of Health, Namibia

Namibia has successfully implemented PMCT and EID testing services, resulting in a significant reduction of HIV infection among infants born to HIV-positive women.

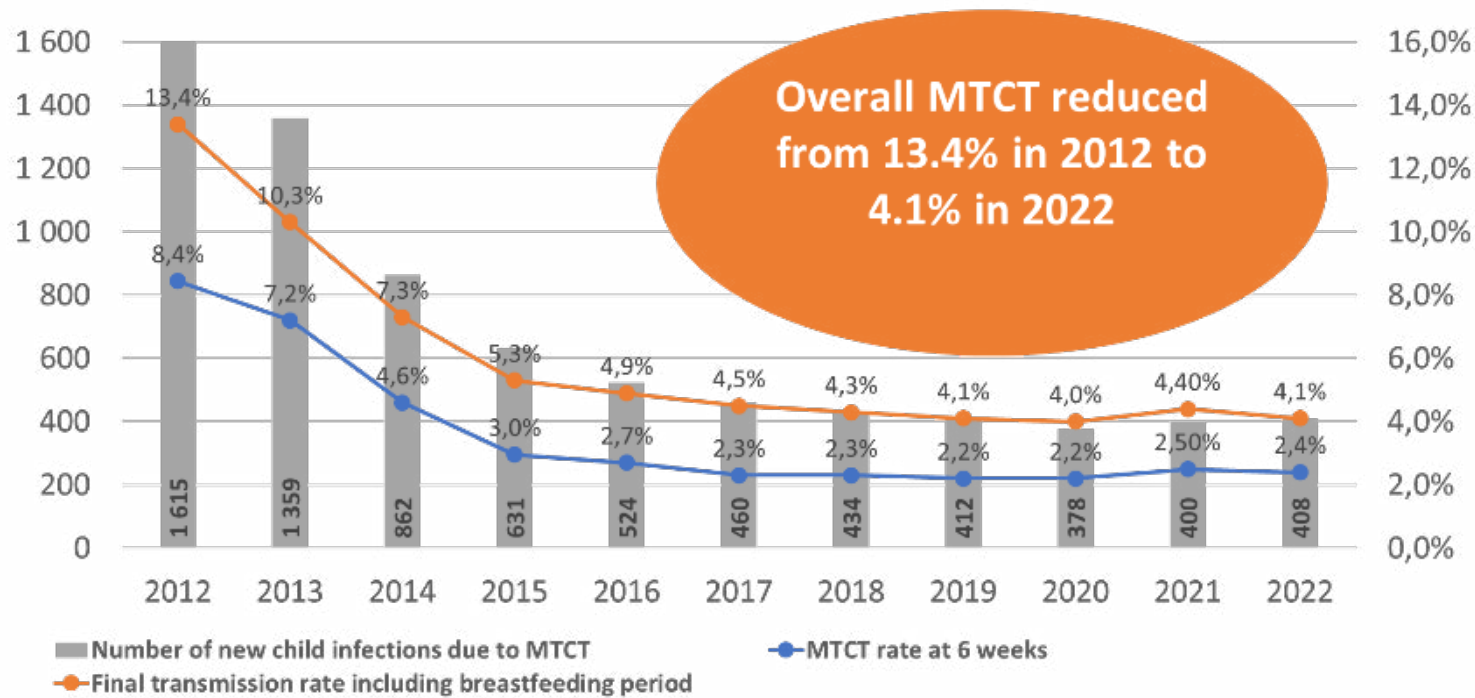


Figure 14: Impact of prevention on mother-to-child transmission (MTCT) of HIV in Namibia.

The testing coverage for pregnant women is very high across all levels of care.

All infants are tested first at 10 weeks and then at 6 months. Namibia uses a unique identifier for patients to ensure accuracy of data. HIV suppression is at 92% in general, and among pregnant women is 75% and among children is 80%.

Challenges include reaching some remote areas for testing and treatment of patients due to inadequate road conditions and difficulty reaching some tribes due to cultural barriers. Strategies to maintain uninterrupted testing include a partnership with South Africa and having a back-up system for testing, in case GeneXpert cartridges are not available. They emphasized the need to understand the processes involved in the procurement of testing materials by working closely with manufacturers and to have a good procurement plan in order to prevent stock outs.

3.3.4 Best Practices in Achieving 95% Maternal Viral Suppression Towards Elimination of Mother-to-Child Transmission of HIV



Ms. Malebogo Queen Nthusang,
Ministry of Health, Botswana



Figure 15: WHO Certificate for Botswana Silver Tier award for Path to Elimination of Mother to Child Transmission

On 13 October 2021, Botswana became the first HIV high burden country and the first African country to meet the WHO criteria for the Silver Tier of the Path to Elimination of Mother-to-Child Transmission of HIV as a Public Health Problem. This achievement was made possible by a combination of interventions that included universal access to antiretroviral therapy, integration of health services, decentralized care, task shifting, and community engagement. Botswana successfully achieved 95% maternal viral suppression, bringing it closer to eliminating mother-to-child transmission of HIV.

The country's strong political commitment, continuous monitoring, and strategic partnership have reinforced its success, setting a model for other countries striving for the elimination of mother-to-child transmission.

3.3.5 Paediatric HIV Surveillance in South Africa:

Monitoring the Path to Elimination of Vertical Transmission and the End of AIDS in Children



Dr. Ahmad Maezanderani,

National Institute for Communicable Diseases,
South Africa

A key highlight of this session was the emphasis on the critical importance of high-quality routine laboratory data. It highlighted how such data offers invaluable opportunities to strengthen disease surveillance systems and improve health outcomes, particularly in monitoring progress toward eliminating vertical transmission and ending AIDS in children.

3.4 Laboratory Directors Forum

Session Overview and Objectives

This session was a Laboratory Directors' Forum meeting with the Permanent Secretary of Uganda and development partners. The primary objective was to discuss key issues in laboratory services, share challenges, and explore innovative solutions for improving laboratory capacity and service delivery across the region.

Key Discussion Points

A representative from Liberia shared the country's progress and ongoing challenges. Notably, Liberia is committed to building four diagnostic centers of excellence, aiming to improve national diagnostic capacity. The representative highlighted several key challenges including:



Laboratory Infrastructure:
Limited infrastructure to support diagnostic activities.



Resources:
Insufficient funding, with less than 2% of the health services budget allocated to laboratories, most of which goes toward consumables.



Workforce:
A shortage of skilled laboratory personnel.



Supply Chain Issues:
Challenges in the procurement and delivery of essential supplies.

Innovative Ideas and Solutions Presented

The highlight for the meeting was the address by the Permanent Secretary from Uganda. She stressed the importance of improving laboratory services in each

The Permanent Secretary recommended four critical strategies:



1. **Structure:**

Laboratory Directors should strategically position themselves as authoritative entities that add value to the health system. This includes defining their role within the ministry and ensuring that laboratory units have skilled personnel.



2. **Research:**

Laboratory Directors should prioritize research agendas to contribute to scientific knowledge and generate resources. Research should address country-specific questions, while simultaneously bringing in funding.



3. **Clearly Defined Laboratory Agenda:**

A well-articulated laboratory agenda is essential. This can be formalized in a

country and framed leadership in the sector around two key questions:

1. How to improve service delivery, and
2. How to use the available resource envelope to do more.

national laboratory policy and strategic plan to guide the direction of laboratory services.



4. **Capacity Building (Training):**

The need for continuous professional development for laboratory staff was emphasized. Training programs should align with the defined structure and priorities outlined above.

Key Takeaways and Actionable Points

- Participants agreed on the importance of strengthening the role of laboratory services and ensuring their strategic positioning within health systems.
- The Laboratory Directors' Forum Call for Action was endorsed by all attendees and signed off as a collective commitment to drive improvement in the sector.

Call to Action

The Call-to-Action issued during the ASLM Special Convention on Diagnostics 2024 emphasizes several key areas for strengthening laboratory systems and expanding access to quality diagnostics across Africa:



1. **Diagnostic Advocacy:**

Reinforcing ASLM's commitment to advancing diagnostics by engaging policymakers to prioritize and support diagnostic services.



2. **Community Involvement:**

Highlighting the crucial role of civil society in driving progress by increasing diagnostics literacy at the community level, preparing communities for new diagnostics to improve demand and uptake, and conveying community experiences and needs to relevant authorities.



3. **Leveraging Local Expertise:**

Launching a sub-community of practice on procurement and supply

management (PSM) for genomics as a platform for co-creating solutions to chronic logistics and supply issues.



4. **Government Commitment:**

Calling for the establishment of strategically planned and adequately resourced Directorates of Laboratory Services within Ministries of Health, fully mandated to oversee all national (private and public) diagnostic services, ensuring effective engagement with government leadership and partners in identifying diagnostic priorities and securing commitments for resources and political support.



Call to Action

3.5 Global Health Security Agenda/PGI Symposium/NPHIs



Session 1: Symposium on Pathogen Genomics and Global Health Security

Session Overview and Objectives

- The main objective of this session was to welcome participants to the Symposium and to set the stage for the discussions lined up during the two-day symposium.
- The funding partners supporting Africa PGI together with Africa CDC and ASLM gave introductory remarks , including the future of genomics from their different organization's perspectives.

Africa CDC

Dr. Sofonias Tessema

Dr. Tessema highlighted that Africa PGI started as a project for malaria genomics but has now expanded to the Institute of Genomics to deal with pathogen and human genomics. He emphasized that genomics is now being approached as a genomic epidemiology ecosystem starting from sample collection, sequencing and bioinformatics.

“This meeting will showcase the application of genomics in public health and map the way forward for integration of genomics into public health surveillance,” he said.



African Society for Laboratory Medicine

Dr. Talkmore Maruta

Dr. Maruta highlighted that ASLM values trusted and action-oriented partnerships and welcomes everyone to the Africa PGI symposium. He mentioned the importance of seeing Member States in the meeting, which is in line with



the motto: “Working for and with Member States”. He then noted that the work that Africa PGI is doing is very evident, having expanded from seven to 40 Member States with genomic capacity over a period of roughly 36 months. Human resource capacity also improved with over 700 laboratory personnel trained. He indicated that it is important to expand genomic sequencing use cases through integrated testing services and that South-to-South collaborations are critical as we move forward. He also highlighted that countries are beginning to map diagnostic assets that they have, which will help in designing systems strengthening programs based on the identified needs and gaps.

European Union Health Emergency Response Authority

Dr. Teresa Chavarria

Dr. Chavarria highlighted that European Union’s Health Emergency Response Authority (HERA) was established in 2021 as a response to the COVID-19 pandemic to enable procurement, accessibility, and manufacturing capacity of medical supplies within the European



Union. She then noted that beyond the COVID-19 pandemic, they have now expanded to work with other partners like Africa CDC and WHO to enhance genomics capacity beyond the European Union through two projects, HERA Integrated Genomic Surveillance and HERA Integrated Genomic Surveillance for Outbreak Detection.

Bill and Melinda Gates Foundation

Dr. Simon Harris

Dr. Harris highlighted that integration of genomics into routine surveillance is the crucial next phase of PGI, as well as to identify the challenges to access to genomic sequencing. BMGF is supporting various activities in Africa PGI, including provision of satellite internet to NPHI's to support connectivity of laboratories, supply chain to improve access to sequencing and strengthening of data-sharing mechanisms to enable use of the data generated through genomic sequencing for public health policy and practice.



CDC, United States

Dr. Lila Rihalison

Dr. Rihalison highlighted that although there is now centralized foundational capacity for genomic sequencing in the Member States, there is need for continued support to sustain basic capacity in countries.

There is also a need to evaluate and identify what is working and what is not. She highlighted that the laboratory package is one of the priority areas for the United States CDC among other areas, such as AMR, which can also benefit from genomic sequencing technology. Dr. Rihalison also highlighted that workforce development remains very important in all the support areas. The United States CDC support has covered many areas such as national laboratory strategic plans, QMS, laboratory information systems, and AMR, including antimicrobial susceptibility testing. She highlighted that pathogen genomics is the future and there is a need for collaboration and innovation to sustain genomic sequencing as we continue to build capacity.





Session 2:

Genomics for Public Health Use – Experience from Member States



Dr. Sarah Mwangi,
Africa CDC

Prof. Placide Mbala,
Institut National de la Recherche
Biomédicale, Democratic Republic of
Congo (INRB DRC).

Prof. Anita Ghansah,
Noguchi Memorial Institute for Medical
Research (NMIMR), Ghana

Dr. Isaac Sewanyana,
Central Public Health Laboratories
(CPHL), Uganda

This session aimed to highlight the application of genomic surveillance as a transformative tool in public health. The discussions underscored the significant

progress made in pathogen genomics capacity-building across the continent and its tangible impact on strengthening public health systems.

Key Takeaways and Actionable Points

1 Integrating genomics into existing public health programs is key for efficiency, sustainability and resilience

2 There is need for national genomic surveillance strategies for streamlined implementation

3 Integrated specimen transportation systems that include genomic sequencing in centralized systems

4 Collaboration is necessary for increased access to genomics services and sustainability



Session 3: Implementation of Genomics Use-cases in Public Health Laboratories and Institutions



Prof. Anne von Gottberg,
National Institute of Communicable
Diseases,(NICD), South Africa

Dr Kunda Musonda,
Zambia National Public Health Research
Laboratory, Zambia

Dr Moussa Diagne,
Institut Pasteur Dakar, Senegal

Dr Nalia Ismael,
Instituto Nacional de Saúde, Mozambique

Mrs. El-shama Nwoko,
University of Ibadan, Nigeria

Dr. Collins Tanui,
Africa CDC

Prof. Alfred Amambua Ngwa,
Medical Research Council, Gambia

During this session, representatives from various public health institutions shared significant achievements in implementing pathogen genomics within their respective countries.

The presentations highlighted the use of genomic surveillance to address a wide range of pathogens, including malaria, cholera, arboviruses, and dengue.

These examples underscored the transformative potential of genomic epidemiology in strengthening public health responses and improving disease control efforts.

Key Takeaways and Actionable Points

Innovative Surveillance

Strategies: Approaches such as wastewater-based surveillance demonstrate the innovative utility of genomics in public health preparedness and outbreak forecasting.

Genomic Epidemiology:

Genomic epidemiology is particularly critical in regions where existing vaccines may not cover all circulating pathogens, enabling targeted interventions.

Capacity Building:

Strengthening genomic surveillance systems requires stakeholders to support initiatives that identify gaps, enhance technical skills, and build sustainable capacity.



National Frameworks:

Establishing national frameworks is essential for advancing pathogen genomics and ensuring its integration into public health systems.

Priority Use Cases:

Member States should identify priority use cases to develop robust, pathogen-specific genomic applications for real-time outbreak investigation and control.

Collaboration with National Programs:

Genomic surveillance efforts must align with existing national disease control strategies through collaboration with relevant programs.



Session 4:

Strategic Frameworks and Resources to Strengthen Pathogen Genomics in Africa



Dr. Francis Chikuse,
Africa CDC

Dr. Sarah Mwangi,
Africa CDC

Mr. Edwin Shumba,
ASLM

Dr. Juliana Ndasi,
ASLM

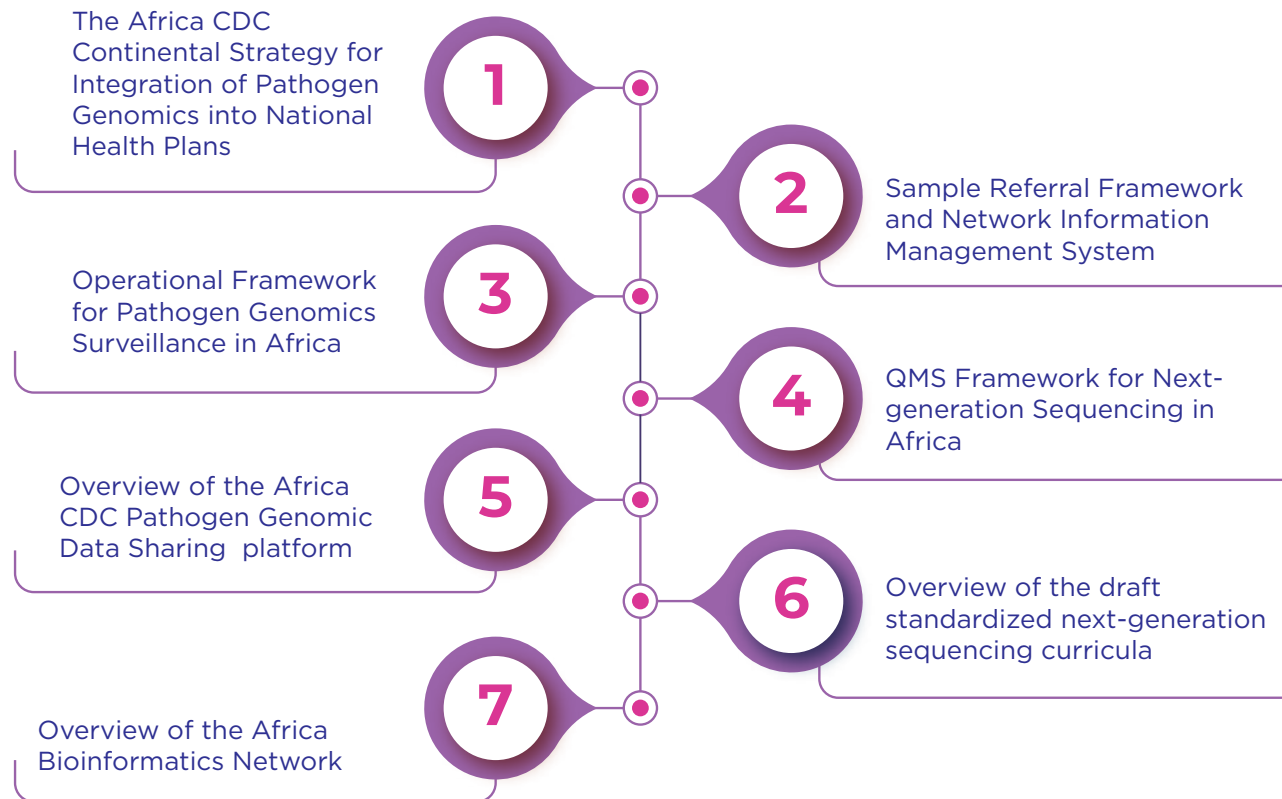
Prof. Alan Christoffels,
Africa CDC

Dr. Harris Onywera,
Africa CDC

Dr. Peter Van Heusden,
South African National Bioinformatics
Institute (SANBI)

Key Takeaways and Actionable Points

The primary goal of this session was to familiarize and sensitize Member States and stakeholders on the various guidance documents and resources developed to support the implementation of genomic sequencing and its integration into national surveillance systems. The following documents were introduced during the session:



The key takeaway was for Member States to review these documents in detail and provide feedback or seek clarifications from Africa CDC or ASLM, if needed. Additionally, Member States were encouraged to utilize these resources as they scale up genomic sequencing efforts.



Panel Discussion:

**Towards optimisation
of the supply chain
for routine genomic
surveillance in Africa**



Moderator:

Dr. Johnson Shonhe, ASLM

Panelists:

Ms Bridget Mogale,
Illumina

Dr. Harold Ocholla,
Thermo Fisher

Prof Placide Mbala,
Institut National de la Recherche Biomédicale,
Democratic Republic of Congo

Dr. Isaac Sewanyana,
Central Public Health Laboratories, Uganda

Dr. Ajani Faith,
Africa CDC



Strategic Importance:

Supply chain management is a critical lever for driving value in genomic surveillance across Africa. Priorities and a roadmap for genomic sequencing supply chains were established during meetings in Dakar and Addis Ababa. The October 2024 Abidjan panel discussion built on these, focusing on practical innovations rather than challenges.



Practical Innovations:

There was emphasis made on simple, practical techniques and strategies to improve supply chain efficiencies. Collaborative approaches among countries, manufacturers, and stakeholders are essential for addressing supply chain complexities. Additionally strong supply chain relationships were highlighted as being key to cost efficiency and responsiveness.



End-User Perspectives:

Dr. Isaac Sewanyana (CPHL-Uganda) and Professor Placide Mbala (INRB-DRC) shared on-the-ground experiences in improving supply chain efficiency, including facility-level service, maintenance, and regulatory environments.



Manufacturer Contributions:

Illumina introduced the MiSeq i100 Plus, a novel sequencing equipment eliminating the need for cold chain reagents, addressing challenges in supply management, Oxford Nanopore (via Genelab Bioscience) and other manufacturers emphasized the importance of collaboration for supply chain sustainability and responsiveness.



Emergency Response:

Seamless collaboration with manufacturers and distributors is critical during emergencies, where turnaround time is life-saving. For example In recent Mpox and Marburg outbreaks, ASLM facilitated rapid delivery of sequencing equipment in less than 7 days allowing for rapid response in the control and management of these outbreaks.



Multi-Country Collaboration:

Africa CDC and the Clinton Health Access Initiative highlighted the importance of multi-country demand forecasting to reduce procurement costs through economies of scale. Harmonization of genomic sequencing processes, upskilling in procurement and supply chain management, use of electronic procurement systems, and local manufacturing were also emphasized.

Key Takeaway:

A collaborative, innovative, and harmonized approach is essential for building a sustainable and responsive supply chain network for genomic surveillance in Africa.





BILL & MELINDA
GATES foundation

 AfricaCDC
Centres for Disease Control
and Prevention

 CLINTON
HEALTH ACCESS
INITIATIVE

 Lab
CoP
ASLM

 ASLM
AFRICAN SOCIETY FOR LABORATORY MEDICINE

Figure 16: Launch of the Genomics Procurement and Supply Chain Management Sub community of Practice



Session 5:

Quality Management systems for public health sequencing facilities



Mr. Don Mvududu,
ASLM

Dr. Mishalan Moodley,
NICD, South Africa

Mr. Teferi Mekonen,
ASLM

Dr. Peter Van Heusden,
SANBI, South Africa

Dr. Jacqueline Weyer,
NICD, South Africa

Quality management in genomic sequencing facilities is critical for producing reliable, reproducible results that meet accreditation standards. Achieving consistent quality requires comprehensive support, including systematic assessments, robust training and mentorship programs, and access to EQA platforms. Without these foundational elements, maintaining high standards across sequencing laboratories remains a significant challenge.

Key Messages



1. Quality Management Essentials:

To ensure genomic sequencing activities meet high standards in public health laboratories, systematic assessments of documentation, personnel, sample management, and equipment are essential. Recent evaluations revealed strengths in internal quality control and inventory management but identified significant gaps in method verification and internal auditing.



2. Training and Mentorship Impact:

Training and mentorship initiatives across 11 countries have standardized quality documentation, improved workflows, and increased awareness of Quality Management Systems (QMS). Key outcomes include enhanced collaboration and substantial updates to manuals and standard operating procedures to align with ISO standards.



3. Critical Role of EQA:

External Quality Assessment (EQA) is vital for achieving ISO accreditation, as it ensures the reliability and comparability of test results across laboratories. However, the limited availability of EQA panels for specific pathogens remains a challenge. Ongoing efforts are addressing this gap through new programs targeting emerging zoonotic viruses.

Actionable Items



- **Revision and Finalization of Documentation:** Support is needed to finalize documents that align with ISO standards, such as quality manuals and standard operating procedures, especially focusing on EQA, internal auditing, and risk management.



- **Enhanced EQA Support:** Ongoing efforts to provide EQA panels are essential for sequencing of emerging zoonotic viruses, including upcoming activities targeting mpox virus, filovirus, and metagenomics, which will strengthen quality assurance programs across the Africa PGI Genomics and Bioinformatics network.



- **Broaden QMS Mentorship:** Continued mentorship and technical assistance, including both onsite and virtual support, will help reinforce baseline assessments, quality documentation, and standardized workflows.



- **Adopt Workflow Best Practices for Bioinformatics:** Implement workflow management systems with documented, open-licensed methods, and ensure workflows are validated, have test suites, and maintain consistency across software and infrastructure

3.6 Future of Diagnostics



Dr. George Alemnji,

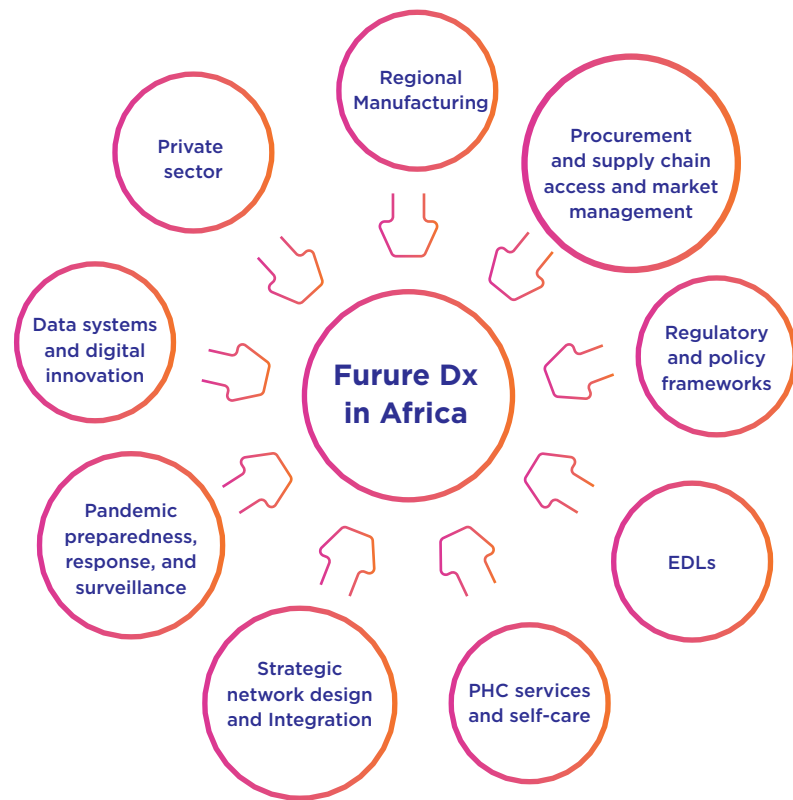
Senior Technical Advisor for Laboratory Services, United States Department of State, Bureau of Global Health Security and Diplomacy

Africa must strategically plan for Universal Health Coverage by carefully evaluating emerging innovations and articulating its specific needs, particularly in light of ongoing emergencies. Diagnostics play a critical role in clinical care, disease surveillance, and public health policy, making them essential for achieving UHC and other global health goals. To address these challenges and leverage technological advancements, the Future of Diagnostics (FDx) initiative, hosted by ASLM and Africa CDC, was launched to identify and prioritize key enablers, opportunities,

and solutions for improving diagnostic services across the continent. The initiative focused on developing new approaches and implementation strategies to accelerate progress, with several working groups established to address key questions and drive actionable outcomes.

Phase I Priority Areas

Priorities



Phase 1 Focus Domains

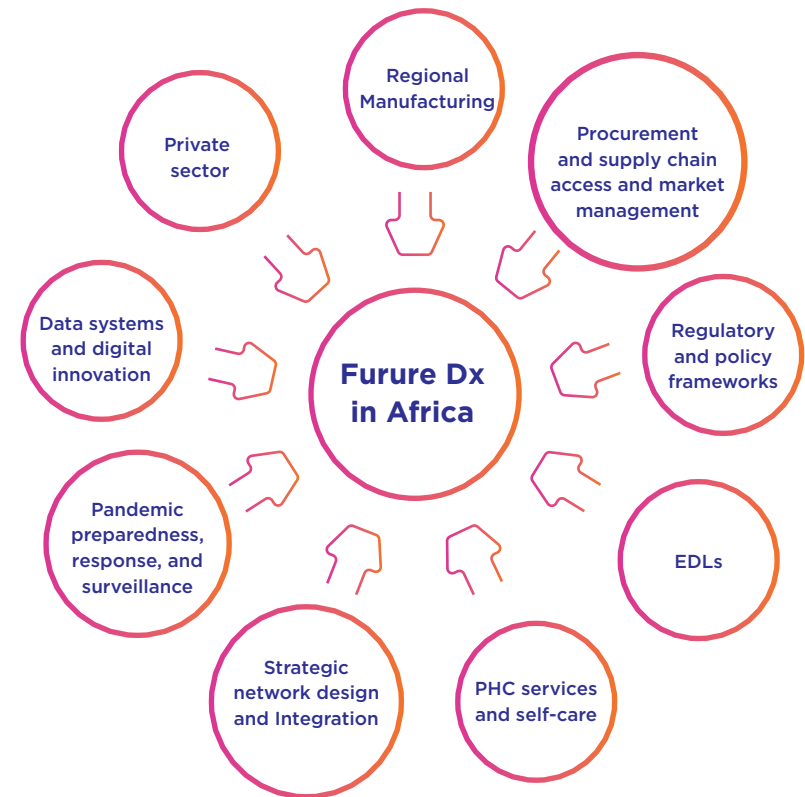


Figure 17: FDx priorities and domains for Phase 1.

Leveraging their expertise and resources provided by initiative members, the working groups focused on identifying solutions and opportunities to advance diagnostics in priority areas (Fig 14). The outputs of these groups were shared and followed by a consultative

discussion among key stakeholders to validate the identified diagnostic priorities, explore barriers and enablers to implementation, and outline actionable next steps for strengthening diagnostic services across Africa.



Ms Namwaka Mulenga,
Clinton Health Access Initiative and Mr.
Anafi Mataka, ASLM Division Head

Ms Namwaka and Mr. Mataka presented the key finding and recommendations of the Phase 1 prioritized domains, namely:

- Pandemic Preparedness, Response and Surveillance
- Diagnostic Network Design and Testing Integration
- Essential Diagnostics Lists (EDL)
- Procurement & Supply Chain Management (PSM)

- Digital Systems and Digital Innovation (DSDI)

Pandemic preparedness, response and surveillance

The vision is to achieve **early and accurate detection and response to prevent potential outbreaks from escalating into epidemics or pandemics**, thereby protecting public health and minimizing economic impact by saving lives and reducing costs

The PPR & S pillars were mapped to set a set of core objectives to frame the prioritization of interventions

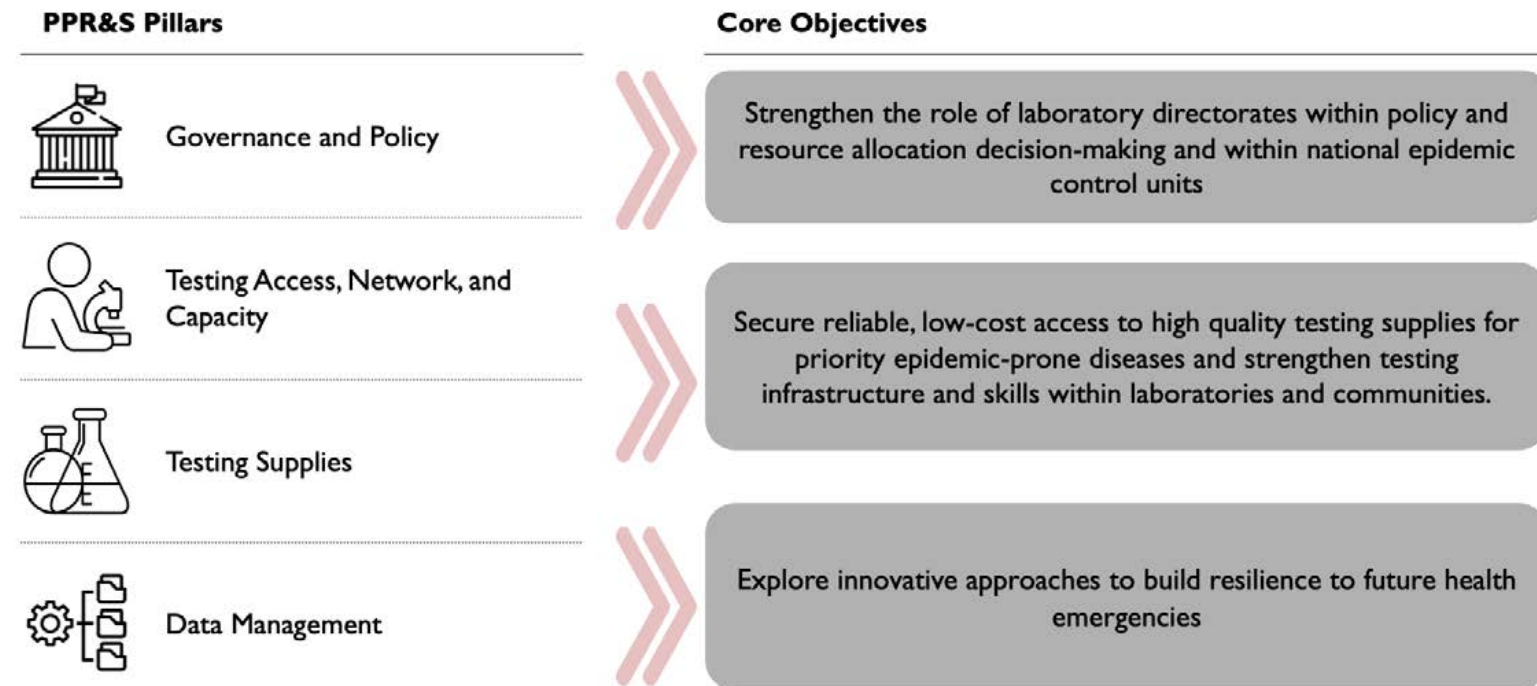


Figure 18: PPR & S pillars mapped to core objectives

Key Interventions to Achieve the Objectives



- To enhance pandemic preparedness and response systems (PPRS), it is critical to involve Laboratory Directorate and National Public Health Institute leadership in PPRS planning, funding decisions, and key bodies like the National Emergency Operating Centre and Pandemic Preparedness Task Force.



- Existing policies, strategies, and guidelines relevant to PPRS—such as genomic sequencing, surveillance, regulatory approval, and data sharing—should be reviewed, updated, or developed. Reliable sources of high-performing, regulatory-approved tests for epidemic-prone pathogens must be identified, while improving procurement and supply chains to ensure secure supplies, better pricing, and adoption of locally manufactured products.



- National testing and surveillance capacities for priority epidemic-prone diseases should be mapped, with a focus on strengthening rapid test, molecular, and sequencing infrastructure and skills.



- Health systems must be bolstered to support rapid outbreak detection and response, including integrated sample transport and data management. Enhanced surveillance systems, leveraging genomic sequencing for early outbreak analysis, should be implemented, alongside expanded use of predictive models and AI to enable early warnings and effective responses to outbreaks

Diagnostic Network Design/Organization



The vision:

To establish the routine practice of recurring national diagnostic network design and integration processes that creates accessible and efficient patient-

centric diagnostic services
 Systemic barriers limit of the use of network design and integration as a tool to deliver better testing services

Systemic barriers limit the use of network design and integration as a tool to deliver better testing services

Systemic barriers



Governance: DNO and integration are not yet part of the essential government policies, functions, and metrics for the management of national diagnostic networks or strategic health system wide decision-making



Capacity and capability: National lab directorates are under-capacitated and under-resourced to lead and implement DNO activities, and need access to training, tools and data systems



Siloed program structures: Diagnostic services often siloed by disease due to national health structures and donor requirements

The key interventions



Governance: National lab directorates to directly lead and drive DNO and integration processes, supported by national policy and donors



Capacity and capability: Directorates to conduct dedicated training to build capacity and skills to lead and conduct DNO within the healthcare workforce



Extend implementation beyond design: Lab Directorates shift into DNO implementation. Donors to provide additional support and funding to implementing countries

Figure 19: Systemic barriers and key interventions.

Procurement and Supply Chain



The vision:

To ensure equitable access to affordable, high-quality diagnostics for clinical care and public health through efficient, well-

coordinated procurement and supply chain systems

The PSM pillars were mapped to a set of core objectives to frame the prioritization of interventions

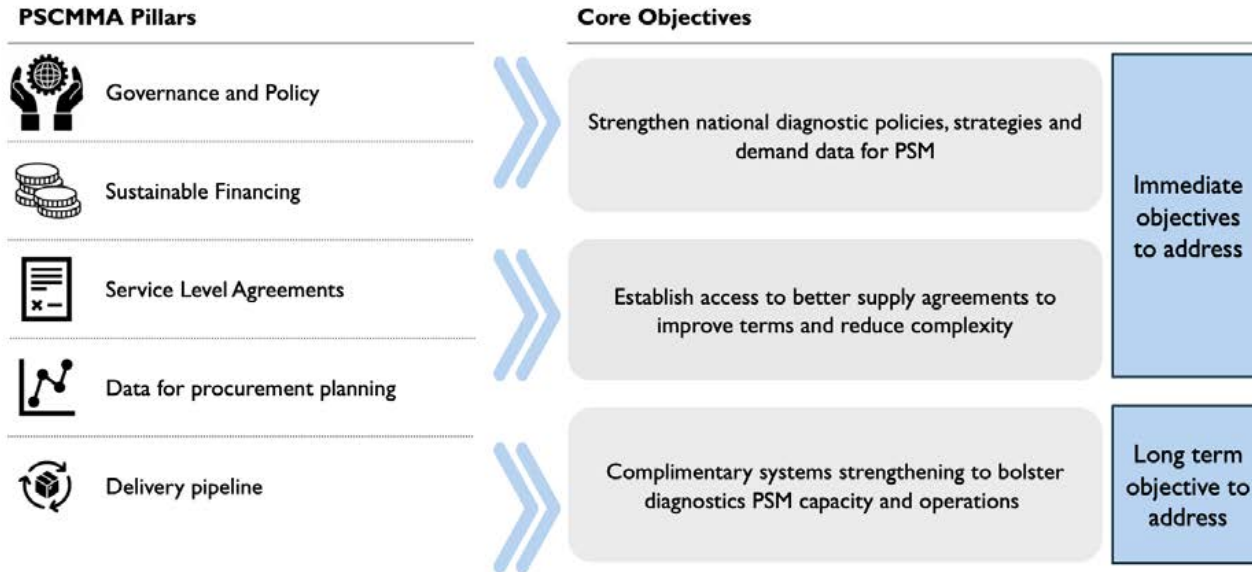


Figure 20: The PSM pillars mapped to a set of core objectives

Key Interventions to Achieve the Objectives



Develop clearer national forecasts for essential diagnostics based on procurement plans and laboratory policies.

Negotiate competitive, inclusive agreements with innovative pricing terms, shifting supply chain processes to service providers and using standardized service level agreements with strict performance metrics.



Build national capacity through training to manage comprehensive supply contracts. Enhance visibility over the supply chain pipeline to ensure uninterrupted service provision.

Essential Diagnostics Lists

Essential Diagnostic Lists (EDLs) identify tests needed at different health system levels for diagnosing and surveying priority diseases. While the WHO released its 4th EDL edition, some countries have developed National EDLs, tailored to local needs, preferences, and epidemiology, guided by global and regional

standards. An Africa-focused EDL would align with WHO AFRO's 2023–2032 strategy, urging countries to develop or update national lists. Africa CDC's survey found 100% of respondents support a regional EDL to guide National EDLs.

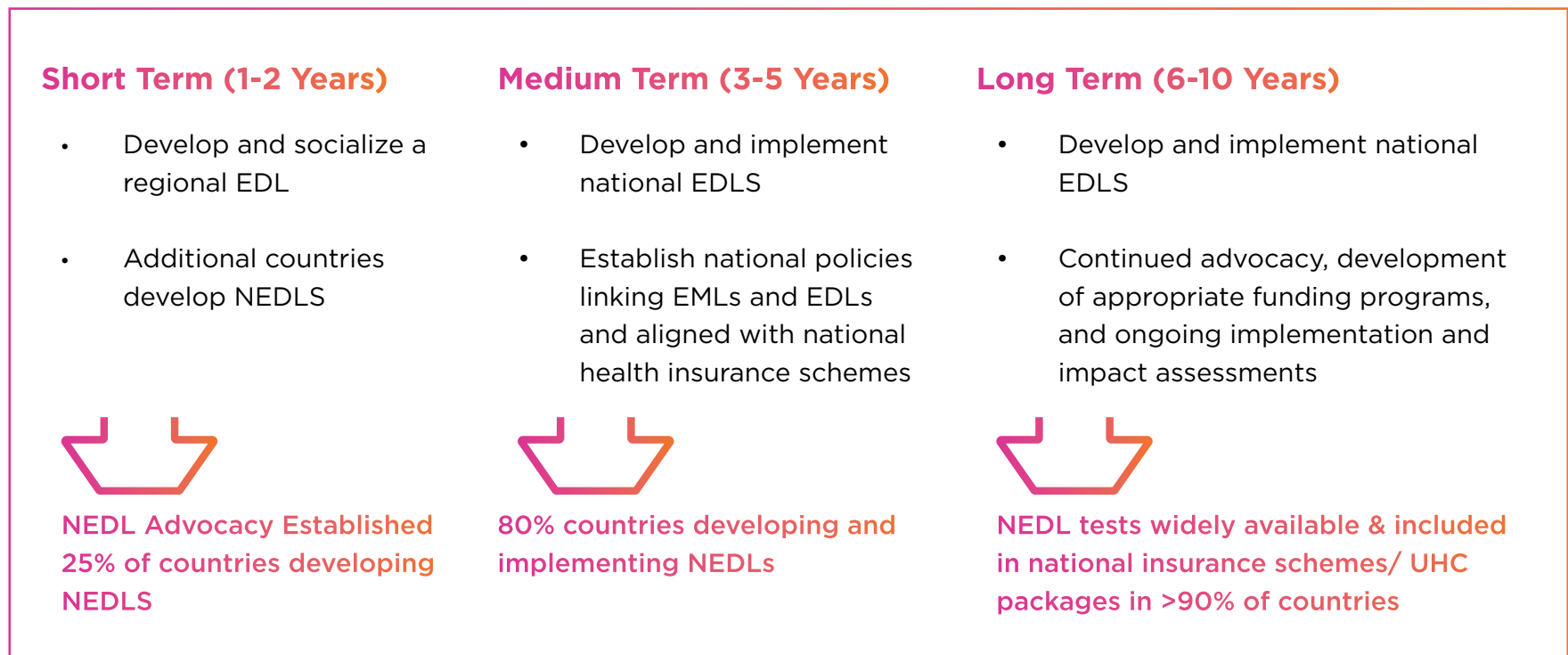


Figure 21:EDL Key Interventions

Data Systems and Digital Innovation



The vision:

To transform access to diagnostics by leveraging industry-standard digital and analytic systems for testing services and integrating cutting-edge innovations like AI-enabled medical devices.

This vision aligns with creating a network where diagnostic tools are better connected to clinical and prevention services through robust data systems, enabling data-driven decision-making.

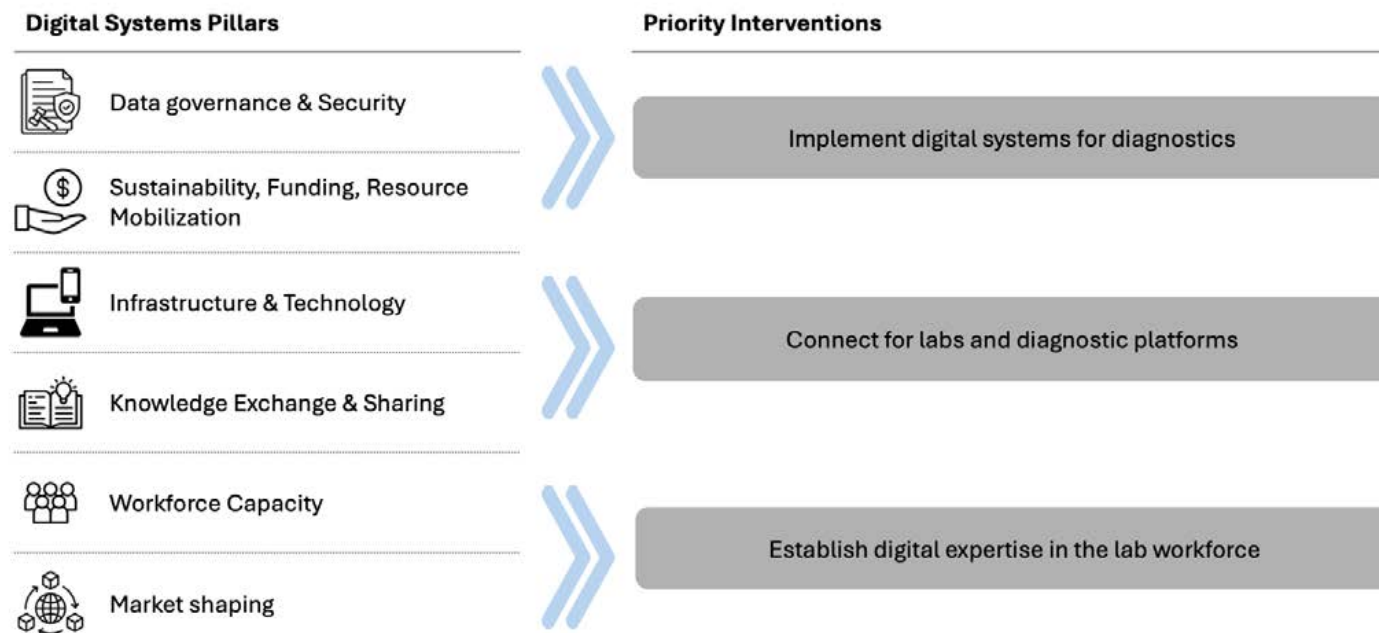


Figure 22: Interventions for Diagnostics digital systems

Lessons Learned

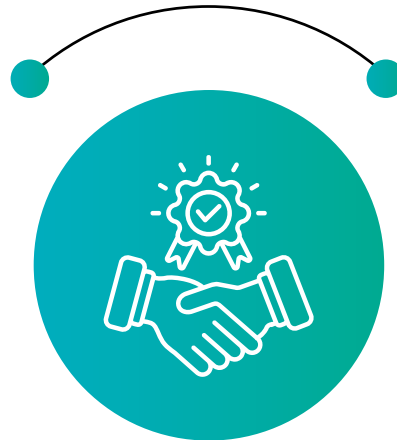


Importance of Resilient Health Systems:

Building resilience in health diagnostics is crucial for addressing future health emergencies and ensuring sustainable health outcomes in Africa.

Collaborative Approach with Regional and International Partners:

Successful implementation of diagnostic initiatives requires collaboration among African nations and their international partners to establish a unified action plan.



Critical Role of Governance in Bio-data Security: Proper governance systems are necessary to safeguard bio-data, ensuring its security and confidentiality, which are vital for trust and efficient diagnostics.

Key Takeaways and Actionable Points

Key Messages

- 1. Universal Health Coverage and Diagnostic Innovation:** There is a need for African countries to define their approach toward UHC, integrating new diagnostic innovations to meet specific health emergencies and challenges unique to the region.
- 2. Develop Essential Diagnostic Lists at the National Level:** African countries should establish their own EDLs tailored to local health needs, guided by the WHO Regional Office for Africa strategy, to improve diagnostics accessibility and standardization.
- 3. Strengthening Diagnostic Networks and Policy Influence:** Effective pandemic preparedness in Africa requires stronger diagnostic networks and increased influence of laboratory directorates on policy and resource decisions to build a robust response to potential epidemics.
- 4. Enhance Procurement and Supply Chain Efficiency:** To improve equitable access to diagnostics, African nations should address systemic barriers in procurement and supply chains, promoting national systems-strengthening interventions where needed.
- 5. Develop a Strategic Action Plan:** Regional and international partners should collaborate to create a detailed action plan focused on the future of diagnostics in Africa. This plan should prioritize access to testing, pandemic prevention, and preparedness efforts.
- 6. Support ASLM and Africa CDC Initiatives:** Engage with initiatives led by organizations like ASLM and Africa CDC to accelerate efforts in diagnostics access, pandemic prevention, and readiness across the continent.
- 7. Invest in Data Infrastructure for Diagnostics:** African countries need to invest in digital and data infrastructure for diagnostics, enabling a system where diagnostic access is streamlined and data-driven solutions are widely adopted.

3.7 Integrated Diagnostics Consortium Meeting

Agenda



Welcome and Introduction to the Integrated Diagnostics Consortium
(Dr. George Alemnji, PEPFAR)



Regional priorities
(Mr. Anafi Mataka, ASLM)



Country priorities
(Prof. Koleka Mlisana, National Health Laboratory Service (NHLS), South Africa)



The benefits and utility of diagnostic integration and network optimization
(Dr. Felix Pinto, Mozambique)



Procurement and market shaping considerations, including the use of KPIs
(Ms. Sindisiwe Dlamini, Eswatini)

Welcome and Introduction



Dr. George Alemnji,
Senior Technical Advisor for
Laboratory Services, United States
Department, Bureau of Global
Health Security and Diplomacy, IDC
Co-Chair

In his welcome and introduction talk, Dr. Alemnji outlined the history of the IDC, established in 2017 by PEPFAR and Unitaid with a narrow focus, which has since evolved significantly by 2024 to address a broader range of endemic and emerging pathogens, adapting to country, regional, and global needs.

The revamped IDC now supports integrated, multi-disease diagnostic networks for sustainability and strength, structured around four workstreams: upstream innovation, quality, integration and network optimization, and procurement and market shaping. The Future of Diagnostics in Africa (FDx) was also discussed, particularly its strategic network design, procurement, and supply chain domains, which have produced actionable outputs currently prioritized by the IDC's relevant workstreams for implementation. A dedicated FDx session was held on November 6

Regional Priorities



Mr. Anafi Mataka,
Head of Division, ASLM

To highlight on regional priorities, Mr. Mataka presented the recent results of the LabCoP Assessments, revealing ongoing challenges for countries that joined in 2019, particularly in waste management, biosafety, supply chain management, equipment maintenance, and results utilization. Proposed interventions to address recurring issues in HIV viral load and tuberculosis diagnostics include improving supply chain and resource management through budget advocacy, better coordination, service agreements, and regional collaboration; enhancing quality management by expanding QMS to lower-level facilities and standardizing QA plans; and advancing data management and laboratory integration through digital transitions, standardized KPIs, and stronger clinic-laboratory collaboration. Additionally, long turnaround times in infant HIV diagnosis programs remain a concern, with suggestions to further decentralize testing using POC technologies, implement electronic systems, and increase human resources for health.

Country Priorities



Prof. Koleka Mlisana,
CEO, National Health Laboratory
Services, South Africa

Prof. Koleka Mlisana presented South Africa's experience with its parastatal laboratory system, the NHLS, which oversees 213 laboratories conducting over 110 million tests annually, with HIV and tuberculosis comprising only 16-18% of total testing needs. NHLS's statutory functions include diagnostics, research, and training, with a focus on strategic leadership, governance, and policy. South Africa's diagnostic priorities emphasize a patient-centred approach, employee-centred organizational development, digitization, adoption of new technologies, and increased revenue generation.

Innovations under consideration include digital pathology, AI in pathology, next-gen sequencing, POC deployment in ICUs, expanded HPV screening, laboratory automation, and optimized diagnostic platforms for tuberculosis testing. Additionally, NHLS aims to accredit the remaining 38% of laboratories in preparation for National Health Insurance implementation.



Dr. Felix Pinto,
Ministry of Health, Mozambique

Mozambique undertook geographic information systems laboratory mapping and population diagnostic accessibility analysis between August-December 2023. They mapped 503 laboratories with 27% coverage and 2467 laboratory staff. LabMap covered several areas such as biosafety, QMS, equipment maintenance, referral system, and workforce.

The results of the mapping exercise will be included in the National Laboratory Strategic Plan 2025-2035.

A number of recommendations resulted from the mapping, including:

- o Standardizing laboratory classification according to National Health Services requisites
- o Include emphasize the need for additional laboratory specialists in the National Laboratory Strategic Plan
- o Seek ISO 15189 accreditation for additional laboratories

- o Increase the biosafety and biosecurity infrastructure of Level 3 and Level 4 laboratories
- o Provide biosafety cabinets to clinical laboratories at Level 3 and Level 4
- o Establish maintenance and calibration center of excellence,

Mozambique identified a number of benefits that the mapping exercise supported including evidence based strategic plan, policies, and workplan development, advocacy of resource allocation, improved network optimization, national essential diagnostic list consideration, and clarification on reagent quantification.



Procurement and market shaping considerations, including the use of KPIs

Ms. Sindisiwe Dlamini,

Eswatini Health Laboratory Services (EHLS),
Eswatini

Eswatini has also used diagnostic network optimization to inform selection of platforms and test demand. Through DNO, they defined the number, location, and level/type of sites, specimen transport modalities, routes, and costs, and number and type of tests. In discussions with the vendors selected, Eswatini sets the key performance indicators to ensure consistent performance of devices, as well as clear timelines for delivery, etc. Some of the KPIs drafted by Eswatini's Health Laboratory Service are in the table below. Of the three sites measured and presented, all met the KPIs below. Monitoring KPIs has ensured that EHLS is able to have real-time information, challenges are identified early and resolved quickly, and decisions on equipment performance can be made rapidly.



Key Performance Indicators Tracking

| No. | Description | Target |
|-----|--|----------|
| 1. | Percentage of instruments that receive at least 1 (one) PM visit per year from the date of installation | 100% |
| 2. | Mean time to response for equipment breakdown: time lapsed from time issue first reported to the time a follow-up plan is communicated to the customer | 48 hours |
| 3. | Mean time to repair: average # of calendar days lapsed from time issue first reported to job completion | ≤5 days |
| 4. | Percentage of instruments that have ≤2 instrument outages per quarter. An outage is defined as any instrument breakdown that 1) prevents the release of patient results for more than two (2) hours and 2) occurs less than 3 months after a preventative maintenance visit or total service call for the same issue that was previously repaired. | 100% |
| 5. | Average percentage “uptime” per quarter | >85% |
| 6. | Average percentage of failed tests due to machine or human error | <5%* |
| 7. | Percentage of Quarterly Reports submitted on-time per the terms of the subcontract | 100% |
| 8. | Average percentage “uptime” of automated reporting system | >95% |
| 9. | Percentage of batches that are delivered to the customer with a 12-month shelf-life | 100% |
| 10. | Percentage of line items delivered in full and on time. In-full is measured against agreed ordered quantities. On-time is defined as 14 days prior/7 days after the current committed goods available date | >90% |

Tracking Key Performance Indicators and maintaining inclusive pricing agreements are vital for reliable, efficient diagnostics and accountability. EHLS conducts quarterly KPI reviews with some vendors to continually enhance diagnostic service

Figure 23: Key Performance Indicators for Eswatini Health Laboratory Service

3.8 Diagnostic Equity Consortium



Mr. Tapiwa Kujinga,
Executive Director, Pan-African
Treatment Access Movement
(PATAM), and cohost of the
Diagnostics Equity Consortium

Key role of civil society: Throughout all sessions, the critical role of civil society and community involvement in planning and decision-making related to diagnostics was consistently emphasized. This recognition highlighted the importance of inclusive, participatory approaches to ensure equitable access to diagnostics and health services.

The discussions culminated in the issuance of a Statement and Call to Action by the DEC.

Summary of the Diagnostic Equity Consortium
Statement and Call to Action

The DEC statement and call to action (see Annex II), highlights the critical lack of essential diagnostics in low- and middle-income countries, with severe consequences for the African population. Despite advancements in diagnostic tools and strategies, African governments are not prioritizing funding and resources for national diagnostics networks.

The DEC emphasizes the urgent need to:

- 1. Integrate Diagnostics into Health Systems:** Strengthen the integration of diagnostics into health facilities and laboratories to ensure widespread access.
- 2. Reduce Financial Barriers:** Minimize out-of-pocket costs for diagnostics and ensure essential diagnostics are covered under national health insurance schemes.
- 3. Engage Civil Society and Communities:** Actively involve civil society and communities in the planning and decision-making processes related to diagnostics to ensure equitable and inclusive solutions.
- 4. Secure Affordable Pricing:** Pursue ambitious strategies to secure affordable prices for diagnostics, including advocacy for transparent pricing and equitable access.
- 5. Promote Local Manufacturing:** Urge industry and global health actors to support licensing, transparency, and regional manufacturing of diagnostic tools to enhance accessibility and sustainability.

3.9 Closing Ceremony

ASLM SPECIAL CONVENTION ON DIAGNOSTICS









Annex I: Conference Speaker Bios



Mr. Nqobile Ndlovu,

CEO, ASLM

Nqobile Ndlovu is the CEO of The African Society for Laboratory Medicine (ASLM) and has over 13 years of experience in public health, focusing on laboratory strengthening in resource-limited areas.

He previously worked as Laboratory Project Coordinator for the African Field Epidemiology Network in Uganda and holds a master's degree in public health from the University of Zimbabwe.



Dr. Talkmore Maruta,

Director of Programs, ASLM

Talkmore is the Director of Programs at the African Society for Laboratory Medicine, with over 23 years of experience in strengthening laboratory systems, emergency preparedness, and biosafety. He has worked with prominent organizations such as the Clinton Health Access Initiative, Foundation for Innovative New Diagnostics, and the Africa Centres for Disease Control and Prevention, managing programs across Africa, the Caribbean, and East Asia.

His contributions have earned him recognition, including a “Distinguished Leadership” award at the ASLM 2012 Conference and the “Best Employee” award for the Southern Africa Tuberculosis Health Systems Strengthening project in 2019. Dr. Maruta holds a PhD in Public Health, multiple Master’s degrees, and a BSc (Hons) in Medical Laboratory Sciences.



Dr. Sofonias Tessema,

Lead – Africa Pathogen Genomics Initiative at Africa CDC

Sofonias is the Program Lead for Pathogen Genomics at the Africa CDC, with nearly five years of experience leading genomic surveillance efforts. Previously, she was a Postdoctoral Researcher at the University of California, San Francisco, and conducted her PhD research at the Walter and Eliza Hall Institute in Australia, focusing on immunity to severe malaria. Her work has contributed to identifying biomarkers associated with malaria protection. Earlier in her career, she served as a Graduate Assistant at Jimma University in Ethiopia.



Dr. Juliet Bryant, Medical Laboratory Specialist at The Global Fund to Fight AIDS, Tuberculosis and Malaria

Juliet Bryant is a Medical Laboratory Specialist at The Global Fund to Fight AIDS, Tuberculosis, and Malaria, with extensive experience in infectious disease research and project management in complex international settings.

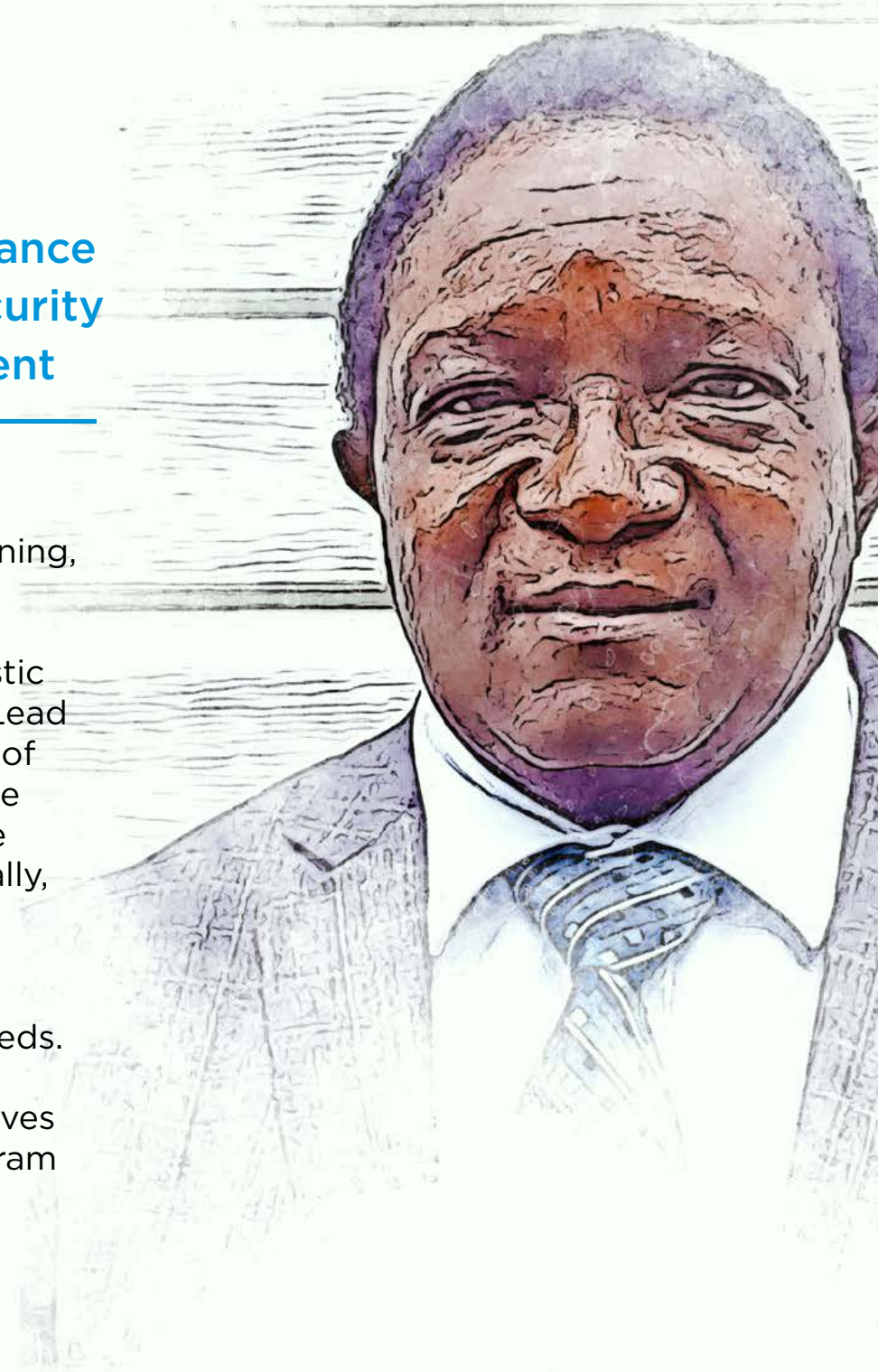
She is an engaging communicator skilled across cultures, with expertise in molecular and serological diagnostics, arbovirology, One Health initiatives, surveillance systems, and vaccine development. Dr. Bryant also has a strong background in technical writing and editing.



Dr. George Alemnji, (Ph.D., MPH)

Team Lead for Laboratory and Surveillance within the Bureau of Global Health Security and Diplomacy, United State Department

Dr George Alemnji (Ph.D., MPH) is a Chemical Pathologist with vast experience in Global Public Health Laboratory services and systems strengthening, including clinical diagnostics, and monitoring, molecular epidemiology, laboratory surveillance, outbreak investigations, supply chain, and diagnostic network optimization. He current serves as Team Lead for Laboratory and Surveillance within the Bureau of Global Health Security and Diplomacy, United State Department in Washington DC. In this position, he coordinated all PEPFAR laboratory activities globally, ensuring timely availability of quality diagnostics to support HIV/AIDS scale-up, while ensuring that PEPFAR laboratory investments are leveraged to address other global health security diagnostic needs. He served as PEPFAR Chair for South Sudan from January 2021 to September 2024. He currently serves as PEPFAR Chair for the Caribbean Regional Program covering Jamaica and Trinidad and Tobago.



Robert Matiru,

Unitaid

Robert Matiru is the Director of the Programme Division at Unitaid, where he leads a team managing a \$1.3 billion portfolio to catalyze access to innovative health products for diseases like HIV/AIDS, TB, and malaria. With 20 years in international development, Robert has a strong background in strategic leadership, resource mobilization, and partnership building.

His previous roles include Head of Operations for WHO's H1N1 response and COO of the Global TB Drug Facility. He holds a BA in International Relations and an MA in International Development.



Dr. Susan Nabadda,

Commissioner Health Services, National Health Laboratory and Diagnostic services, Ministry of Health, Butabika - Uganda

Dr. Susan Nabadda Ndidde is the Commissioner of Health Services overseeing National Health Laboratory and Diagnostic Services and the Chief Government Pathologist in Uganda. She is also the Chair, of the Laboratory Directors Forum. With prior experience as the Clinical Head of Laboratories at Mulago National Referral Hospital, she now leads Uganda's reference testing laboratories at the Central Public Health Laboratory (CPHL).

Dr. Nabadda has championed the expansion of accredited public health labs and has played a key leadership role in regional laboratory services through the Association of Pathologists of East, Central, and Southern Africa.



Dr. Heather Alexander,

Branch Chief, International Laboratory Branch, Division of Global HIV and TB at Centers for Disease Control and Prevention

With nearly two decades at the Centers for Disease Control and Prevention (CDC), Heather is an accomplished expert in global health and laboratory sciences. Currently serving as the Branch Chief of the International Laboratory Branch in the Division of Global HIV and TB, she has led initiatives to strengthen international lab capacity for combating HIV and TB since 2017.

Previously, she held leadership roles as the TB and Clinical Monitoring Team Lead and TB/OI Unit Lead, advancing TB diagnostic and monitoring capabilities worldwide. Her earlier work as a Microbiologist in the Division of TB Elimination focused on international research and program support for TB control.



Amina Jaafar,

Specialist for health product introduction, The Global Fund

Amina Jaafar is a Specialist for health product introduction at The Global Fund, focusing on introducing health products through collaborative partnerships. She leads initiatives to accelerate health product innovation, creating integrated approaches across NextGen Market Shaping Initiatives.

She also has extensive experience in reproductive, maternal, and child health. Her experience spans strategic design and hands-on implementation, bringing practical insights to her work in global health innovation.



Anafi Mataka,

Head of Division, ASLM

Anafi is a diagnostics expert with 20+ years of experience, from frontline lab science to managing national and international lab strengthening programs. As Head of Division at ASLM, he oversees all technical and scientific programs across multiple portfolios. Previously, he served as Portfolio Lead, Program Manager, and Senior Scientist, advancing laboratory and workforce capacity across Africa and beyond. Before joining ASLM in 2018, Anafi managed HIV diagnostic implementation for the Elizabeth Glaser Pediatric AIDS Foundation in Lesotho. He has also served in the Ministries of Health in Zimbabwe, Botswana, and Eswatini.



Habib N'konou,

Expert in Logistics Operations

Senegal

Habib N'Konou has over 20 years of experience in laboratory and pharmaceutical logistics, specializing in the design of regional logistic solutions for clinical trials, network optimization, and customized cold-chain solutions for laboratories and pharmaceutical products across the region.



Dr. Thandi Onami,

BMGF, Program Officer , HIV Vaccines Global Health division

Thandi is a Program Officer for HIV Vaccines in the Global Health division at the Bill and Melinda Gates Foundation. Previously, she was an Immunologist at the National Institutes of Health, focusing on vaccine discovery and clinical trials.

Thandi also served as an Assistant Professor at the University of Tennessee, where she established a research laboratory. She began her career as an AAAS Science and Policy Fellow at the NIH Fogarty International Center.



Mariam Toure, Technical Officer, Unitaid

Mariam Toure is a Technical Officer working on TB at Unitaid. She started her career doing gene sequencing in an HIV lab then pivoted to managing public health projects. After a few years managing a diverse portfolio of projects for an NGO in Mali, she worked on program quality improvement for TB projects and health systems strengthening with different global health organizations.

Mariam holds a bachelor's degree in biology from St. Mary's College of Maryland and a master's degree in public health from The University of Arizona. She is from Mali.



Nathanson, Carl-Michael,

Technical officer at the World Health Organization's Global TB Programme

Dr. Carl-Michael Nathanson is a technical officer at the World Health Organization's Global TB Programme. He is specialised in tuberculosis diagnostics and focuses on the implementation of WHO recommendations in WHO Member States.

Dr. Nathanson has a PhD in molecular genetics and has worked in the field of TB diagnostics for 13 years. His focus during the last year has been to develop and assist in the implementation of the WHO standard: universal access to rapid tuberculosis diagnostics with its 12 benchmarks.

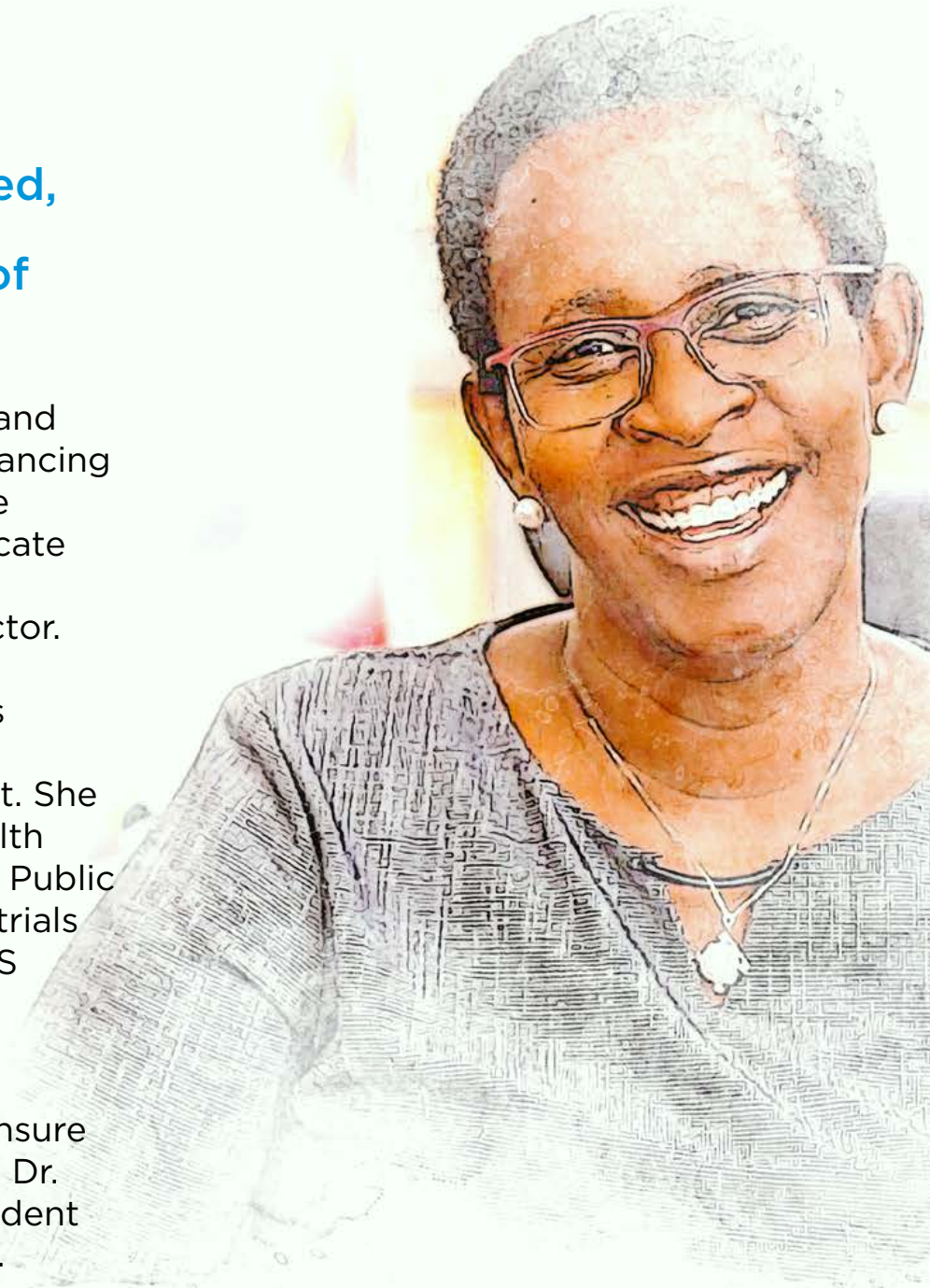


Dr. Diana Atwine Kanzira, MBChB, MMed, Permanent Secretary of the Ministry of Health in the Republic of Uganda.

She oversees the Ministry's technical operations and financial resources, driving reforms aimed at enhancing the sector's culture, ethics, and values to improve healthcare quality and access. A dedicated advocate against corruption, she is committed to fostering transparency and accountability in the health sector.

A specialist in internal medicine, Dr. Atwine holds an MBChB and MMed, along with a postgraduate qualification in Project Planning and Management. She also completed the Improving the Quality of Health Services program at Harvard T.H. Chan School of Public Health. Her expertise spans international clinical trials and bioethics, with a particular focus on HIV/AIDS research and management.

Previously, she served as Director of the Health Monitoring Unit under State House, working to ensure a responsive and accountable healthcare system. Dr. Atwine is also the Personal Physician to the President of Uganda. She is married and has three children.



Dr. Soltié Coulibaly-Koné, Deputy Director of Cabinet in charge of Universal health coverage (UHC)

A distinguished public health professional in Côte d'Ivoire, currently serving as the Director of Cabinet in charge of Universal health coverage (UHC) at the Ministry of Health, Public Hygiene and Universal Health Coverage in Côte d'Ivoire.

She also holds the position of Treasurer General at the Public Health Society of Côte d'Ivoire (SOSAPCI), headquartered at the National Institute of Public Health. Dr. Coulibaly Koné has significantly contributed to maternal and newborn health research. She co-authored a study assessing the quality of maternal and newborn care in resource-limited settings, focusing on Burkina Faso and Côte d'Ivoire. Additionally, she participated in research evaluating the feasibility of the World Health Organization's new antenatal care model in Côte d'Ivoire, providing valuable insights into its implementation. Her work emphasizes improving healthcare accessibility and quality, particularly for mothers and newborns, reflecting her commitment to advancing public health in Côte d'Ivoire.



Dr. Trevor Peter,

Head of Diagnostics at the Clinton Health Access Initiative

Dr Trevor Peter has over 25 years' experience in the fields of diagnostics, infectious diseases research and public health. Over the past 15 years, he has worked on strengthening laboratory services in Africa, Asia, Eastern Europe, the Caribbean and South America.

Previously, he managed the Botswana-Harvard School of Public Health HIV Reference Laboratory and conducted vector borne disease research in southern Africa. He was the Board Chair of the African Society for Laboratory Medicine from 2012 - 2016 and the recipient of the Life Ball Crystal of Hope award in 2009.



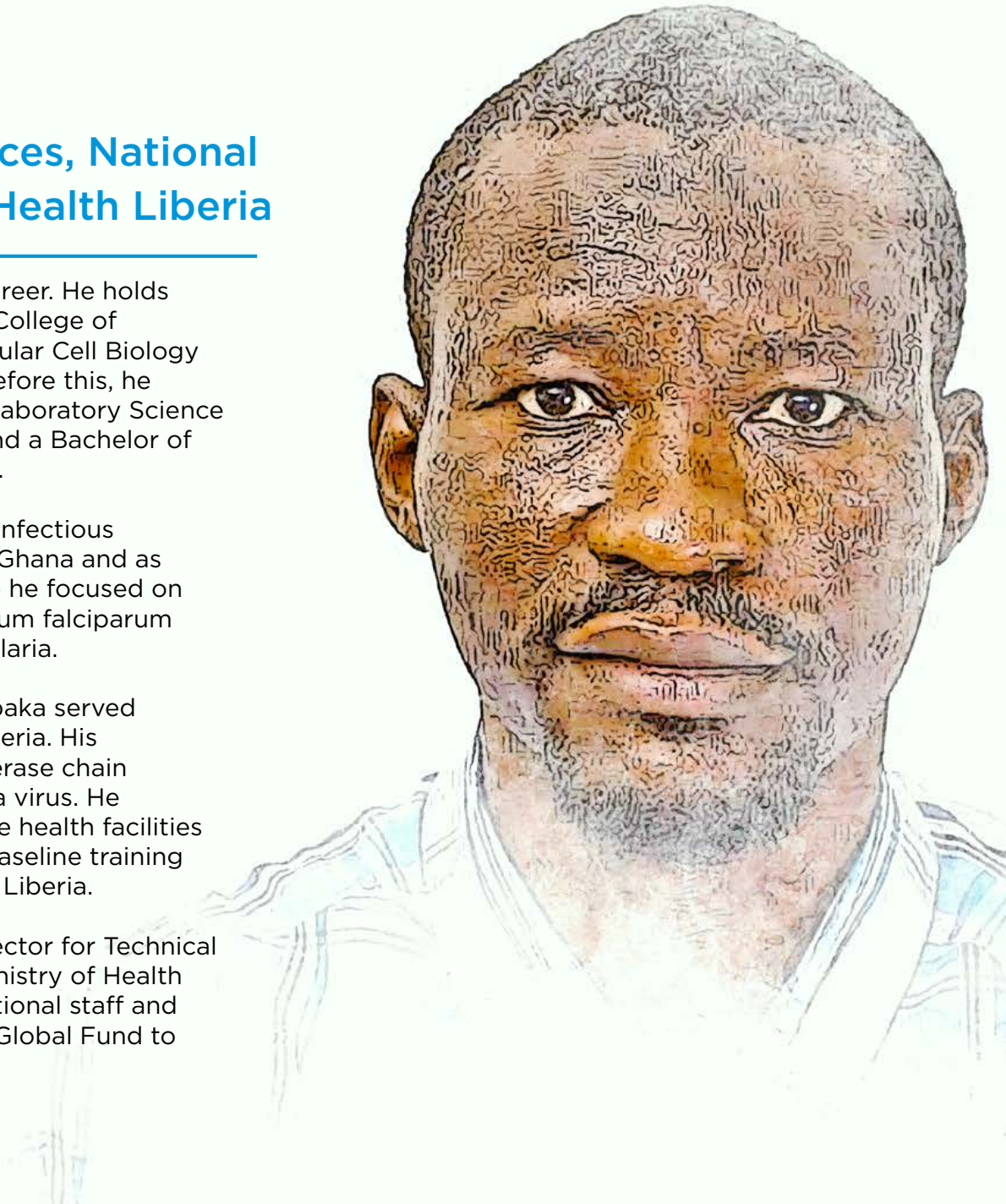
Jonathan N. Kpaka, M.D., MPhil, Deputy Director, Technical Services, National Diagnostic Division, Ministry of Health Liberia

A medical laboratory scientist with a distinguished career. He holds a Doctor of Medicine degree from the A.M. Dogliotti College of Medicine and a Master of Philosophy degree in Molecular Cell Biology of Infectious Disease from the University of Ghana. Before this, he obtained an Associate of Science degree in Medical Laboratory Science from the Mother Patern College of Health Sciences and a Bachelor of Science degree in Biology from Cuttington University.

Dr. Kpaka's expertise lies in molecular cell biology of infectious diseases. He conducted research at the University of Ghana and as a Visiting Research Fellow at Brown University, where he focused on understanding the challenges posed by the Plasmodium falciparum circumsporozoite protein to the RTS,S vaccine for malaria.

During the 2014 Ebola outbreak in West Africa, Dr. Kpaka served as a molecular scientist at a regional laboratory in Liberia. His responsibilities included conducting real-time polymerase chain reaction (RT-PCR) tests for the detection of the Ebola virus. He successfully introduced GeneXpert technology to nine health facilities across six of Liberia's fifteen counties and provided baseline training and technical support for the GeneXpert machines in Liberia.

Currently, Dr. Kpaka holds the position of Deputy Director for Technical Services at the National Diagnostic Division of the Ministry of Health of Liberia. In this role, he collaborates closely with national staff and technical leads of supporting partners, including the Global Fund to enhance laboratory services in Liberia.



Flavien Ake,

Founder and Executive Director of Davycas International

Flavien is the Founder and Executive Director of Davycas International, an NGO specializing in public health. With 32 years in public health, including 15 years at WHO and extensive consultancy with US CDC, NIPH, UNICEF, and WFP. Since 2009, he has led public health program management, studies, and developed Burkina Faso's first national specimen referral network, expanding it to Niger in 2023.

Trained as a Computer Scientist, he specialises in disease surveillance systems, database design, and mapping, with strong bilingual skills in French and English.



Annex II: DEC Statement and Call to Action



At the ASLM Special Convention on Diagnostics, the Diagnostics Equity Consortium, represented by Mr. Tapiwa Kujinga, called for urgent action to address the lack of access to essential diagnostics in low- and middle-income countries. The statement emphasized the following points:



1. Diagnostics Access Gap:

- a. Nearly 47% of the global population lacks access to essential diagnostics, disproportionately affecting Africa.
- b. DEC highlighted the urgency of addressing this inequity, which has severe implications for health outcomes on the continent.



2. Call for National Diagnostics Planning:

- a. Urged countries to adopt and implement national EDLs and strategic plans for diagnostics, extending beyond laboratory-specific initiatives to cover primary and secondary healthcare levels.



- b. Highlighted the importance of integrating diagnostics across diseases, moving away from vertical, siloed approaches.

3. Demand for Civil Society Involvement:

- a. DEC emphasized the lack of meaningful civil society and community involvement in decision-making processes for diagnostics at the country level.
- b. Called for consultations between laboratory directors, ministries of health, and civil society to increase awareness, demand, and uptake of diagnostic services.



4. Barriers to Accessible Diagnostics:

- a. Identified systemic issues such as high local distributor markups, cost-prohibitive supply and maintenance contracts, and out-of-pocket expenses for patients.
- b. Criticized the slow integration of sample collection, transportation, and person-centered testing despite decades of donor-supported programs.



5. Focus on Tuberculosis and Emerging Technologies:

- a. Advocated for immediate planning and preparation for the rollout of new POC and near-POC diagnostics for tuberculosis.
- b. Stressed the importance of decentralizing diagnostics and leveraging multiplex platforms to address tuberculosis and other health issues.



6. Industry Accountability and Regional Manufacturing:

- a. Called for licensing and technology transfer to enable regional manufacturing of diagnostic tools.
- b. Advocated for greater pricing transparency and an industry forum to address supply chain inefficiencies, high markups, and unmet service agreements.



7. Civil Society Commitments:

- a. Pledged to improve diagnostic literacy at the community level and prepare communities for new diagnostic tools to enhance demand and uptake.
- b. Committed to advocating for affordable, suitable, and effective diagnostics while holding governments, donors, and industry accountable.

The DEC concluded by reaffirming its commitment to work with all partners to ensure communities have sustainable access to quality, affordable, and effective diagnostics.

Annex III: List of Conference Posters

LABCoP THEORY OF ACTION

AIM: TO FACILITATE THE DEVELOPMENT OF LABORATORY SYSTEM FUNCTIONS AND MODERNIZE THE ROLE OF SP. BIODIAGNOSTICS FOR IMPROVED PATIENT OUTCOMES

OUTCOMES

- Improved patient outcomes
- Enhanced laboratory system functions
- Modernized role of SP. Biodiagnostics

KEY CHALLENGES

- The absence of national mechanisms to routinely collect, aggregate, analyze, and interpret data on the performance and functionality of national laboratory systems, networks, and essential testing cascades
- Lack of stability of the laboratory governance, which is not aligned with the national priorities, limiting access to funding opportunities
- Resolving gaps with the quickly evolving priorities of the laboratory system

OTHER LESSONS LEARNED

- LABCoP provides a platform that could be quickly mobilized to coordinate and support laboratory system improvements or strategies in a COVID-19 response
- ECHO sessions have an outreach way beyond Africa promoting African best practices globally
- Global, regional and national partners implementing, regulatory agencies, funders, key players facilitates the effectiveness of intervention and the relevance of investments in countries

Survey on implementation of Stool-Based Testing for TB Diagnosis, Africa continent

Authors: Amel Gharib, Gopal Kumar, Sushant Kumar, Stephanie Sanderson, Afrah Khatib, Benita van der Wal, Elinor Tomerzonova

Results

The survey was sent to 46 countries, 35 responded (76%).

Figure and chart show in which phase of implementation of stool testing countries consider themselves.

| Phase | Number of countries |
|---------|---------------------|
| Phase 1 | 10 |
| Phase 2 | 12 |
| Phase 3 | 13 |

Changes in current capacity available and its use for managing TB in children and adolescents.

| Country | Current capacity available | Use for managing TB in children and adolescents |
|---------|----------------------------|---|
| 1 | 100% | 100% |
| 2 | 80% | 80% |
| 3 | 60% | 60% |
| 4 | 40% | 40% |
| 5 | 20% | 20% |
| 6 | 10% | 10% |
| 7 | 5% | 5% |
| 8 | 0% | 0% |

Demonstration of targeted next-generation sequencing using the Oxford Nanopore Technologies TB assay for the detection of drug-resistant TB in Kyrgyzstan

Authors: Anvar Kurbatbaeva, Altyn Bakbaeva, Gulbarchin Saparova, Fatima Tashkova, Anzhol Dulshatbaeva, Anvar Soomratbaeva, Artykul Toktogorova, Meerim Khatunova, Gulnora Khatunbatkova, Edina Tomerzonova

Introduction

The third edition of the WHO guidelines for rapid diagnostics for tuberculosis (TB) detection recommends the implementation of targeted next-generation sequencing (NGS) for the diagnosis of drug-resistant (DR) TB. It also identifies key research priorities, including assessment of the impact of NGS on patient-important outcomes. We present the first results of using the Oxford Nanopore Technologies ONT) NGS TB assay compared to standard of care (SOC) drug susceptibility testing (DST) in Kyrgyzstan.

Methods

- Nanopore sequencing using the INGS TB assay (ONC-CLUST-KIT) on MinION Mk1B sequencers (ONT) with wT-bar (v2.0.0-beta.2) (EP2M) analysis workflow
- For validation, smear-positive sputum samples were subjected to both the ONT INGS TB assay and the Dexplox Myc TB kit (QeiosScreen, on MGSeq (illumina))
- For an ongoing study of the patient important outcome, aiming to enroll TB patients, participants aged >18 years between in three regions of Kyrgyzstan. Sputum samples were collected and subjected to SOC DST, not taking the illumina sequencing data into account (Fig. 1).

| Anti-TB drug | Concordance (%) |
|--|-----------------|
| Isoniazid, rifampicin, amoxicillin, kanamycin | 100 |
| Fluoroquinolones, capreomycin, linezolid | 98.6 |
| Bedaquiline, clofazimine, ethambutol, streptomycin | 96.2 |
| Pasipamamide | 94.4 |
| Ethionamide | 92.1 |

Results

Validation study: 77183 samples had indeterminate results. Among the remaining 156 samples, high concordance was observed between the two assays for high-confidence graded mutations (Table 1).

Table 1. Concordance between the ONT INGS TB assay and the Dexplox Myc TB kit, in 76 sputum samples analysed

Patient important outcome study.

- From January-May 2024, 1187 patients were enrolled, of which 332 (28%) were diagnosed with active TB, and 284 (86%) had Xpert MTB/RIF detected.
- Of 188 samples sequenced thus far, 38 failed and for 13 SOC DST was pending. Sequencing and SOC DST results showed 73.3% concordance (99/135; n=77 susceptible and n=22 resistant) and 36/35 samples with different resistance patterns.
- The ONT INGS assay identified additional resistance to mainly ethambutol and pyrazinamide, detected levofloxacin and moxifloxacin resistance in 2 patients, but missed bedaquiline resistance detected in 1 patient.

Discussion

These preliminary results show the usefulness of ONT INGS for the diagnosis of TB in Kyrgyzstan and highlight the potential of incorporating NGS into routine TB diagnostic algorithms for accurate and timely treatment decisions.

Genetic Insights into Rising Antimicrobial Resistance of Extra-intestinal Escherichia coli in Nigeria

Authors: Rabiatul Firdausy Haniffa, Jingyue Sun, Nicholas M. Anderson, O. Calliana, E. Michael Gaudin, Scott Olson, David W. Agarwal, Julia R. Chao, and the Nigeria Antimicrobial Resistance Research Unit (NARRU)

Introduction

Extra-intestinal *Escherichia coli* (EIEC) is a leading cause of hospital-acquired infections. The rising prevalence of antimicrobial resistance (AMR) in EIEC is a global public health concern. This study aims to investigate the genetic diversity and AMR patterns of EIEC in Nigeria.

Methods

Genomic data from 100 EIEC isolates were analyzed using whole-genome sequencing (WGS). The data was processed and analyzed using bioinformatics tools to identify genetic diversity and AMR patterns.

Results

The study identified several genetic diversity and AMR patterns among the EIEC isolates. The results show that the isolates are highly diverse and possess various AMR genes.

Conclusion

The findings of this study highlight the need for improved surveillance and control strategies to address the rising AMR in EIEC in Nigeria.

Experiencing the impact of next-generation sequencing on TB diagnosis and surveillance in low-income countries

Authors: Andrii Shtyk, Alina Hryhoriv, Myroslava Hryhoriv, Myroslava Hryhoriv

Introduction

We investigate the use of next-generation sequencing (NGS) for TB diagnosis and surveillance in low-income countries. The study aims to assess the impact of NGS on TB diagnosis and surveillance in low-income countries.

Methods

- Multi-center demonstration of decentralized laboratory in Vietnam (Fig. 1).
- Various sequencing approaches for TB (Fig. 2).
- For TB: Oxford Nanopore Technologies (ONT) INGS TB assay, MiSeq sequencers (Illumina), and EP2M analysis workflow.

Figure 1. Project approach for TB diagnosis and surveillance in Vietnam.

Figure 2. Various sequencing approaches used in the study.

A total of 15 posters were presented at the conference covering various themes, including waste management, equipment maintenance, publishing in peer-reviewed journals, genomic sequencing, tuberculosis and HIV.

1. Changes in reasons for rejection without review among authors submitting to the African Journal of Laboratory Medicine, 2020-2023

Bethanie J. Rammer,¹ Felix Humwa,¹ Tapson Ndundu Nyondo,¹ Rajiv T. Erasmus,^{1,2} Kgomotso Makhaola¹ Author affiliations ¹ African Society for Laboratory Medicine, Ethiopia; ² Stellenbosch University, South Africa

2. Laboratory Systems Strengthening Community of Practice - LabCoP African Society for Laboratory Medicine Principal Investigator or Primary Contact:

Dr. Collins Otieno

3. The Noguchi Memorial Institute for Medical Research Genomics and Bioinformatics Core Facility:

A Regional Genomic Sequencing Hub in West Africa. Anita Ghansah ¹, Beverly Egyir ¹, Joseph

H.K. Bonney ¹, Prince Asare ¹, Evelyn Yayra Bonney ¹, Isaac Darko Otchere ¹, Ivy A. Asante ¹, Selassie M.S. Kumordjie ¹, Joyce Appiah-Kubi ¹, Quaneeta, Mohktar ¹, Hilda Opoku Frempong ¹, Bright Agbodzi ¹, Clara Yeboah ¹, Seyram B. Agbenyo ¹, Peace O. Uche ¹, Keren O. Attiku ¹, Bernice Twenewaa Sekyere ¹, Kwame B. Buabeng ¹, John K. Odoom ¹, William K. Ampofo ¹, Kwadwo A. Koram ¹, Abraham K. Anang ¹, Dorothy Yeboah-Manu ¹, Bright Adu ¹ Author affiliations: ¹ Noguchi Memorial Institute for Medical Research, College of Health Sciences, University of Ghana, Legon, Ghana

4. Genetic Insights into Rising Antimicrobial Resistance of Extra-intestinal Escherichia coli in Nigeria.

Elizabeth Temiloluwa Akande, Ojonugwa Temitope Abubakar, Anderson O. Oaikhena, Erkison Ewomazino Odih, Abiodun Egwuenu,

- Tochi Okwor, David M. Aanensen, Iruka N. Okeke and the Nigeria Antimicrobial Resistance Surveillance System
5. **CLADE I MPOX virus genomic diversity in the DR Congo, 2018-2024:**
Predominance of zoonotic transmission. Eddy Kinganda-Lusamaki, Adrienne Amuri-Aziza, Nicolas Fernandez, Jean-Claude Makangara-Cigolo, Catherine Pratt, Emmanuel Hasivirwe Vakaniaki, Nicole A. Hoff, Gradi Luakanda, Prince Akil-Bandali, Sabin Sabiti Nundu, Noella Mulopo-Mukanya, Michel Ngimba, Brigitte Modadra-Madakpa, Ruth Diavita, Princesse Paku, Elisabeth Pukuta-Simbu, Sydney Merritt, Áine O'Toole, Nicola Low, Antoine Nkuba, Hugo Kavunga, Robert Shongo, Laurens Liesenborghs, Tony Wawina-Bokalanga, Koen Vercauteren, Daniel Mukadi-Bamuleka, Lorenzo Subissi, Jean-Jacques Muyembe, Jason Kindrachuk, Ahidjo Ayouba, Andrew Rambaut, Eric Delaporte, Sofonias Tessema, Anne W. Rimoin, Lisa E. Hensley, Placide Mbala-Kingebeni, Martine Peeters, Steve Ahuka-Mundeke.
6. **Early Infant Diagnosis in Botswana.**
Queen Nthusang, Jessica Mafa-Setswalo, Tomeletso Motlogi. Ministry of Health Botswana PMTCT Program
7. **Building Diagnostic Resilience in Africa:**
Strengthening Equipment Calibration and Maintenance through RCCs and Workforce Development. Visopo Harawa, Adisu Kebede, Beatrice van der Puije. Author affiliation. African Society for Laboratory Medicine (ASLM).
8. **Pathogen Genomic Surveillance and Global Health Security.**
National Public Health Laboratories, Cairo, Egypt
9. **Experiences from a demonstration study on Nanopore sequencing for the diagnosis of drug-resistant tuberculosis in low-middle-income countries.**
Andrii Slyzkyi¹, Altyn Iskakova^{2,3}, Aizat Kulzhabaeva^{2,4}, Togolani Maya^{5,6}, Nguyen Thi Kim Thanh⁷, Bakyt Myrzaliev^{1,4}, Lillian Mtei⁵, Huong Nguyen⁸, Noud Hermans^{1,9}, Laura Manrho¹⁰, Pauline Lempens¹, Dinh Van Luong⁷, Sayoki Mfinanga⁶, Abdullaat Kadyrov³, Edine Tiemersma¹, and Kristin Kremer¹ Authors Affiliation. ¹KNCV Tuberculosis Foundation, The Hague, The Netherlands; ²KNCV Tuberculosis Foundation Kyrgyzstan office, Bishkek, Kyrgyzstan; ³National Center for Phthysiology, Bishkek, Kyrgyzstan; ⁴Kyrgyz State Medical Academy, Bishkek, Kyrgyzstan; ⁵KNCV Tuberculosis Foundation Tanzania office, Dar Es

Salaam, Tanzania; 6National Institute for Medical Research, Dar Es Salaam, Tanzania; 7National Tuberculosis Program, Hanoi, Vietnam; 8KNCV Tuberculosis Foundation Vietnam office, Hanoi, Vietnam; 9National Institute for Public Health and the Environment, Bilthoven, The Netherlands; 10Laboratory Microbiology Twente Achterhoek, Hengelo, The Netherlands

10. First imported cases of MPXV clade in Goma, DRC: Implications for global surveillance and transmission dynamics.

Daniel Mukadi-Bamuleka, Eddy Kinganda-Lusamaki, Noella Mulopo-Mukanya, Adrienne Amuri-Aziza, Áine O'Toole, Brigitte Modadra-Madakpa, Guy Mutombo Ndongala, Emmanuel Hasivirwe Vakaniaki, Sydney Merritt, Cris Kacita, Gaston Lubambo Maboko, Jean-Claude Makangara-Cigolo, Michel Ngimba, Emmanuel Lokilo, Elisabeth Pukuta-Simbu, Gradi Luakanda, Tavia Bodisa-Matamu, Zephania Paluku Kalimuli, Prince Akil-Bandali, Sifa Kavira, Daan Jansen, Adèle Kavira Kamaliro, Emile Muhindo-Milonde, Jeriel Mufungizi, Yves Birindwa Hamisi, Hugo Kavunga, Olivier Tshiani, Sabin S. Nundu, Laurens Liesenborghs, Nicole A. Hoff, Jean Nachege, Robert Shongo, Ahidjo Ayoub, Genay Pilarowski, Alain Kakule Mangolopa, Amos Kiuka Ebono, Nicola Low, Souradet Y. Shaw, Sam Wilkinson,

Sofonias Kifle Tessema, Lorenzo Subissi, Eric Delaporte, Koen Vercauteren, Tony Wawina-Bokalanga, Anne W Rimoin, Martine Peeters, Nicholas Loman, Andrew Rambaut, Jean-Jacques Muyembe-Tamfum, Lisa E. Hensley, Jason Kindrachuk, Placide Mbala-Kingebeni, Steve Ahuka-Mundeke.

11. Demonstration of targeted next-generation sequencing using the Oxford Nanopore Technologies TB assay for the detection of drug-resistant TB in Kyrgyzstan.

Aizat Kulzhabaeva^{1, 2}, Altyn Iskakova^{1,3}, Gulbarchyn Saparova³, Fatima Tilekova³, Bakyt Myrzaliev^{2,4}, Muratbek Ahmatov^{1,2}, Aiyngul Duishekeeva^{1,2}, Ainur Soorombaeva¹, Atyrkul Toktogonova³, Meerim Sydykova³, Andrii Slyzkyi⁴, Abdullaat Kadyrov³, Gulmira Kalmambetova³, Edine Tiemersma⁴, Kristin Kremer⁴ Author affiliations: 1KNCV Tuberculosis Foundation Kyrgyzstan office, Bishkek, Kyrgyzstan; 2, Bishkek, Kyrgyzstan; 3National Center for Phthiology, Bishkek, Kyrgyzstan; 4KNCV Tuberculosis Foundation, The Hague, The Netherlands.

12. Survey on implementation of Stool-Based Testing for TB Diagnosis, Africa continent. Petra de Haas¹, Mansa Mbenga¹, Jozefien Groenendijk¹,

Visopo Harawa², Felix Humwa², Stephanie Borsboom¹, Adisu Kebede², Beatrice van der Puije², Edine Tiemersma¹ Author affiliation:

1KNCV Tuberculosis Foundation, The Hague, The Netherlands; 2African Society for Laboratory Medicine (ASLM)

- 13. Pathogens Genomic Surveillance in Niger. Adamou Lagare¹, Santou Mamadou¹, Younoussa Otto Adamou¹, Moussa Issa¹, Haoua Sabo Seini¹** Author affiliation:

1- Centre de Recherche Medicale et sanitaire (CERMES)

- 14. Implementation and performance evaluation of an integrated specimen referral system in Burkina Faso using the national courier services(2020-2022)**

Emilie Dama^{1*}, Souleymane Porgo², Yahn-Cedric Ake³, Issaka Yameogo², Sandrine Gampini⁴, Aime-Gilles A. Adjami⁵, Abdoulaye Nikiema^{6,7}, Mory Kamate³, Felix Tarbangdo³, Romial Sawadogo¹, Charles Sawadogo⁸, Hamed S. Ouedraogo², Habibata Zerbo⁹, Lila Rahalison¹⁰, Isaïe Medah², Anicet G. Dahourou¹, Rebecca Greco-Kone¹⁰ and Flavien H. Ake³ Author Affiliation 1Division of Global Health Protection, Country Office, US CDC, Ouagadougou, Burkina Faso, 2General Direction of Public Health,

Ministry of Health, Ouagadougou, Burkina Faso, 3DAVYCAS International, Ouagadougou, Burkina Faso, 4WHO, Ouagadougou, Burkina Faso, 5WHO, Expanded Special Project for Elimination of NTDs (ESPEN), Ouagadougou, Burkina Faso, 6Integrated Quality Laboratory Services (IQLS), Ouagadougou, Burkina Faso, 7African Society for Laboratory Medicine (ASLM), Addis Ababa, Ethiopia, 8Directorate of Biomedical Laboratory, Ministry of Health, Ouagadougou, Burkina Faso, 9National Laboratory for Animal Health, Ministry of Agriculture, Animal Resources and Fisheries, Ouagadougou, Burkina Faso, 10Division of Global Health Protection, US CDC, Atlanta, GA, United State

- 15. Implementing Safe and Effective GTC Waste Disposal for HIV VL/EID Testing:**

Lessons from Nine African Countries. Beatrice van der Puije, Edward Krisiunas, Viktor Hristov, Slobodanka Pavlovic, Visor Harawa, Adisu Kebede, Rick Morgan Author Affiliation. African Society for Laboratory Medicine (ASLM), Waste Not Want Not International, Inc. (WNWN), US Presidents Emergency Plan for AIDS Relief (PEPFAR)

Annex IV: Partners



ASLM SPECIAL CONVENTION ON DIAGNOSTICS
Nov 4-7, 2024
Abidjan



ASLM SPECIAL CONVENTION ON DIAGNOSTICS
Nov 4-7, 2024: Abidjan



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