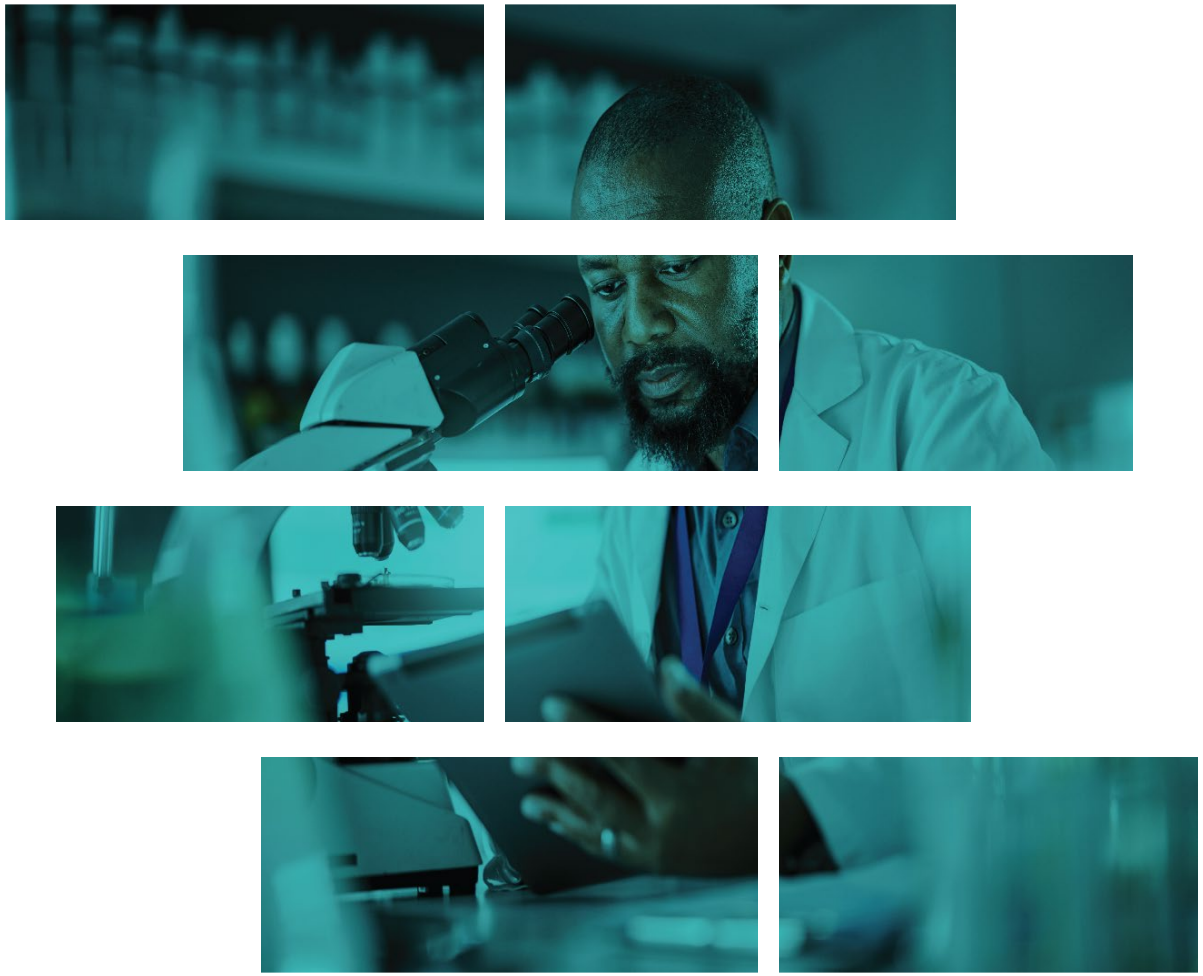
ASLM | 2023

AFRICAN SOCIETY FOR LABORATORY MEDICINE

Establishment of an on-demand lab specimen transport system (STS) for surveillance: lessons learnt from a multi country polio STS project



Mr Charles Matemba
VillageReach

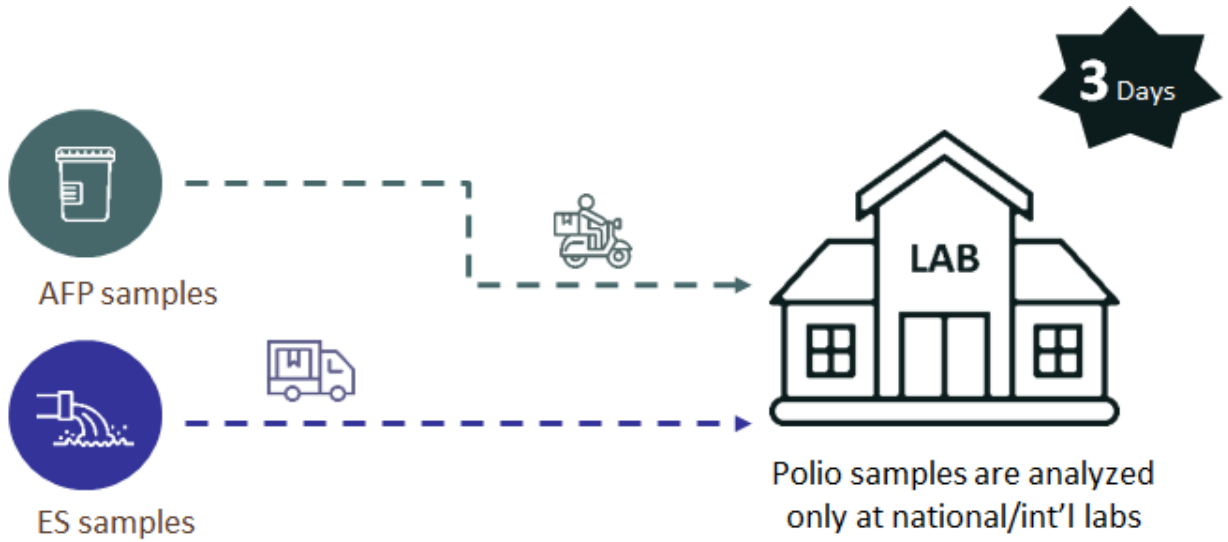
Problem Statement

Challenges in achieving Global Polio Eradication Initiative (GPEI) sample transportation time targets.

- Most delays in Polio Lab Sample Transport occur in-country between the point of collection at the community/health center & the district/provincial hospital (tier 1) and from there to national capital (tier 2).
- However, countries that must send Polio samples to a lab abroad also incur delays during int'l transit (tier 3).
- GPEI has set a target of just 3 days for samples to reach the lab, regardless of where the lab is located.

Reasons for delays:

- Vast distances, geographic barriers
- Areas of insecurity (samples must wait)
- Lack of incentives (fast reimbursement)
- Health staff turnover (retraining needed)
- Bureaucratic delays/extra stops
- Few means of transport at the last mile
- Transport delays (community to HF)
- Irregular flights & airline space constraints
- Limitations of integration across diseases



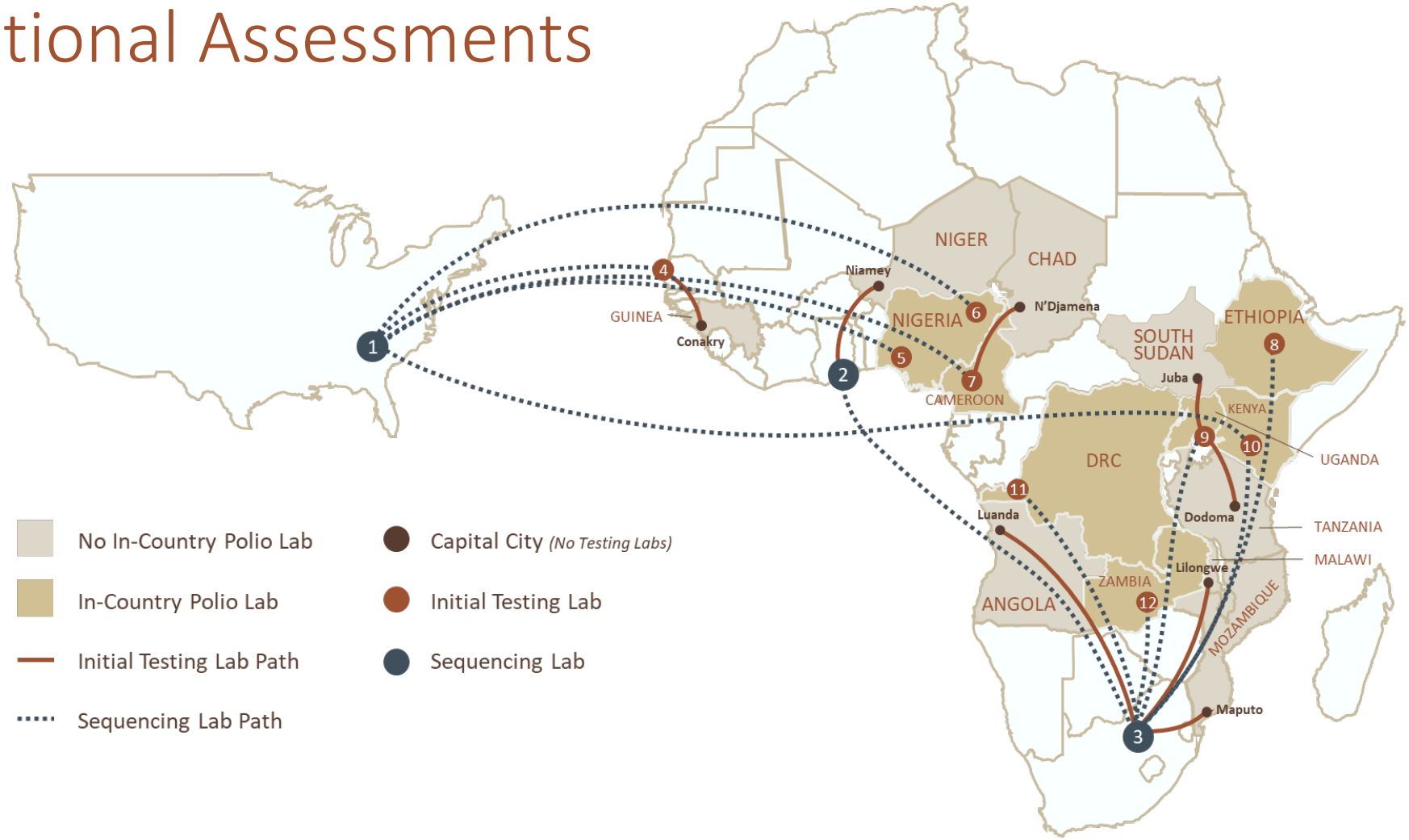
Polio Lab Sample Transport

Following national assessments in 2022, VillageReach and partners have been implementing customized programs in **15 countries** at risk for **polio outbreaks**, aiming to improve the **speed & quality** of AFP & ES sample transportation from communities/health facilities to national/int'l laboratories.

Objectives	Sub-objectives
ACHIEVE COORDINATED & EFFECTIVE SAMPLE TRANSPORT SYSTEMS	• **Timeliness** & reliability of transport • Sample quality (**good condition**) • Governance & coordination • Efficient response to outbreaks • Sustainable transport systems
IMPROVE SAMPLE TRACKING, DATA VISIBILITY & QUALITY	• Enhanced, real-time **sample tracking** • Improved **data visibility** & proactive monitoring for Ministries of Health

Visit the **Program website** to read our Country stories & view the film released on World Polio Day

2022 National Assessments



- Countries with **polio lab abroad** had difficulty reaching the transport timeliness target, but many challenges still at the last mile
- Most polio samples arrived in **good condition** at the labs (better measure of sample quality during transport than adequacy)
- Significant **data challenges** (availability, timeliness, quality) in some countries' national Polio databases (reported to POLIS)

Polio Sample Transport: Interventions Customized by Country

	TIMELINESS OF TRANSPORT			QUALITY	DATA		PEOPLE		EFFICIENCY	
	Transport system (re)design	Govt health staff transport & incentives	Commercial transporters	Supplies & equipment (i.e. cold chain)	M&E data systems	Digital solutions (sample tracking & notifications)	SOPs, training materials, job aids	Training/ supervision	Costing analysis	Integration & sustainability
DRC	●	●	●	●	●	●	●	●	●	●
Guinea	●		●	●	●	●	●	●	●	●
Niger	●		●		●		●	●	●	●
Chad	●	●	●	●		●	●	●	●	
Mozambique	●	●	●	●	●	●	●	●	●	●
Malawi	●		●	●	●	●	●	●	●	●
Nigeria	● pilot area	●	●	●				●	●	
Tanzania	● pilot area	●	●		●		●	●	●	
Kenya			●	●		●		●		●
Ethiopia	● new hubs			●	●		●	●		
Cameroon	● new hubs	●		●		●	●	●		
Zambia		●		●	●		●	●		
Uganda	● pilot area	●		●	●			●		●
South Sudan		●		●				●		
Angola (TBC)		●	●	●		●		●		

Output Indicators

15 countries

VillageReach + 12 implementing partners

12
countries with new Polio Sample Transport SOPs

8765
health staff, local transporters, community focal points trained

1431
contracts with private transporters in 8 countries

5400+

people whose samples were transported

3334

GPS + temp monitoring devices for 11 countries

23
Freezers procured

912
Sample carriers

1000
Sample collection kits

Progress towards Objective:

SOLUTIONS CO-DESIGNED WITH MOH, WHO, STAKEHOLDERS

- **Local private transporters** introduced, in combination with (C)HWs - utilizing all available means of transport to pickup samples, manage trackers, return carriers/ice packs, etc.
- **On-demand, immediate transport** layered on top of routine/scheduled sample pickups in health facilities
- **Transport network redesign**, with level-jumping (more direct routes, eliminating stops, increased frequency of pickups)
- Polio sample **transport SOPs** developed, with health system staff at all levels and transporters **trained** or retrained
- Digital GPS **sample trackers** (to track geolocation in close to real-time, in areas with significant transport delays)
- **Integration** of transport and staff/resources **across diseases** whenever possible (for sustainability and cost efficiencies)
- **Faster reimbursement** (advance payments/mobile money) & equitable sharing of incentives for (C)HWs in some countries
- **Performance-based contracts** for transporters have incentivized speed of transport, chain of custody, data sharing

Transport **Timeliness** & Reliability

Countries where project reimbursed **Health workers/Govt' drivers** for transport:

30 districts (out of 135)

7 provinces (out of 10)

2 regions (out of 10)

12 counties (out of 79)

Countries with project-funded private transporters – **piloted** in specific areas:

20 LGAs (out of 774)

1 region Tabora (out of 31)

Countries where on-demand private transport is the **back-up/complementary** system:

Countries using private transporters on **large scale**: country-wide or province-wide:

Photo album: Transportation of polio samples across countries

Photo courtesy of R4H Malawi

Photo: Access for Humanity, S. Sudan

G4S vehicle bringing samples to KEMRI Lab, Kenya. Photo: VillageReach

Lab sample transport at the last mile in Chad. Photo credit: ASRADD

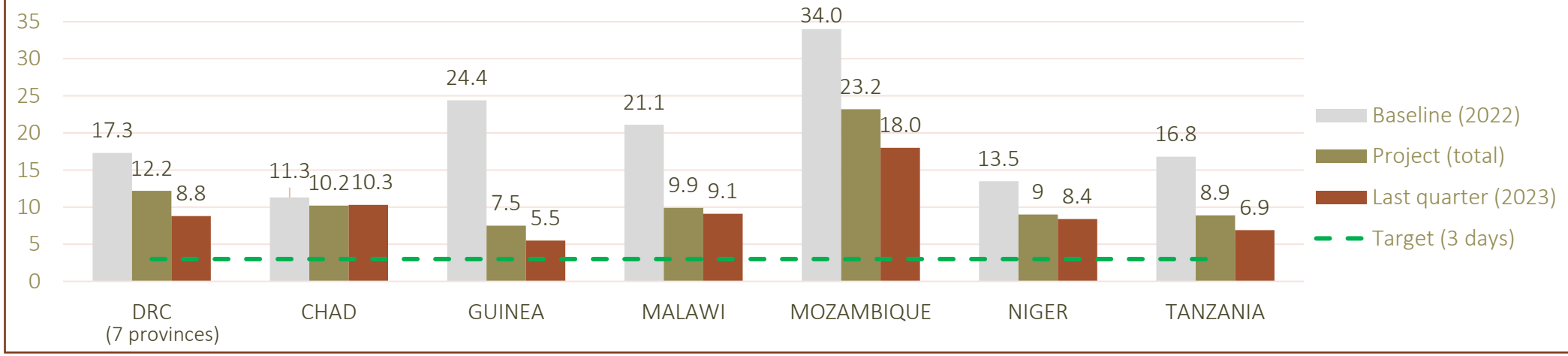
Samples loaded onto airplane in DRC. Photo: VillageReach

INS technician loading drone with lab samples in Mozambique. Photo: Swoop Aero

AFP Sample Transport Timeliness Improved Across Countries

Countries not meeting the 3-day target at baseline

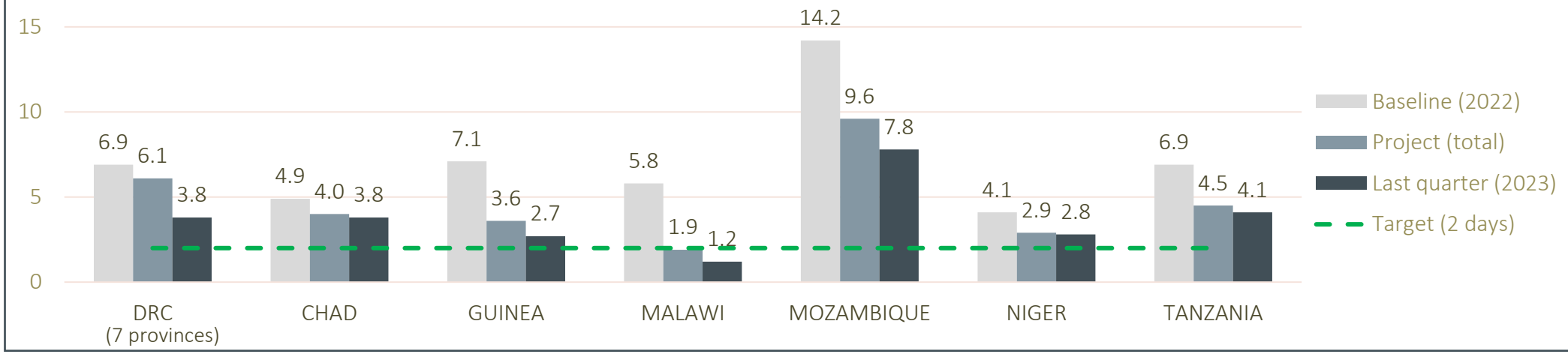
Avg # days from collection to international Lab (exception: national lab in DRC)



Across 7 countries, our intervention contributed to:

- Avg **8.2 day** decrease
- **39%** reduction over the entire project period

Avg # days from collection to national level (exception: to provincial level in DRC)



Across 7 countries, our intervention contributed to:

- Avg **2.5 day** decrease
- **35%** reduction over the entire project period

Transition to Government

Countries ending project between 30 Nov 2023 and 31 Mar 2024 developed transition plans & timelines with MoH, WHO and in-country stakeholders

30 Nov - 31 Dec 2023

29 Feb - 31 Mar 2024

31 Dec 2024

** Angola project started 1 Nov 2023*

1 Sustainability / Uninterrupted transport & service delivery

Who manages / who pays / who transports: If couriers, costing, contracting, (re)training + disease integration?

2 Legacy & Continued progress

What do we leave behind: Updated SOPs, best practices, data & documentation; post-transition monitoring of success?

3 Technology & Equipment

CCE & supplies: inventoried/transferred officially to local/nat'l govt.
Digital solutions: Subscriptions, data ownership, coaching MoH staff

4 Risk mitigation: Share data & advocate for adoption of successful project elements with funders/partners

Key lessons from establishment of an on-demand SRS

1

Management & Governance

- Country driven and tailored solutions
- Strong in-country collaboration
- Capacity development – health workers, couriers
- Tools & systems improvements e.g. SOPs development
- Transition planning & sustainability

2

Transport Data Systems

- Incomplete and inadequate data
- Sample movement data visibility
- Feedback and follow up

3

Technology & Innovation

- Real-time sample notification & tracking technology
- Use of drones in some countries

4

Transportation

- Lab location and prevailing transport systems
- Private couriers - performance based contracts
- Faster reimbursement of health workers
- Limited courier options at lower level

Thank You!

www.aslm.org