Progress in scale up of viral load testing and laboratory systems strengthening among LabCoP countries

Collins Otieno Odhiambo
ASLM

Laboratory Community of Practice Project (LabCoP)
The Laboratory System Strengthening

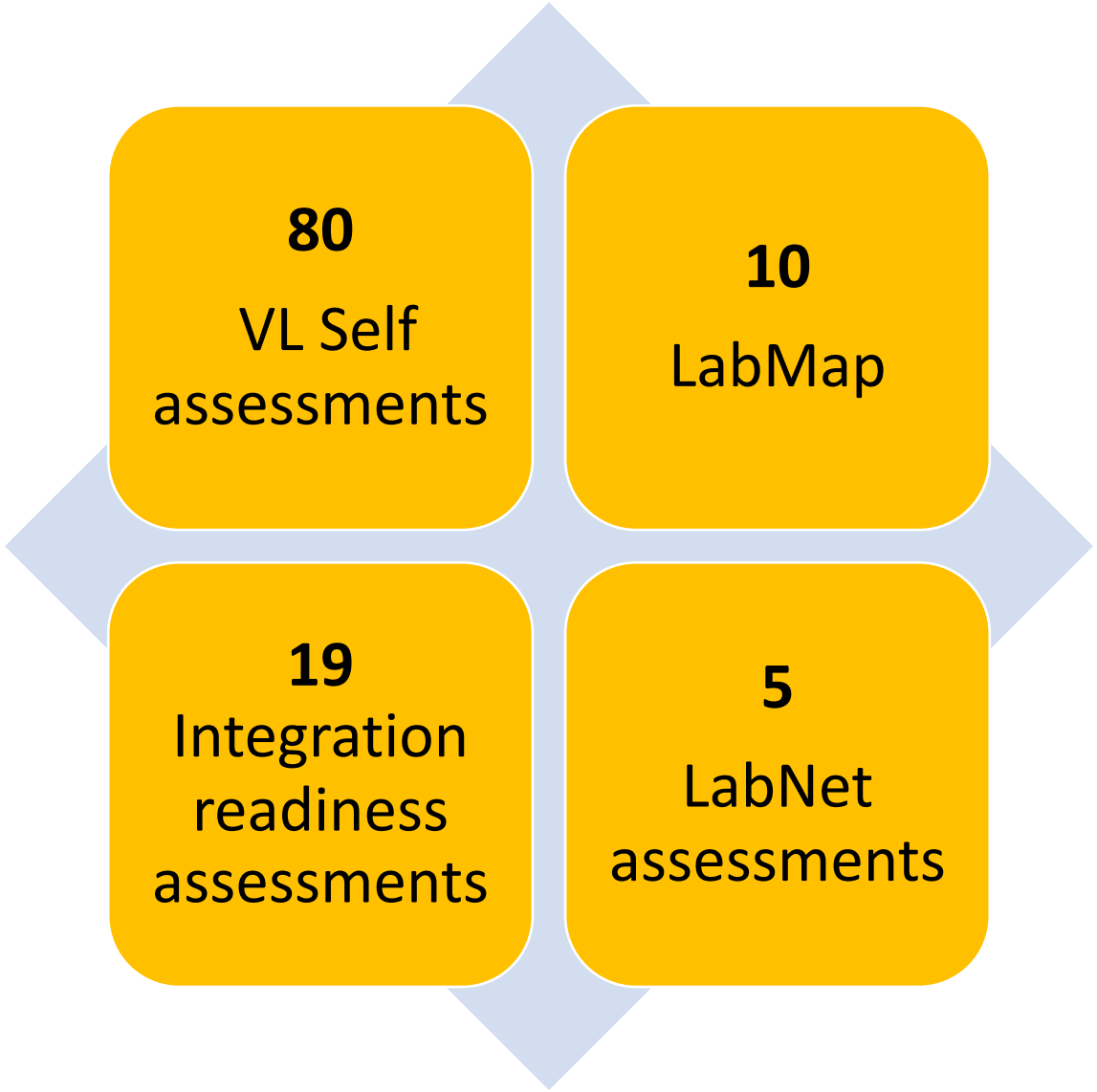
How do we measure progress?

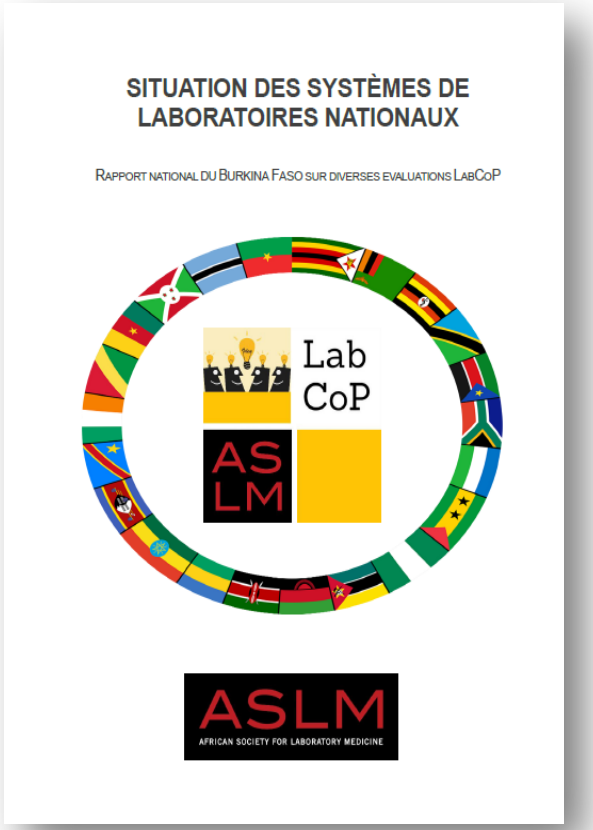
- LabCoP employs the use of various assessment tools
  - Identify strengths & weaknesses of laboratory system/network components underlying the diagnostic cascade
- Results used to monitor degrees of improvement/continued challenges of laboratory systems/networks over time
- Outcome evaluation guides implementation of interventions addressing areas of most critical needs across countries

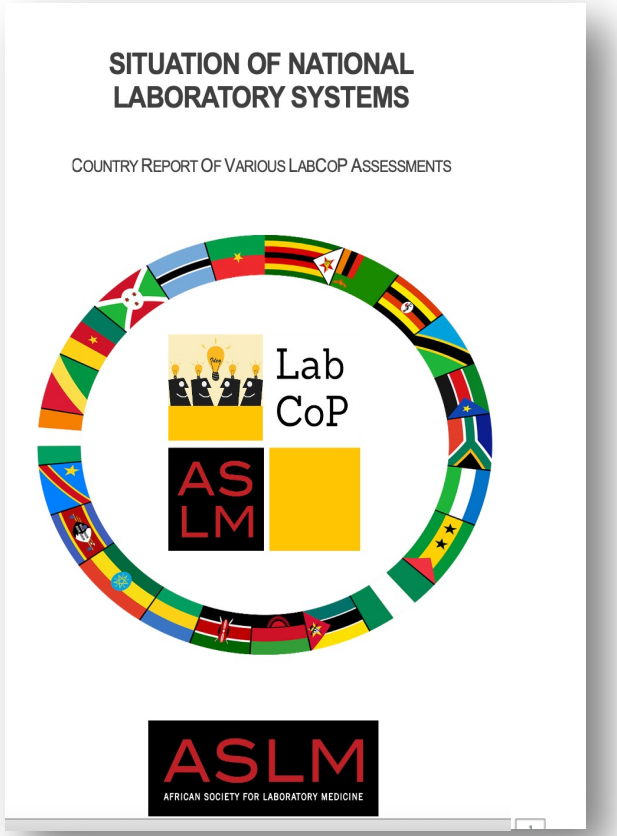
Which assessment tools?

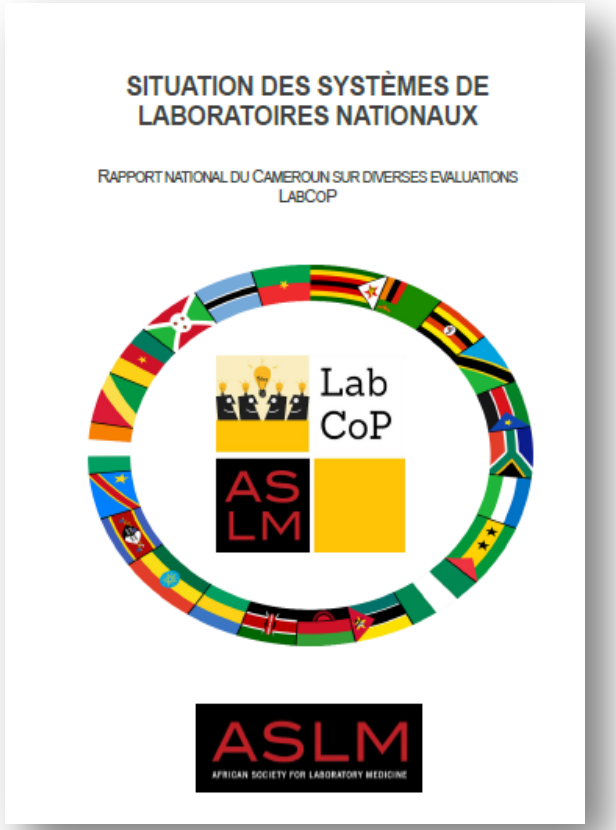
HIV VL cascade self assessment tool	GHSA LabNet scorecard	Integration readiness assessment tool	Laboratory mapping tool
assess laboratory systems functions underlying the HIV viral load cascade	assess laboratory network and systems functions	Assess the readiness of laboratory system to deliver integrated diagnostic services	Determine where laboratory capacity is located

Standardized assessments conducted since 2017…









Each country receives an individual report highlighting

- Gaps
- What is the next step that the country should achieve? → annexes

Interventions using the best practices identified (LabCoP)
→ workplans

How do we measure progress?

HIV VL cascade self assessment tool

assess laboratory systems functions underlying the HIV viral load cascade

HIV VL cascade self assessment scorecard

Qualitative section

- Demand creation
- Specimen collection
- Specimen transport
- HIV VL testing
- Waste management and biosafety
- Supply chain
- Results utilization
- Leadership and management

Quantitative section

- **Number of reporting HIV VL sites**
- **First HIV VL cascade**
  - #Eligible for VL
  - #Receive a VL
  - #VL suppression
- **Second HIV VL cascade**
  - #EAC
  - #Second VL

Applied every year

Gabon

Malawi

Uganda

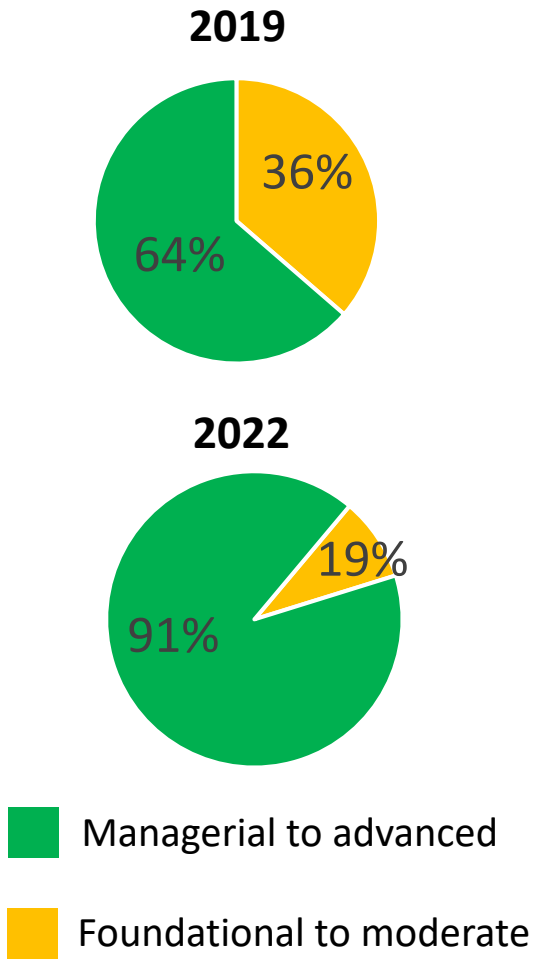
Congo

HIV VL cascade self-assessment tool: qualitative section

Country A - 2022

Domains of the HIV VL cascade	Indicators	Indicator score	Level of capacity of the domain	Score change from 2021
1. Demand Creation for HIV VL testing	1.1 National strategy to increase VLT demand	3	Strong technical or managerial level	Stable
	1.2 National HIV VLT awareness campaign for PLHIV	3		
	1.3 National HIV VL strategy for stakeholders	4		
	1.4 National training programme for clinician on importance of VL on	4		

11 founder LabCoP countries



Quantitative assessment

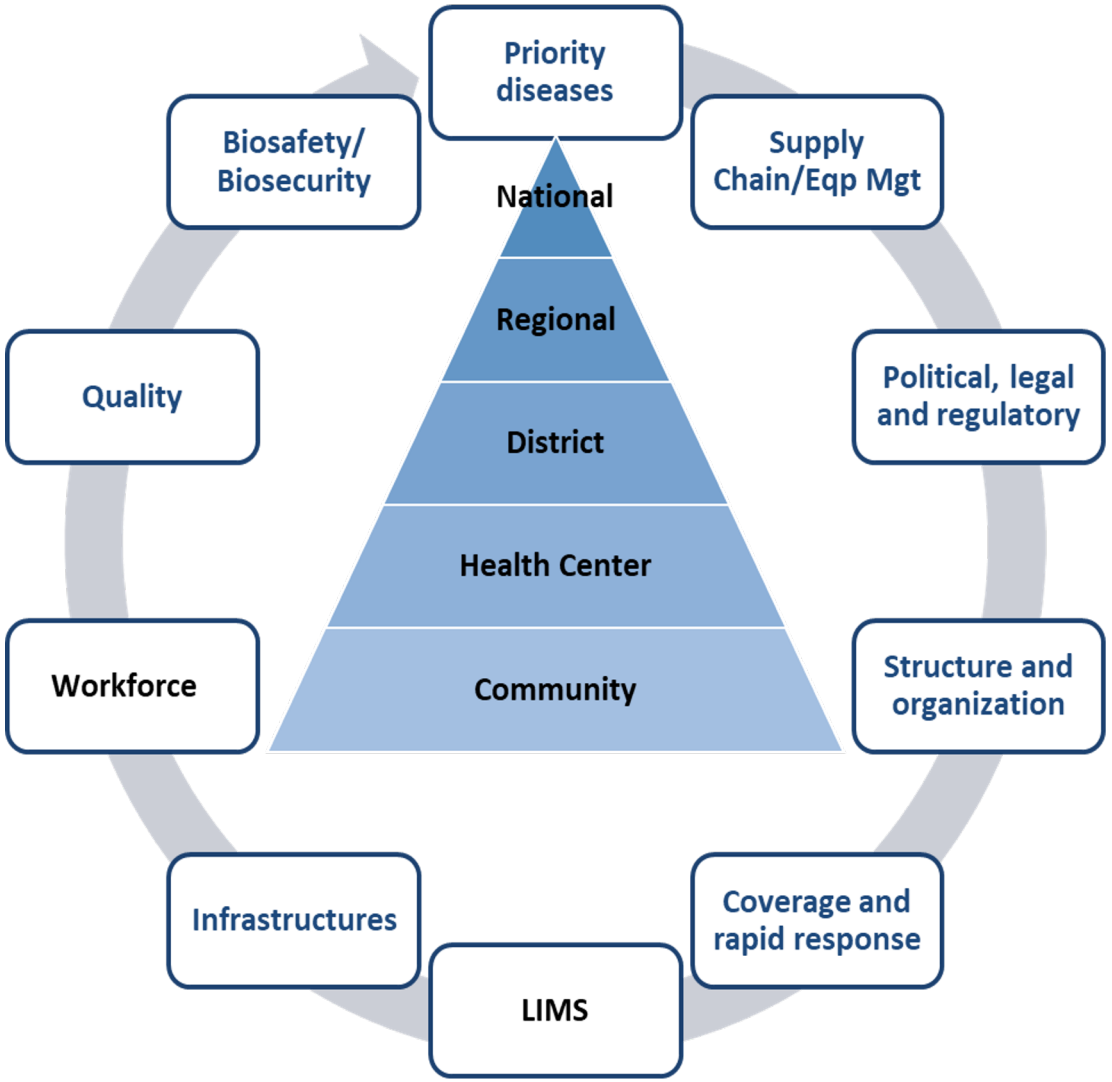
National Viral load testing data source		2020		2021		2022	
# of VLT sites in the country		?		?		?	
# of VLT sites reporting		n (%)		n (%)		n (%)	
Cascade of Routine Viral Load Testing and Key Indicators to Track Virally Suppressed Patients (first cascade)							
# of PLHIV in the current year (1)	**1**	1,315,646		1,277,584		1,301,402	
# PLHIV currently on ART	**2**	1,146,532		1,184,901		1,188,636	
# PLHIV currently on 1st line ART regimen (N)	**3**	1,100,932		1,141,925		1,139,648	
# PLHIV on ART eligible for a routine VL test	**4**	1,095,549	**56.8%**	1,141,925	**63.3%**	1,153,516	**73.6%**
# PLHIV on ART who received a routine VL test	**5**	622,422		722,404		848,648	
# PLHIV on ART who are Virally Suppressed (<1,000 copies/ml) on routine testing	**6**	528,902		642,467		795,282	
# Virally suppressed PLHIV referred to a less intense model of HIV care	**7**						
VL cascade for patients with a non-suppressed VL test result (VL>1000 copies/mL) (2nd cascade)							
# PLHIV on ART with a VL ≥1,000 RNA copies/ml	**1b**	93,520		79,937		53,366	
# PLHIV on ART with a VL ≥1,000 RNA copies/ml who received Enhanced Adherence Counseling (EAC) :	**2b**		**NA**		**NA**	30,265	**56.8%**
# PLHIV on ART with VL ≥1,000 copies/ml who received a follow-up VL testing within 3-to-6 months of EAC	**3b**					17,201	
# of PLHIV who re- suppressed at follow-up VL testing	**4b**					11,157	
# PLHIV on ART with two consecutive VL test results of ≥1,000 copies/ml	**5b**					6,044	
# PLHIV on ARTwho SWITCHED to a 2nd or 3rd line ART regimen	**6b**					3,680	

How do we measure progress?

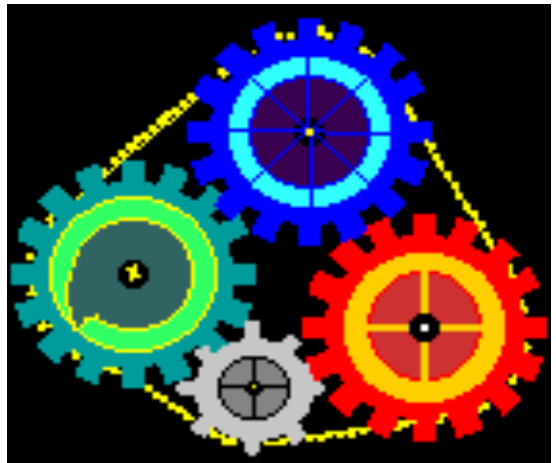
GHSA LabNet scorecard

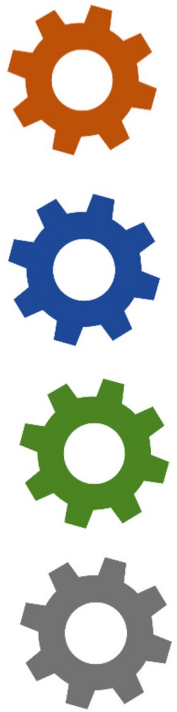
assess laboratory network and systems functions

Measuring laboratory networks and systems functionality:



- Clinical functions
- Public health functions
- One health approach
- Routine and emergency
- Limited resources
- Equitable access
- Cost effectiveness of services
- Integrated services
- Etc…

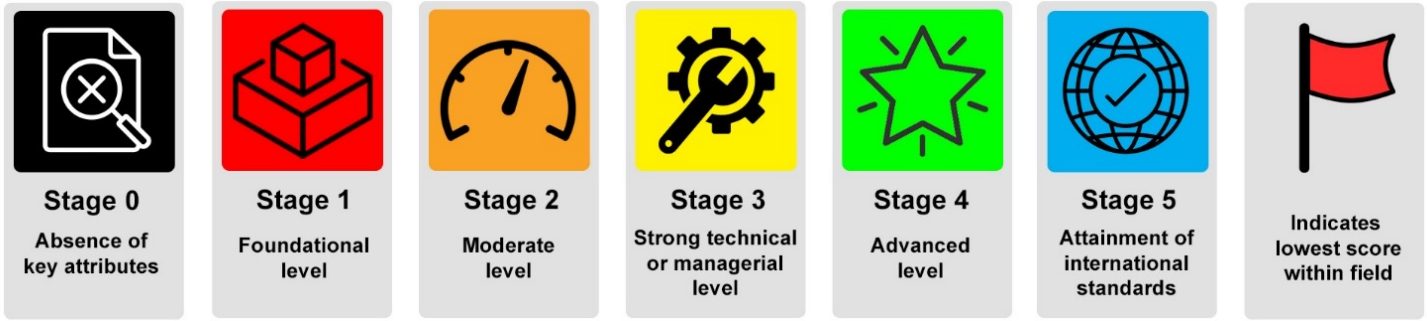


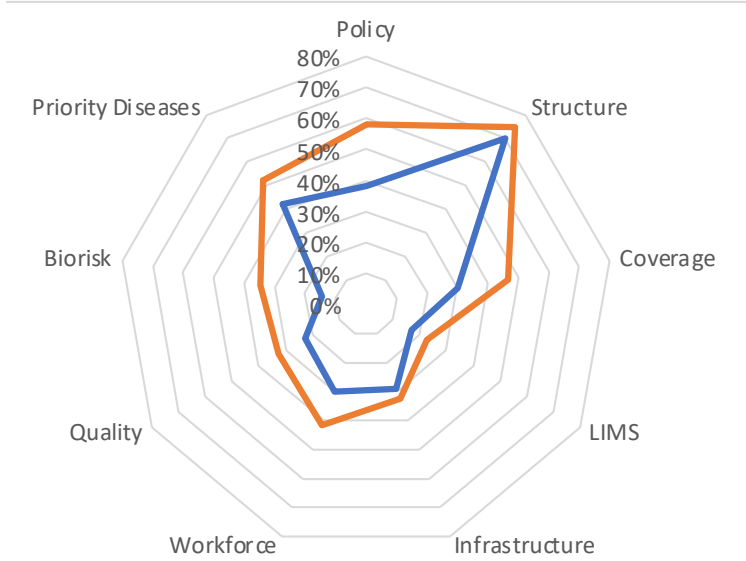


Applied every 2-3 years

Country A - 2022

Capacités	Composants	Indicateurs	Score de l'indicateur	Score du composant	Progrès par rapport à l'évaluation précédente
	Politiques et plans nationaux	Sécurité sanitaire mondiale dans les politiques et plans nationaux de laboratoire	2	Niveau modéré	Augmenté (+1)
		RSI dans les politiques ou plans nationaux de laboratoire	4		
		Opérationnalisation des capacités du RSI	3		
		Mécanisme d'octroi de licence pour les laboratoires	2		

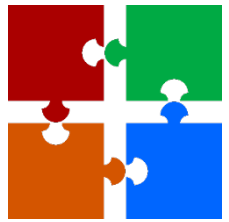




Progress in % advancement of individual indicators against the highest standard

How do we measure progress?

Integration readiness assessment tool



Assess the readiness of laboratory system to deliver integrated diagnostic services

Integration readiness assessment scorecard

Qualitative section

- Preparation and planning
- Network design
- Support systems
- Data for decision-making

Applied
every 2-3 years

South Sudan

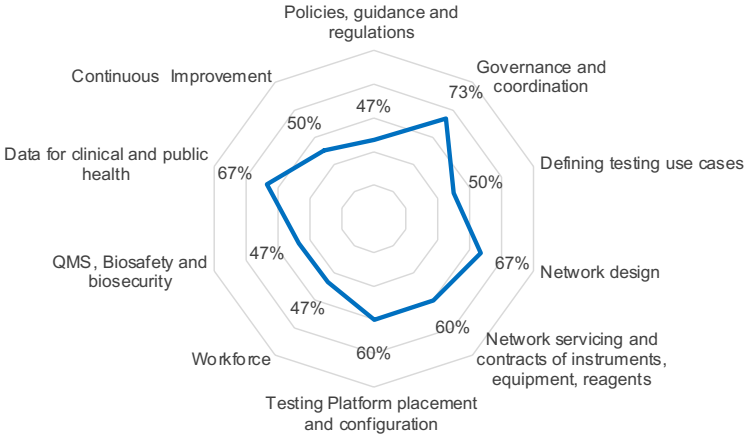
Ethiopia

Botswana

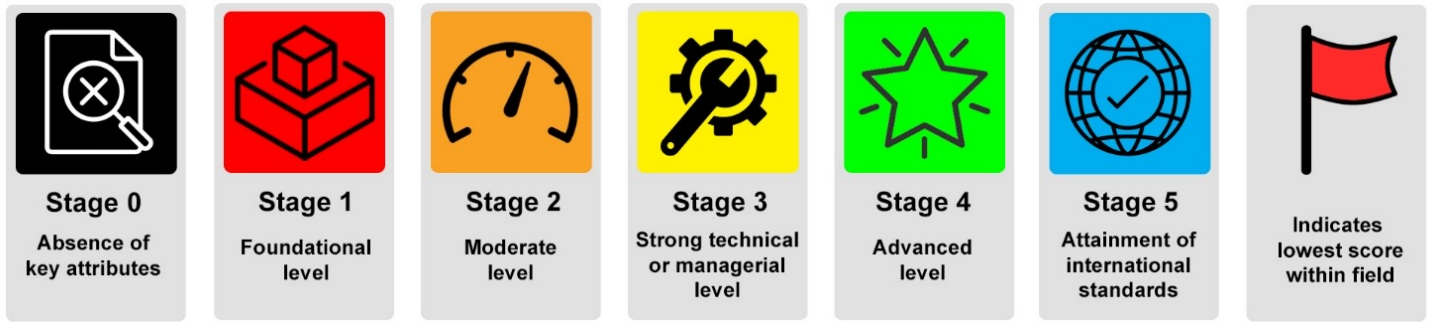
Sierra Leone

Country A - 2022

Capability	Component	Indicator	Indicator score	Level of capacity of the component
	1.1 Policies, guidance and regulations	1.1.1 integration in health policies	2	Foundation level
		1.1.2 National essential diagnostic list	1	
		1.1.3 National procedures to adoption of new tests on approved platforms	1	



Percentage advancement of individual indicators against the highest standard



How do we measure progress?

Laboratory mapping tool

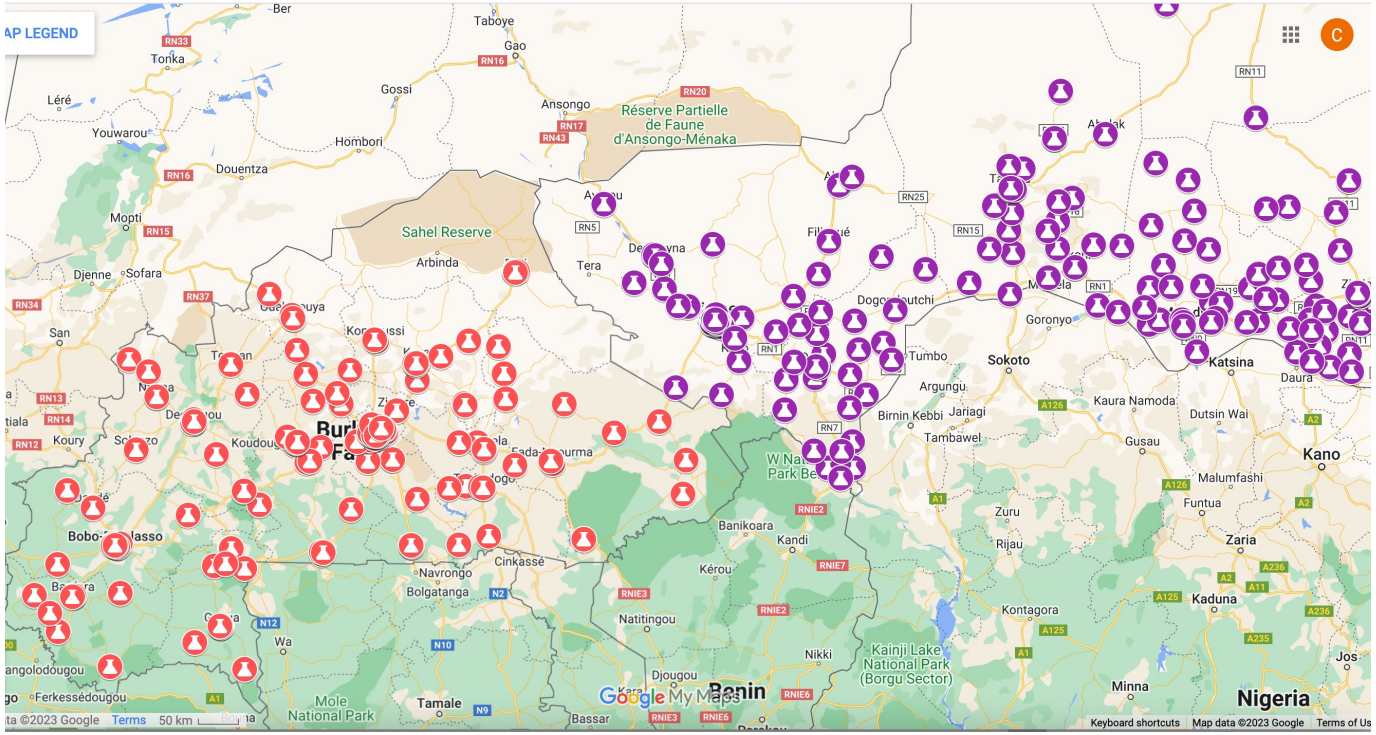
LabMaP

Determine where laboratory capacity is located

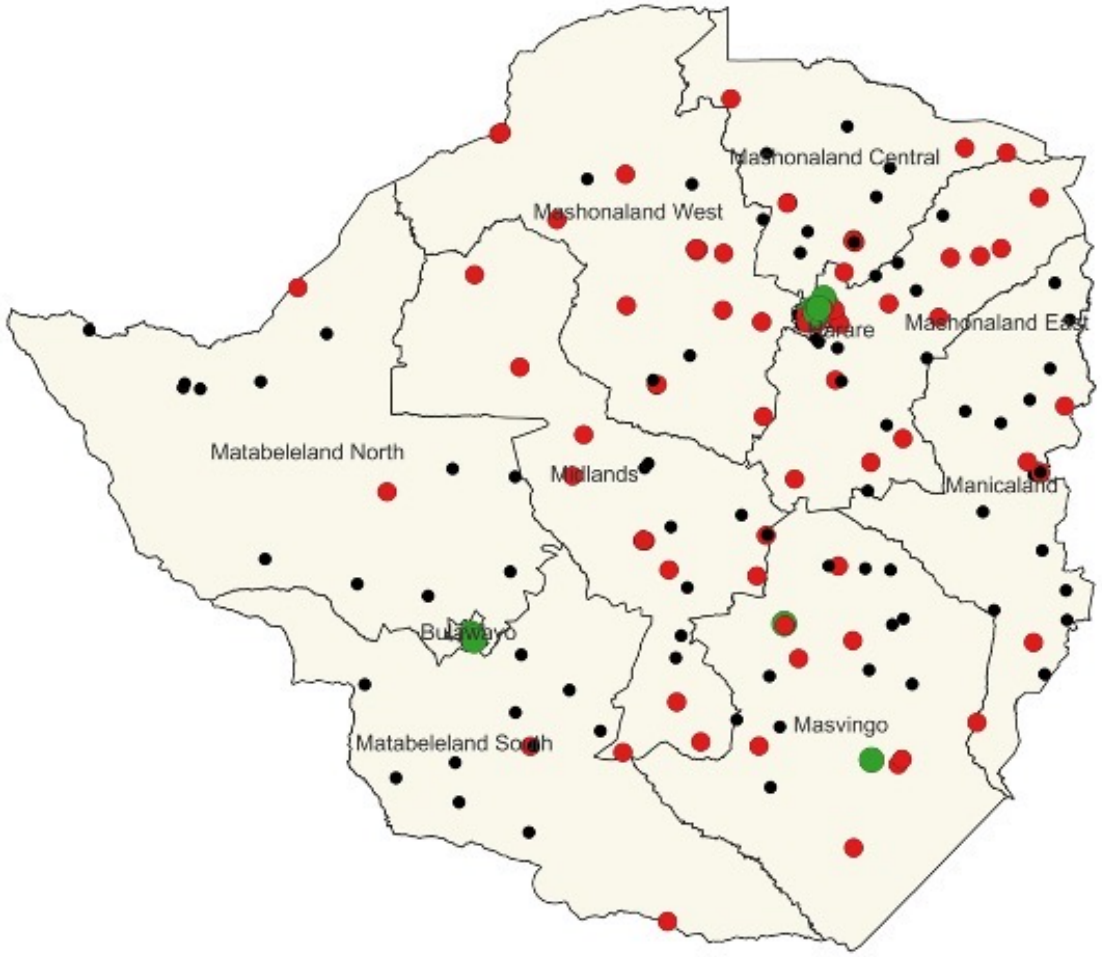
The LabMap tool

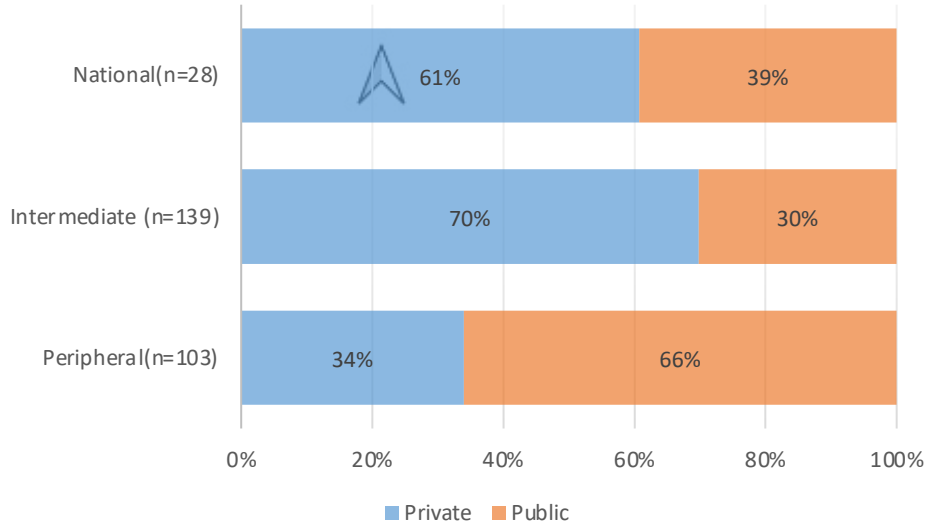
Sections of the tool

- Laboratory profile
- Laboratory Staffing information
- Infrastructure
- Laboratory departments and testing menu
- Laboratory Quality Management System
- Laboratory Connectivity
- Linkages to laboratory networks
- Biosafety and Biosecurity
- Major Equipment
- Supply chain management



LabMap analysis





N = 270 Laboratories

Tier
- National
- Intermediate
- Peripheral

Additional analyses with complete LabMap data

Summary of human resources capacity by laboratory tier

Workforce*#	Tier 1 (n%)	Tier 2 (N%)	Tier 3 (N%)	Others	Total
Phlebotomists	0 (0%)	312 (59%)	217 (41%)	NA	529
Lab technologists	147 (22%)	244 (37%)	264 (40%)		655
Lab assistants or microscopists	31 (20%)	56 (36%)	68 (44%)		155
Lab technicians	56 (24%)	76 (32%)	105 (44%)		237
Lab scientists	132 (23%)	208 (36%)	235 (41%)		575
Pathologists	0 (0%)	13 (46%)	15 (54%)		28
Medical Microbiologists	0 (0%)	151 (35%)	284 (65%)		435

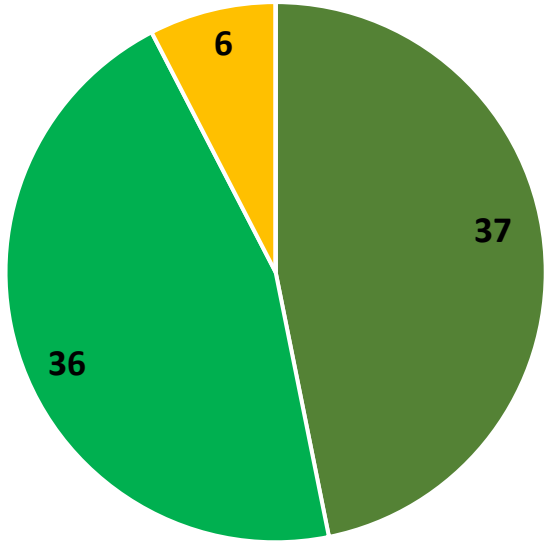
Heat map of detection capacity for Africa CDC priority pathogens

Pathogen/Disease	Serology	Viral load	Genotype	Isolation by cell culture	Neutralization assay
Ebola Virus		1	2		
Rift valley fever virus			1		
Lassa fever			2		
Congo crimean hemorrhagic fever			2		
Dengue virus	1	1	3		
Zika virus	1	1	2		
Chikungunya	1	1	2		
Yellow fever	1	1	2		

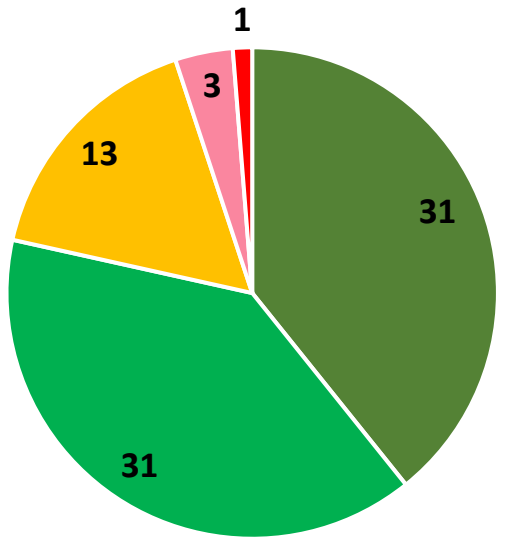
So, what do we learn?

Assessments inform priorities for funding requests

Results from the country assessments provide useful insights in prioritizing laboratory systems that require strengthening



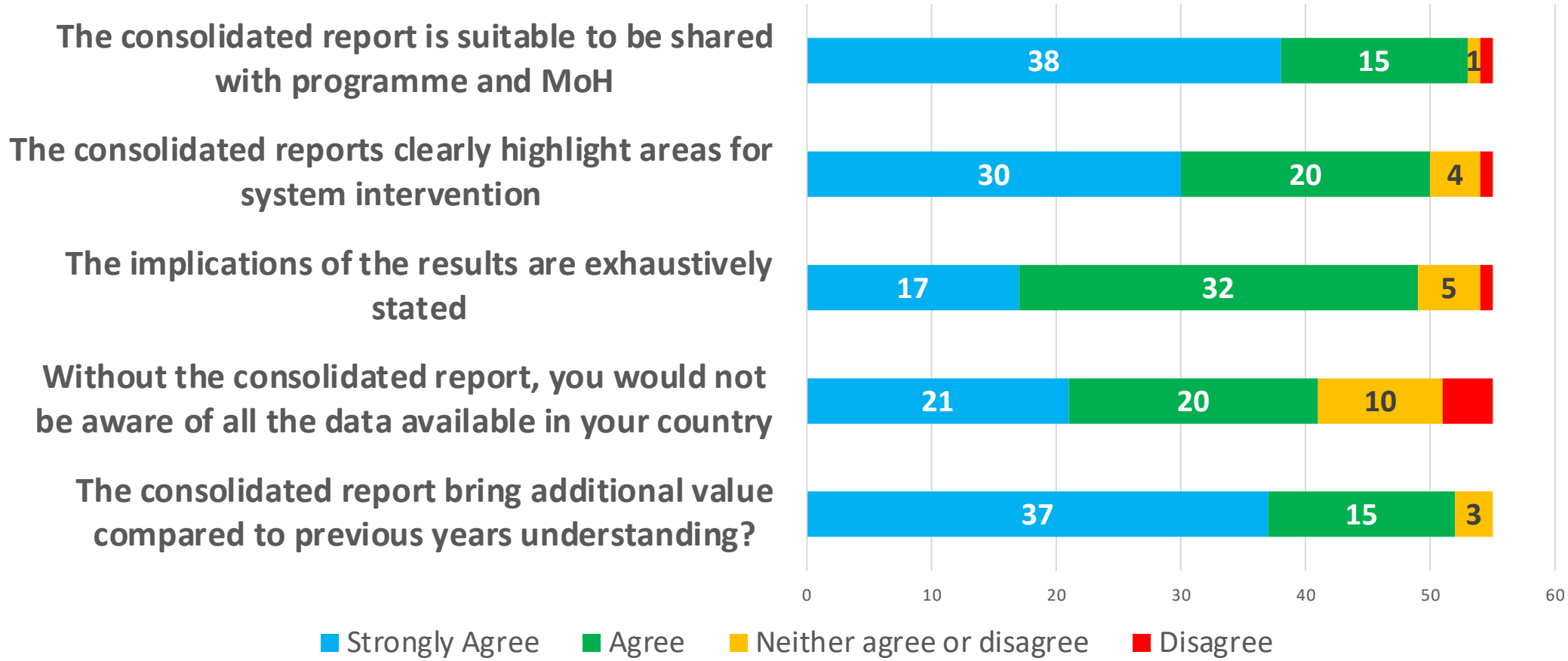
Country assessments and workplan activities informed our major laboratory priorities for inclusion in PEPFAR COP and Global Fund funding requests



Are these reports reaching all the relevant stakekeholders?

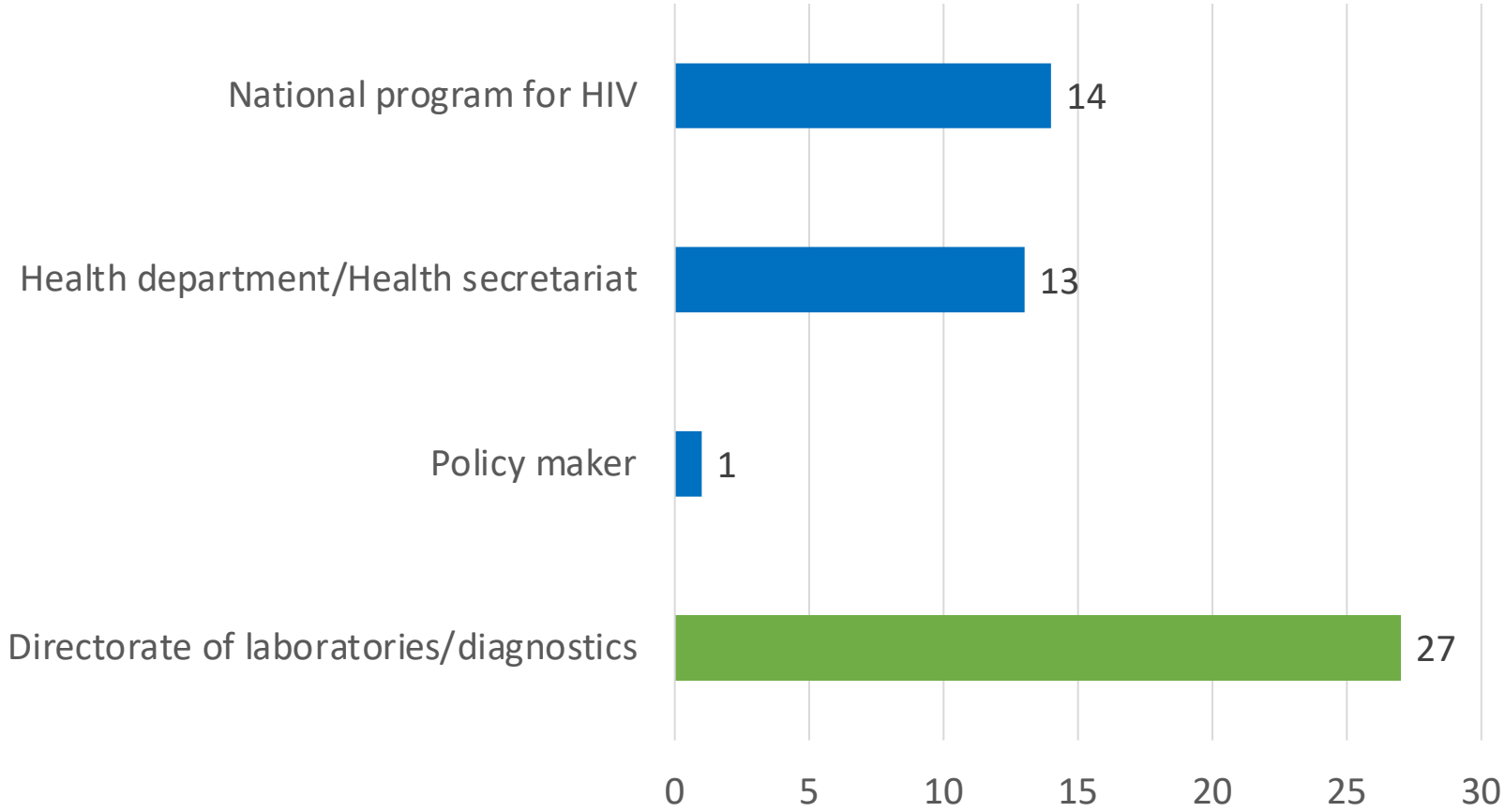
Survey among 76 respondents from LabCoP

Consolidated reports useful in highlighting weaknesses



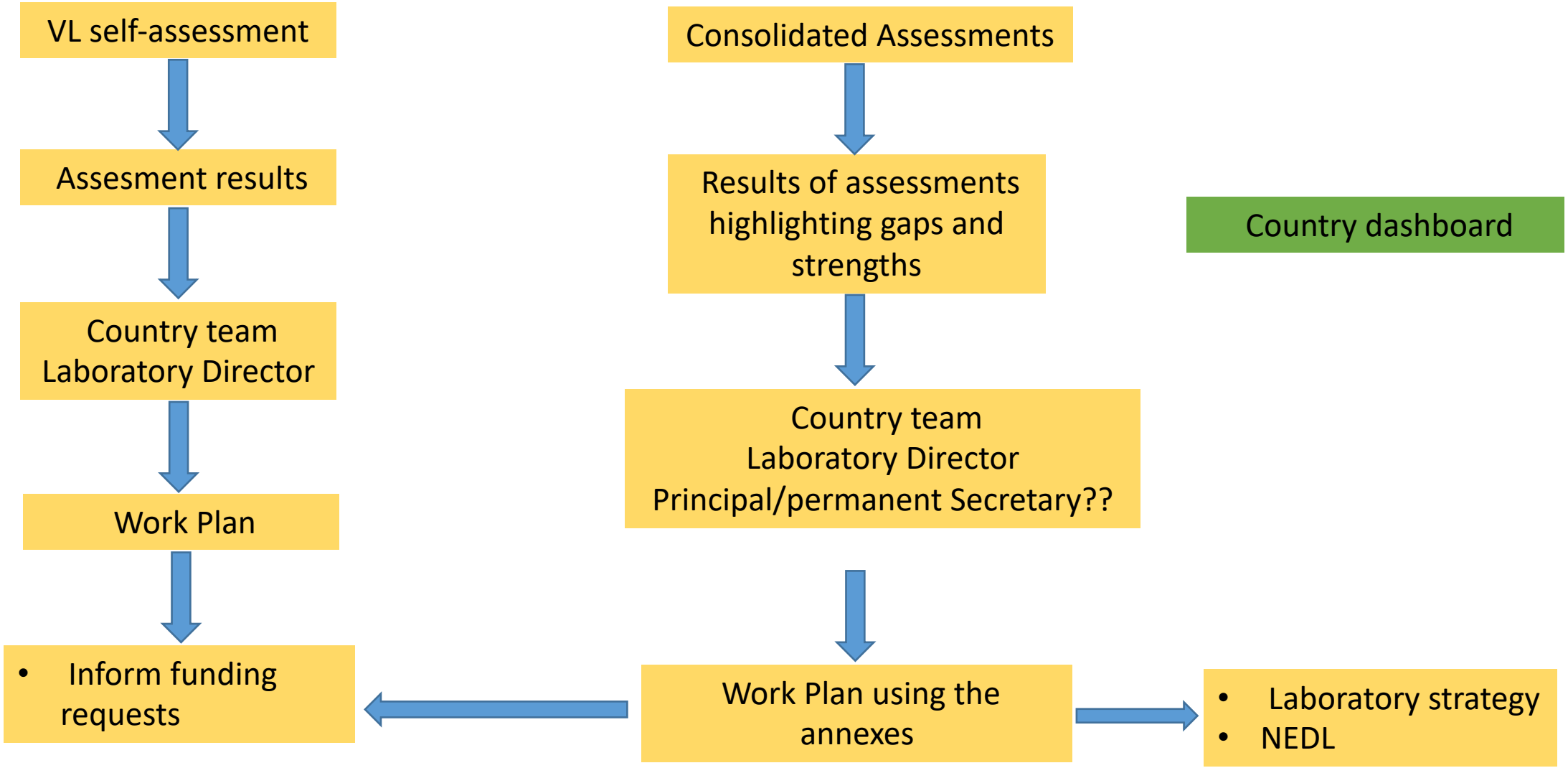
Survey among 55 respondents from 16 LabCoP countries

Laboratory Directorates key stakeholder of reports



Survey among 55 respondents from 16 LabCoP countries

How can we improve the process?

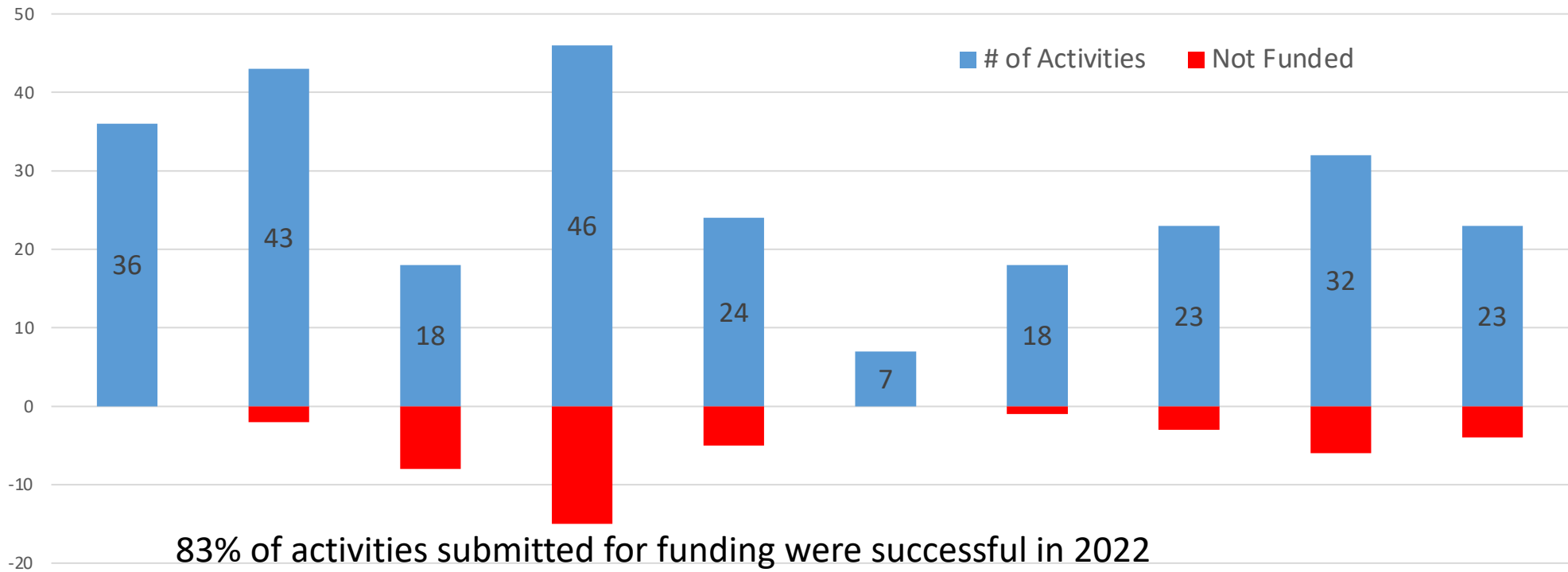


Evidence

Evidence-based fund request for PEPFAR or GF

Grant

- Improved laboratory systems
- Improved patient and public health outcomes



83% of activities submitted for funding were successful in 2022

Conclusions

- LabCoP has established a useful system allowing countries to document progress (or lack thereof) in laboratory system capacity
- There is enhanced collaboration between the laboratory governance and the programs hence improving the lab-clinic interphase
- Increased access to national data facilitates evidenced-based improvement of national testing systems

Thank you LabCoP !!