Uganda TB laboratory Diagnostics

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SRL-Uganda

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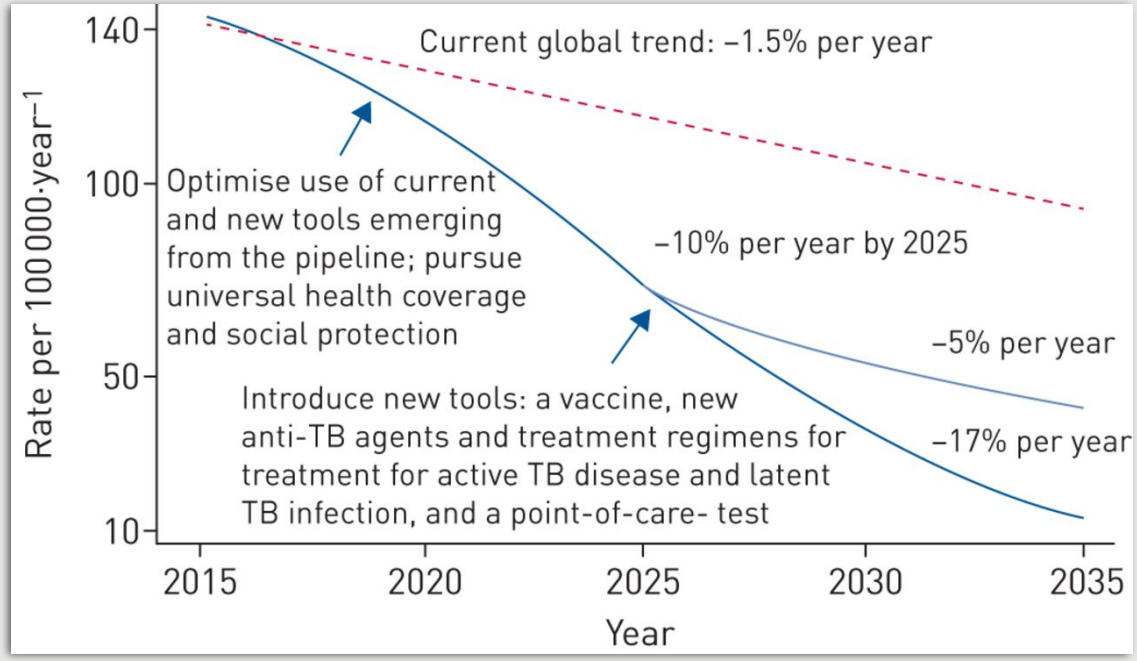
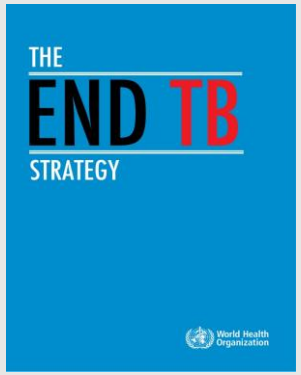
WHO END TB STRATEGY

Projected acceleration in the decline of global TB incidence rates to target levels





	MILESTONES		TARGETS	
	2020	2025	SDG* 2030	END TB 2035
Reduction in number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	20%	50%	80%	90%
TB-affected families facing catastrophic costs due to TB (%)	0%	0%	0%	0%

* The United Nations Sustainable Development Goals (SDGs) include ending the TB epidemic by 2030 under Goal 3.

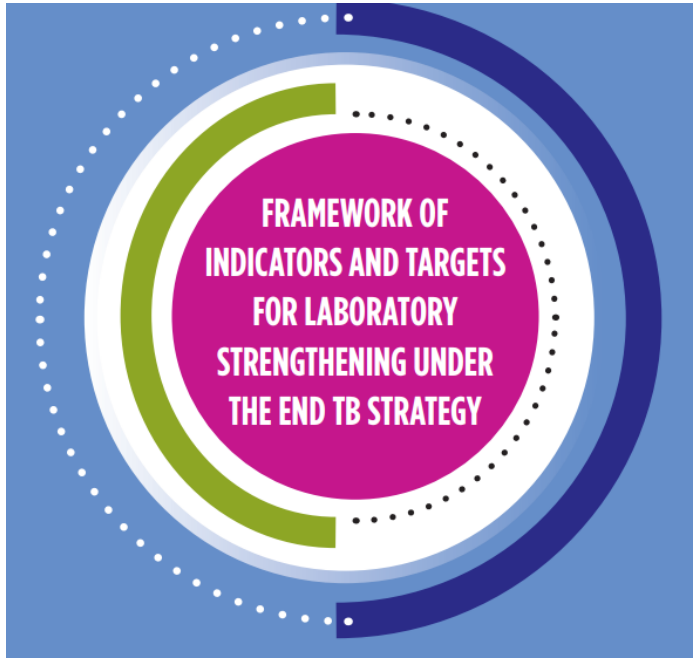
Key Laboratory objectives for End TB strategy

Increase access to rapid and accurate detection of TB

Reach universal access to DST

Strengthen the quality of laboratory services

Indicators for laboratory strengthening under the End TB Strategy



Indicators for laboratory strengthening under the End TB Strategy 2016

Objective 1. Increase access to rapid and accurate detection of TB

Indicator 1.	Does the national diagnostic algorithm indicate a WRD[a] is the initial diagnostic test for all people with signs and symptoms of TB?
Indicator 2.	Percentage of notified new and relapse TB cases tested with a WRD as the initial diagnostic test
Indicator 3.	Percentage of notified new and relapse TB cases with bacteriological confirmation[b]
Indicator 4.	Percentage of testing sites using a WRD at which a data connectivity system has been established that transmits results electronically to clinicians and to an information management system
Indicator 5.	Does national policy indicate that TB diagnostic and follow-up tests provided through the national TB programme are free of charge or that fees can be fully reimbursed through health insurance, or both, for all people with signs and symptoms of TB?

Objective 2. Reach universal access to DST[c]

Indicator 6.	Does national policy and the diagnostic algorithm indicate there is universal access to DST?
Indicator 7.	Percentage of notified, bacteriologically confirmed TB cases with DST results for rifampicin
Indicator 8.	Percentage of notified, rifampicin-resistant TB cases with DST results for fluoroquinolones and second-line injectable agents

Objective 3. Strengthen the quality of laboratory services

Indicator 9.	Percentage of diagnostic testing sites that monitor performance indicators and are enrolled in an EQA system for all diagnostic methods performed
Indicator 10.	Percentage of DST sites that have demonstrated proficiency by EQA panel testing for all DST methods performed
Indicator 11.	Percentage of laboratories conducting culture, line probe assay or phenotypic DST, or a combination of these, in which a formal quality management system is being implemented that aims to achieve accreditation according to international standards
Indicator 12.	Is the National Reference Laboratory accredited according to the ISO15189:2012[d,e] standard?

DST: drug-susceptibility testing; EQA: external quality assessment; LPA: line probe assay; WRD: WHO-recommended rapid diagnostic.

[a] WRDs use molecular techniques to detect TB.

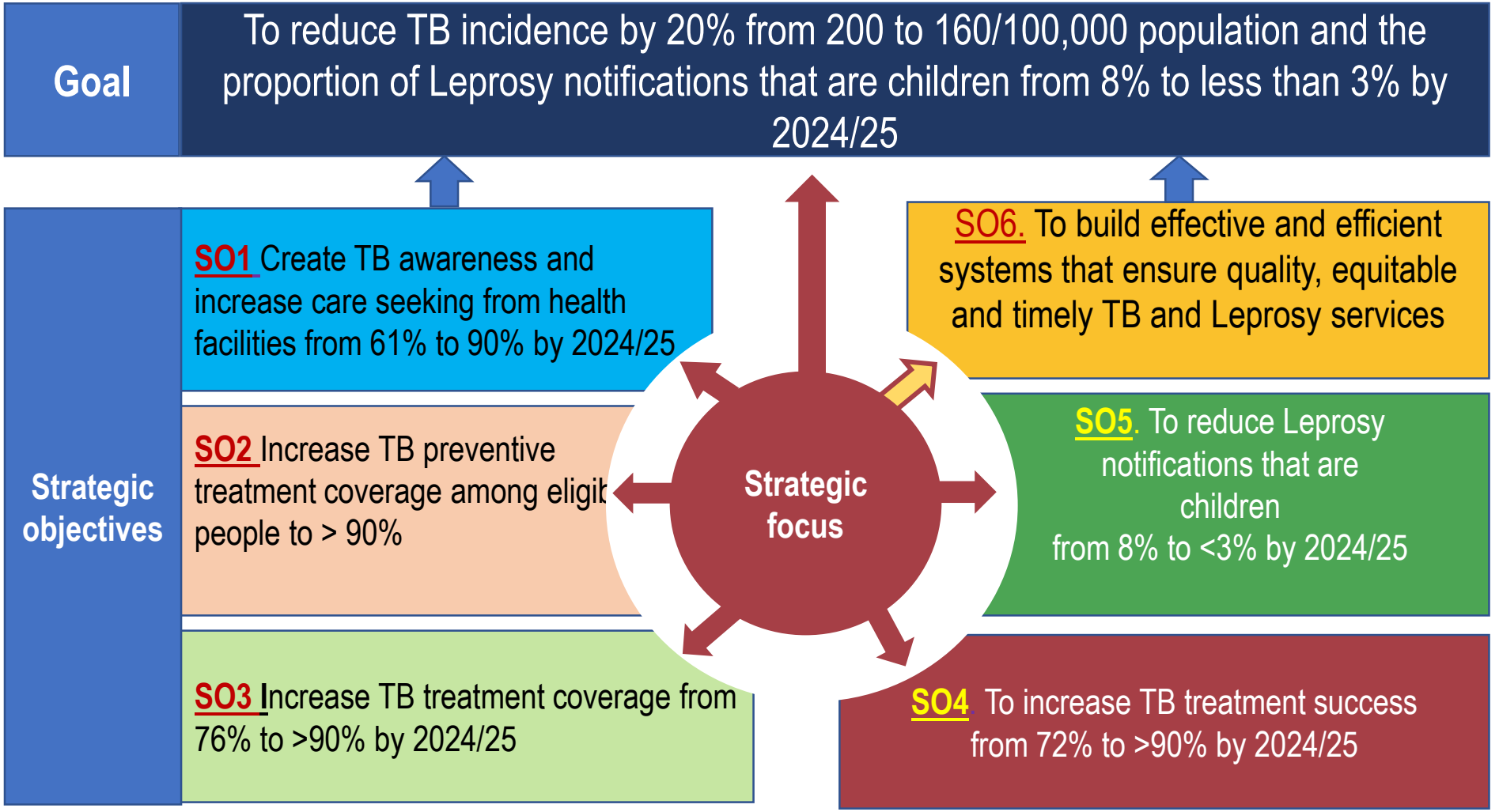
[b] A bacteriologically confirmed TB case is one from whom a biological specimen is positive by smear microscopy, culture or a WRD.

[c] In 2016, universal access to DST is defined as providing DST for at least rifampicin for all patients with bacteriologically confirmed TB and providing further DST for at least fluoroquinolones and second-line injectable agents for all TB patients with rifampicin-resistant TB. DST methods include genotypic (molecular) and phenotypic methods.

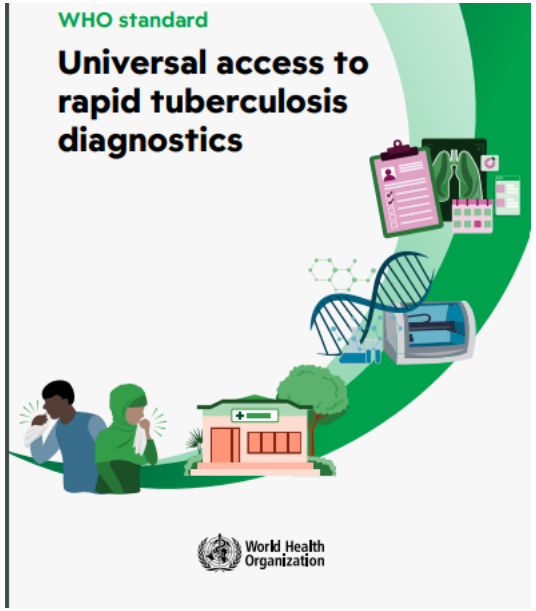
[d] ISO 15189:2012. Medical laboratories: requirements for quality and competence. Geneva: International Organization for Standardization; 2012 (https://www.iso.org/obp/ui/#iso:std:iso:15189:ed-3:v2:en, accessed 1 October 2016).

[e] Accreditation should comply with the most recent version of the ISO15189 standard.

The laboratory has a role to play in meeting these targets



WHO Standards for Universal access to rapid diagnostics (2023)



STEP 1

Identifying presumptive TB

- Systematic screening of high-risk groups
- Chest X-ray for TB screening

STEP 2

Accessing testing

- Up-to-date diagnostic algorithms
- WRD access in primary health care
- Diagnostic coverage reaches all
- Testing capacity matches needs

STEP 3

Being tested

- Monitoring quality of testing
- All patients with presumptive TB tested with a WRD
- Universal DST provided

STEP 4

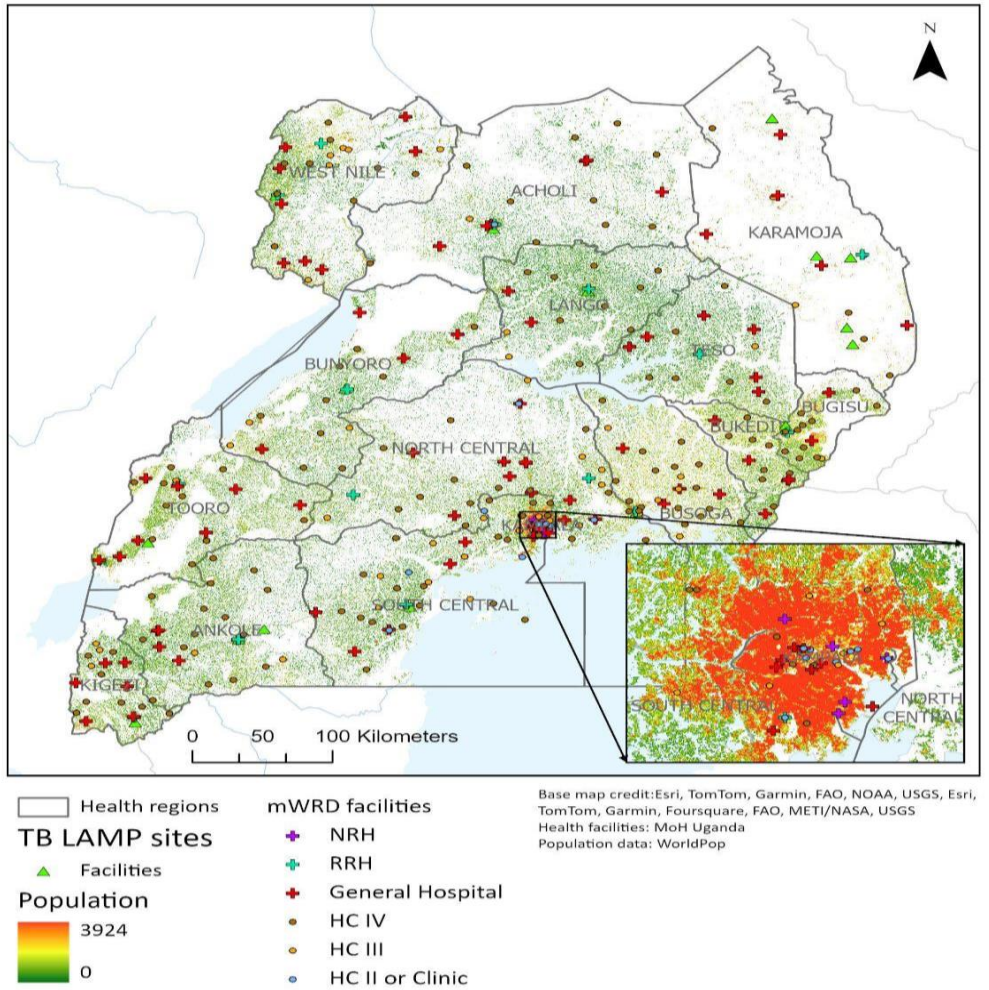
Receiving a diagnosis

- All pulmonary TB patients have a WRD result
- Test positivity rate monitored
- Timely delivery of results

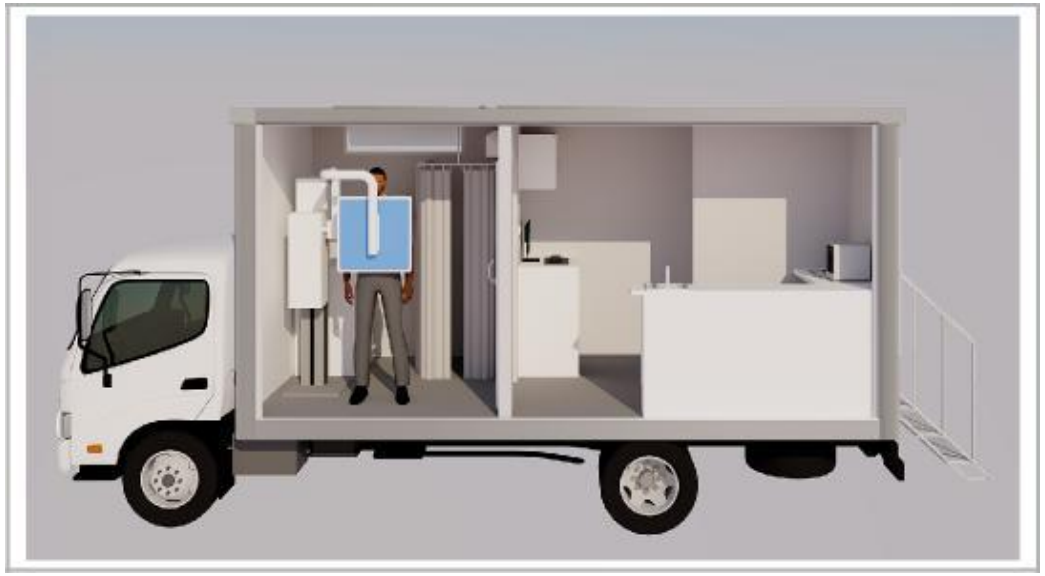
Uganda's TB Diagnostic capacity

Microscopy	1997
GeneXpert (TB Lab Network)	296 Sites (358 Xpert platfor
Truenat	41 Sites
TB LAMP	17 sites
LF- LAM	>1,000 sites
IGRA	6 sites
Public Culture labs	2
Research Culture labs	3
Sample Referral	Functional
Connectivity	LabXpertDS

Uganda mWRD site distribution (2024)

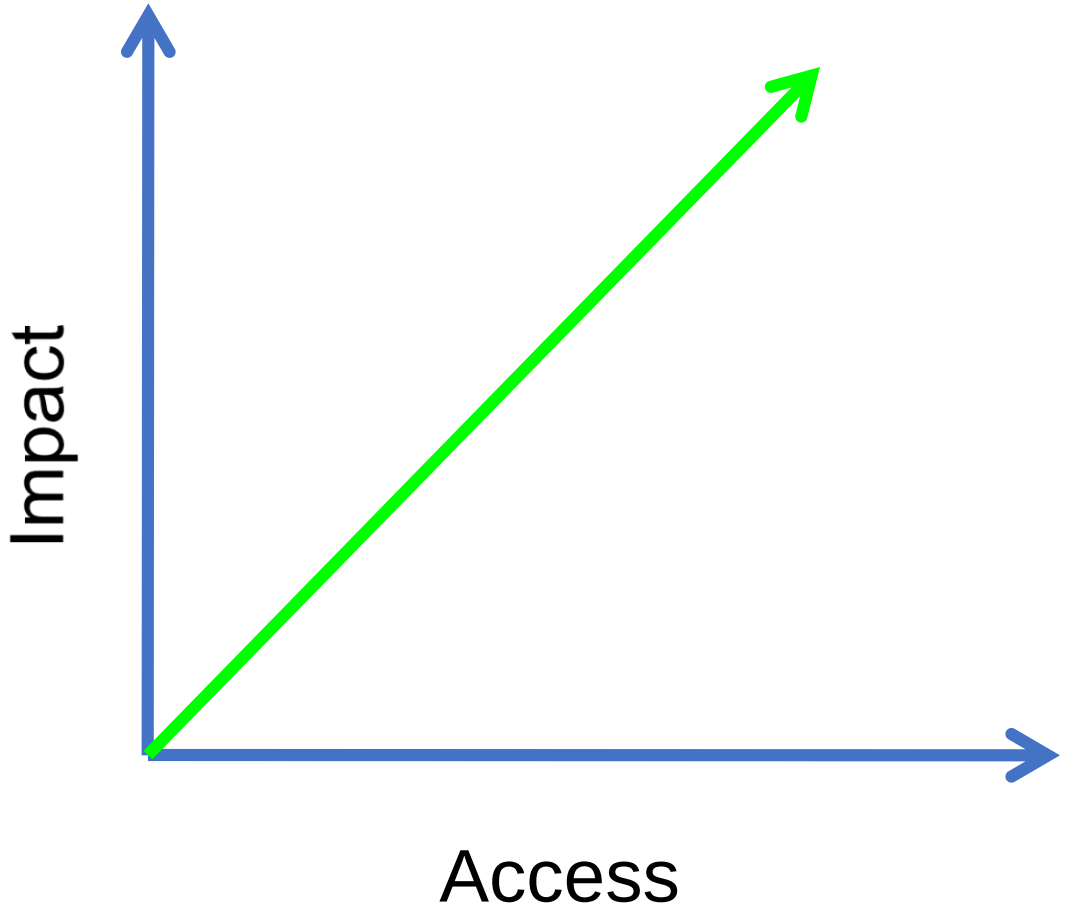


Community TB Laboratory services

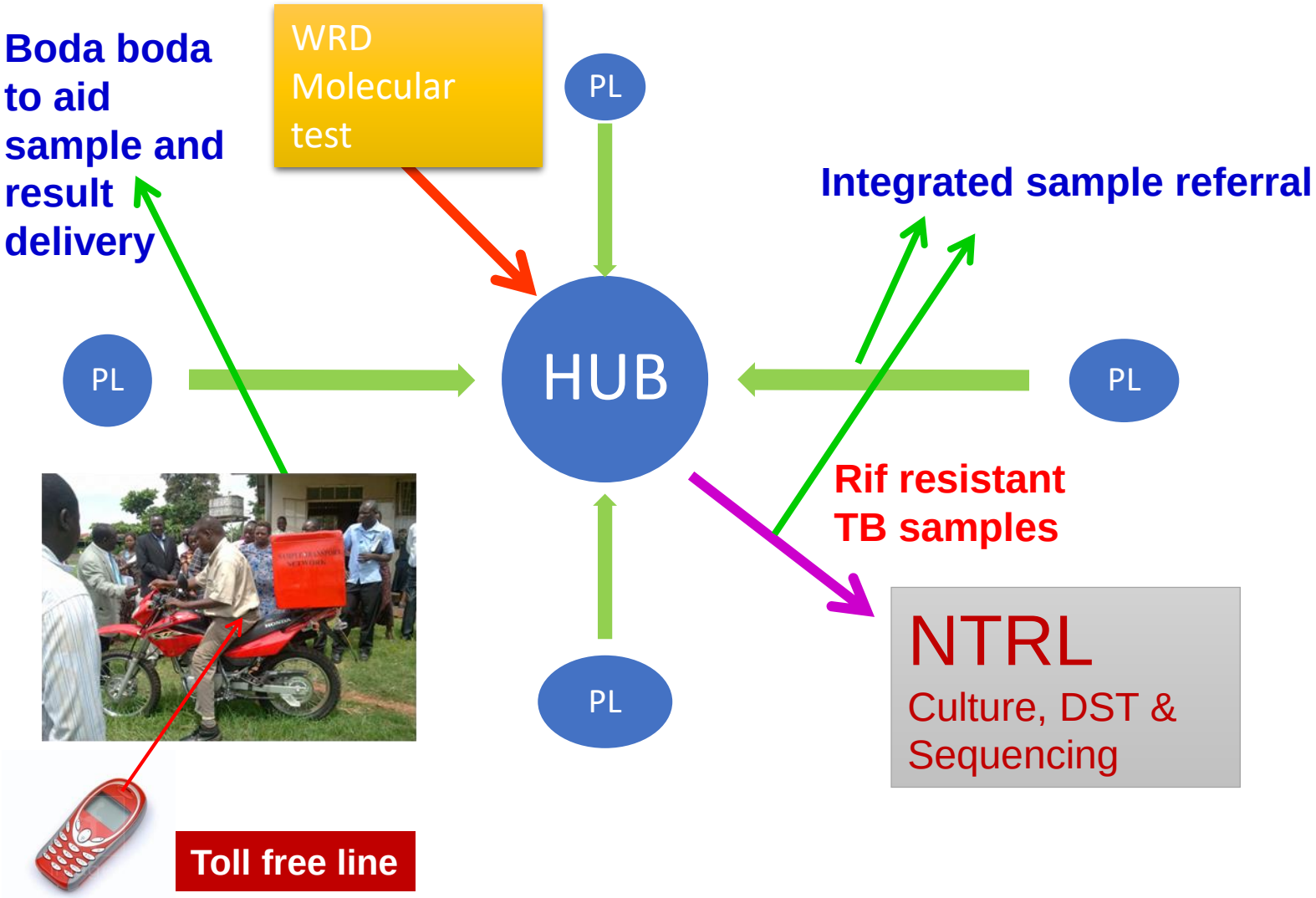


Accessible

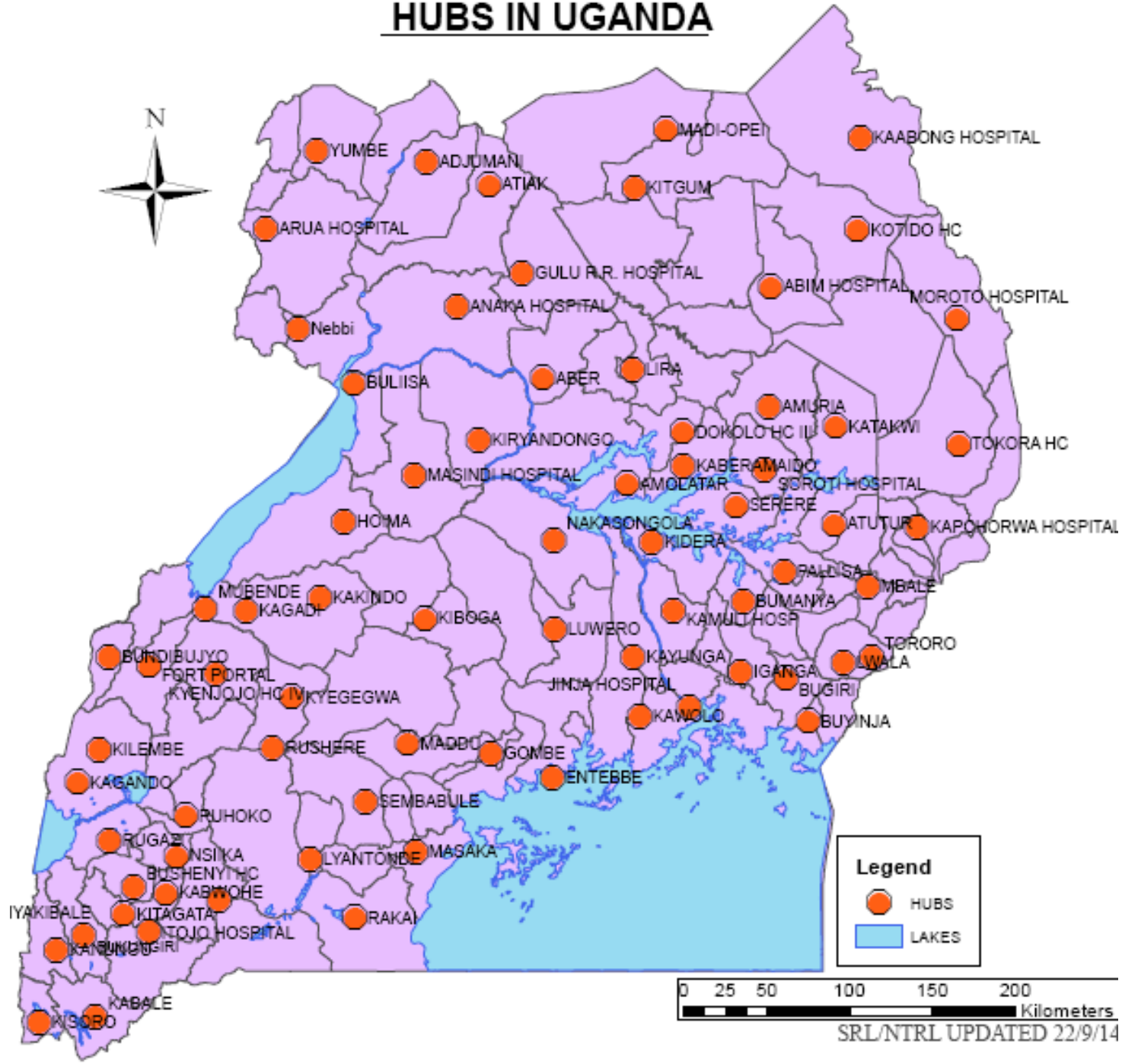
Access = Impact



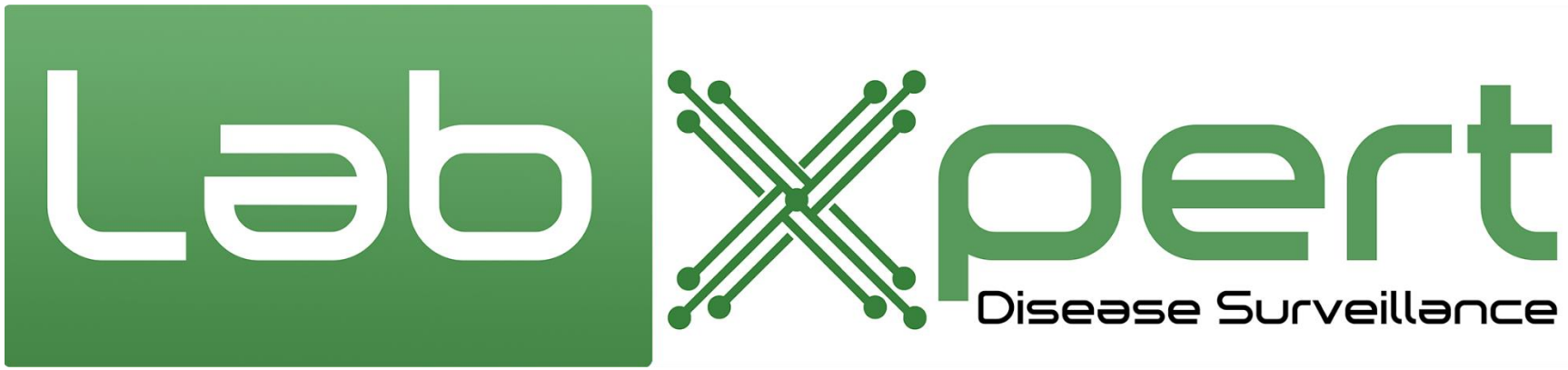
Integrated Sample Referral systems: improve access to the peripheral centers



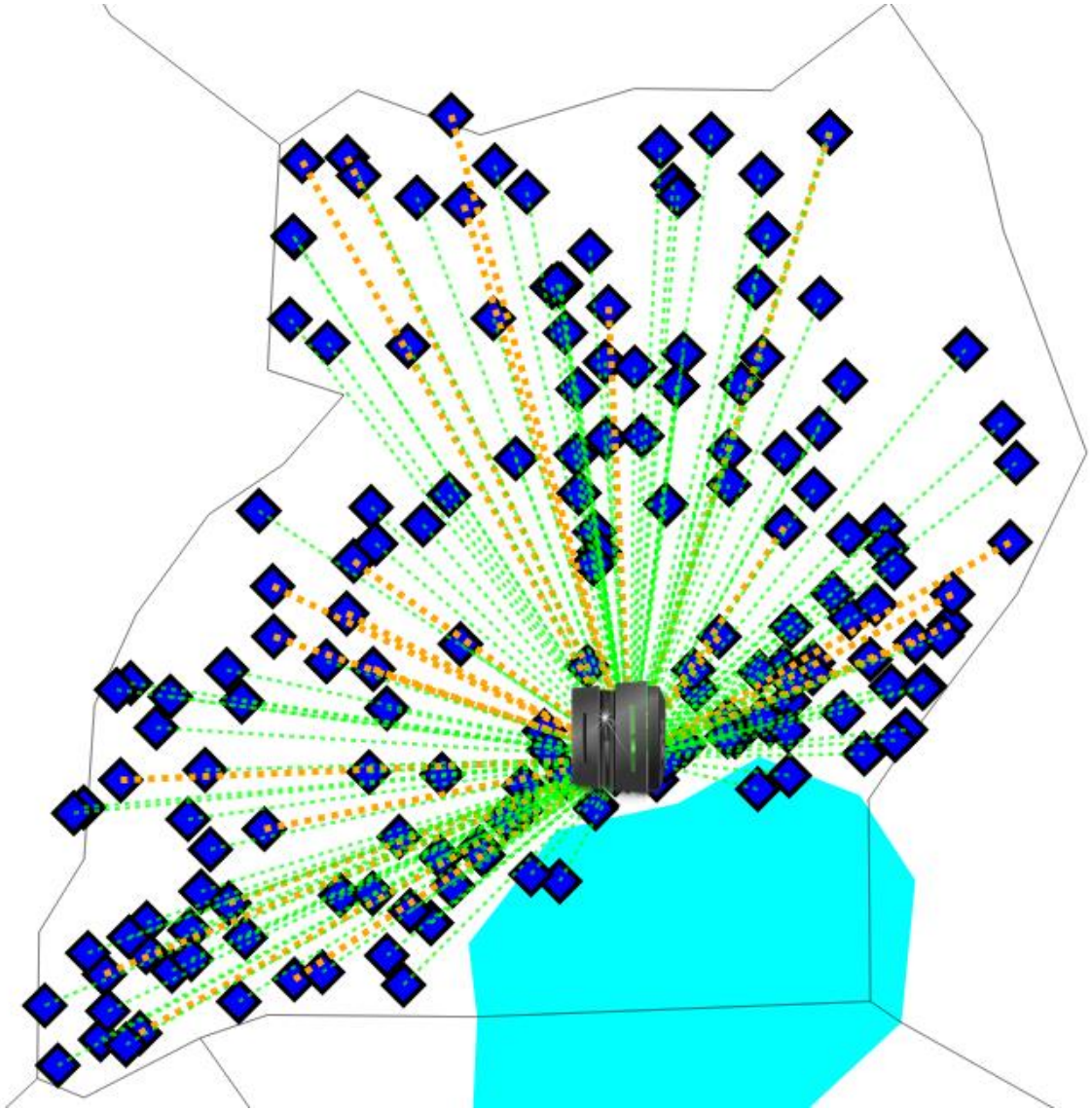
HUBS IN UGANDA



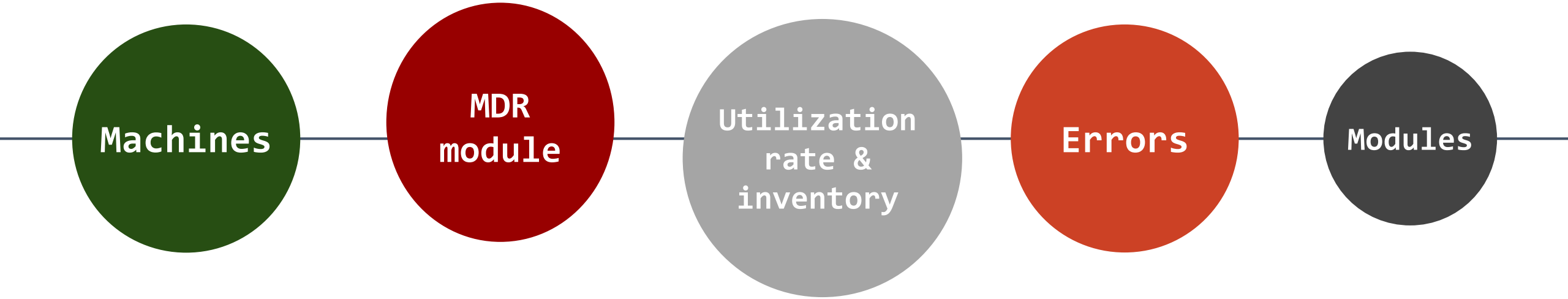
SRL/NTRL UPDATED 22/9/14


Lab
Xpert
Disease Surveillance

Over 300 GeneXpert Machines connected



LabXpertDS


Machines
MDR module
Utilization rate & inventory
Errors
Modules

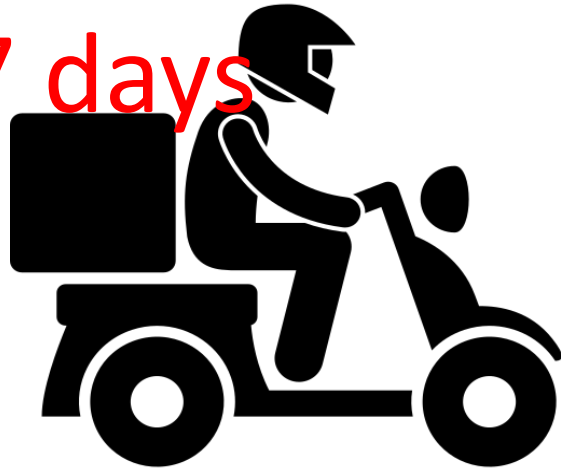
And as a result

Increased timely initiation of patients on treatment

Site	MDR Samples
JINJA REGIONAL REFERRAL HOSPITAL	37
LIRA REGIONAL REFERRAL HOSPITAL	35
MITYANA HOSPITAL	34
JCRC LUBOWA	25
TOKORA HC IV	24
WAKISO HC IV	24
BUSOLWE HOSPITAL	22
LUBAGA HOSPITAL	21
KYANGWALI HC IV	21

Reduced result dispatch turn-around time from.

7 days



to

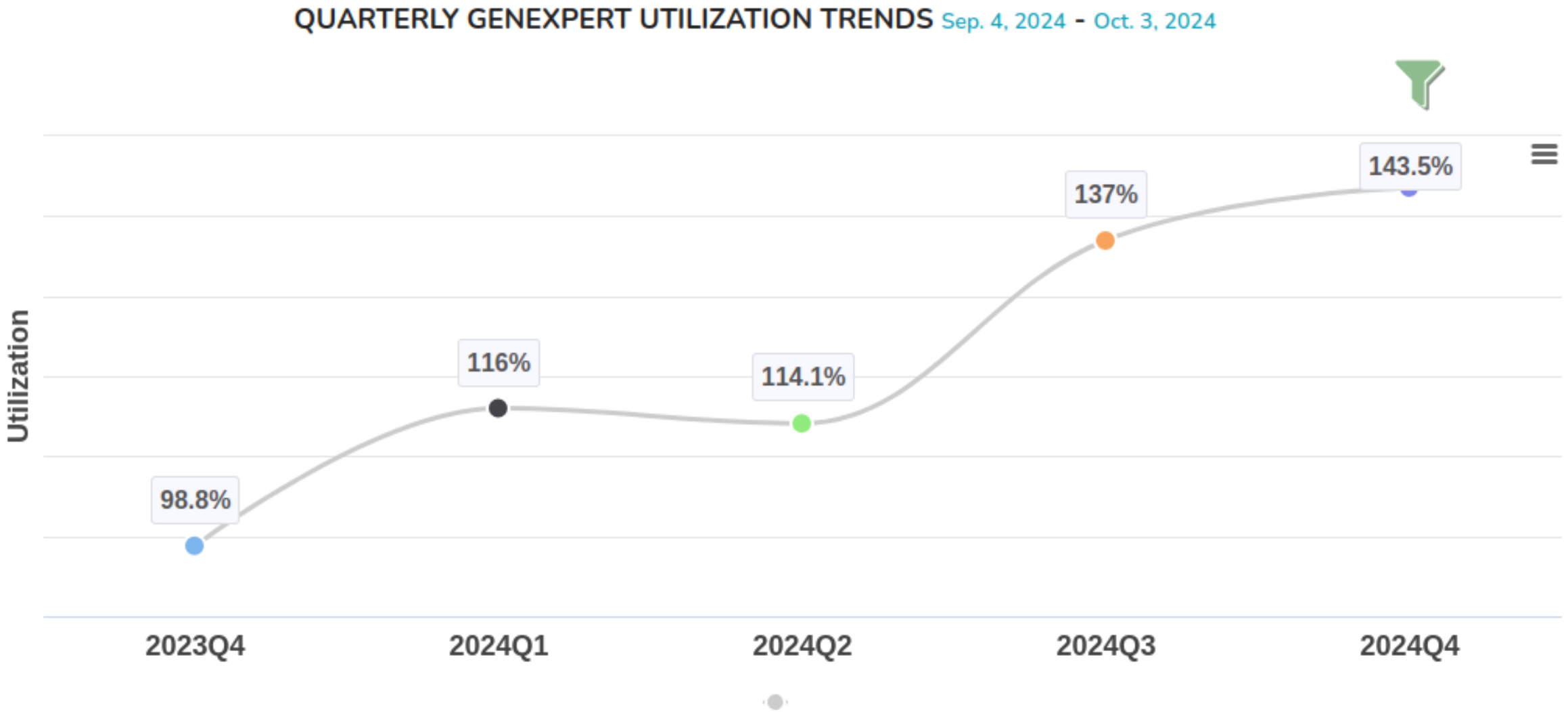
Minutes.

Enabled Realtime Monitoring of Equipment functionality

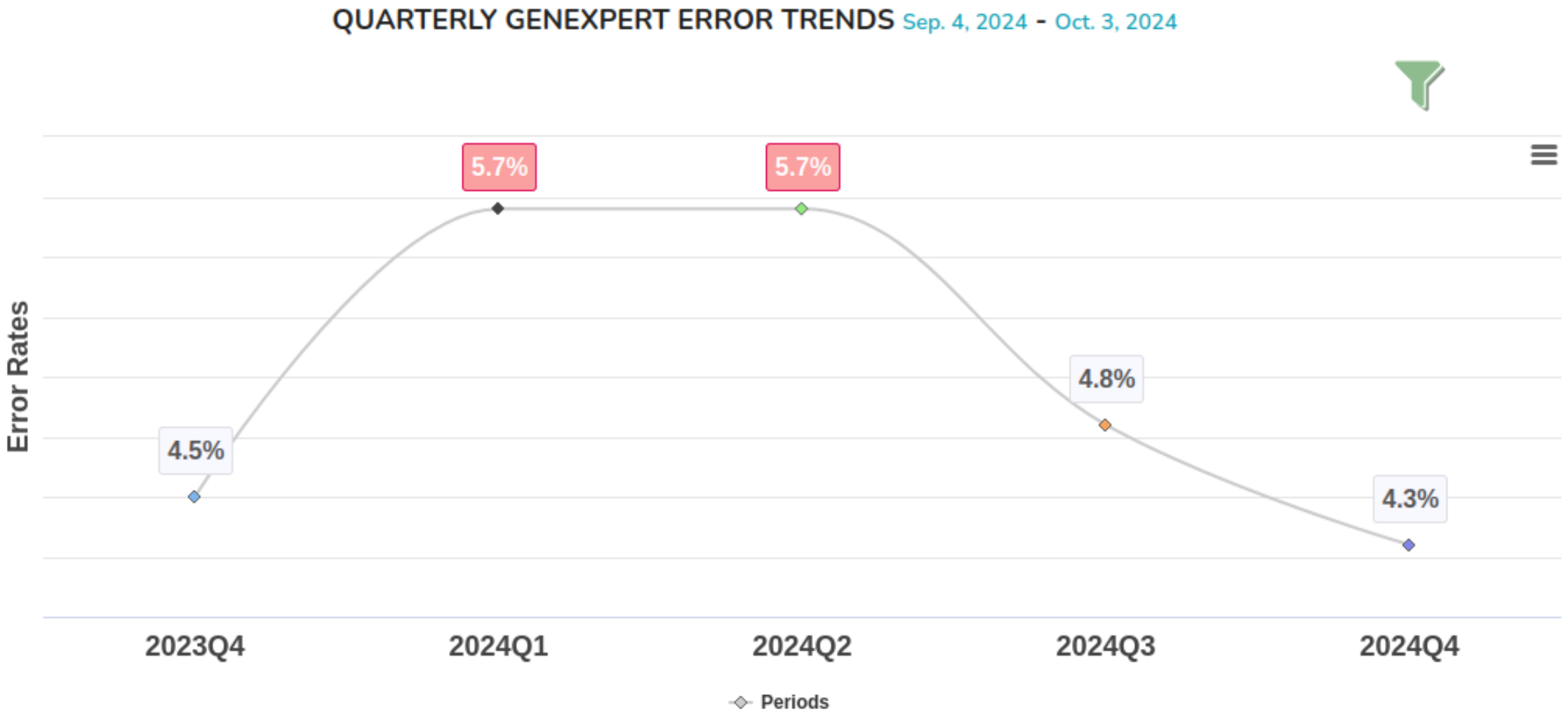
Search query | 10

Lab	Working Mods	Faulty Mods	Flag	Gx Cap	Last update
IGANGA MUNICIPAL HC III	1	0		GXIV-4	2024-10-03
BUGIRI HOSPITAL	4	0		GXIV-4	2024-10-03
NAKASONGOLA MILITARY HOSPITAL	1	3		GXIV-4	2024-10-03
BUBULO HC IV	4	0		GXIV-4	2024-10-03
BUSIA HC IV	3	1		GXIV-4	2024-10-03
NAMUNGALWE HC III	1	0		GXIV-4	2024-10-03
ALEBTONG HC IV	4	0		GXIV-4	2024-10-03
MENGO HOSPITAL	3	1		GXIV-4	2024-10-03
KAGADI HOSPITAL	16	0		GXIV-4	2024-10-03
KISUGU HC III	4	0		GXIV-4	2024-10-03

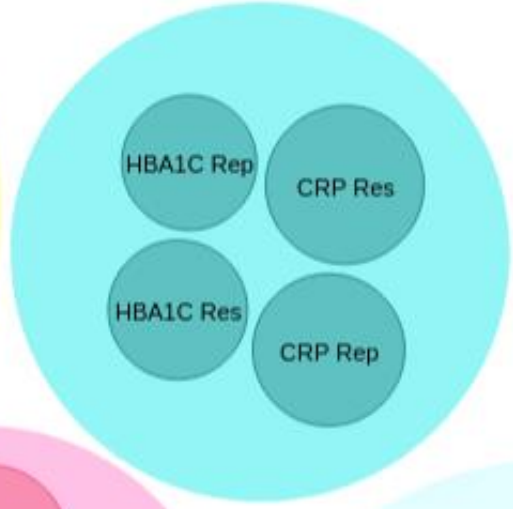
Increasing equipment Utilization

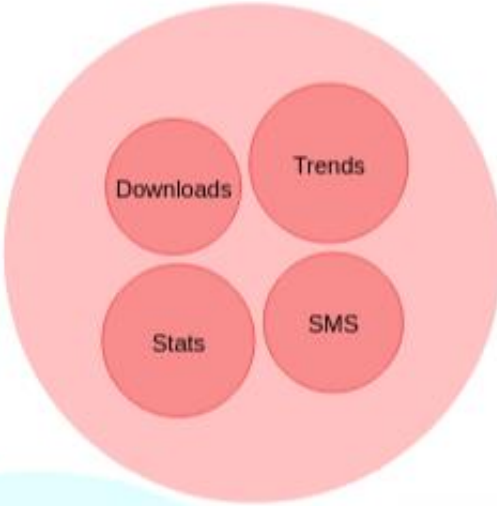


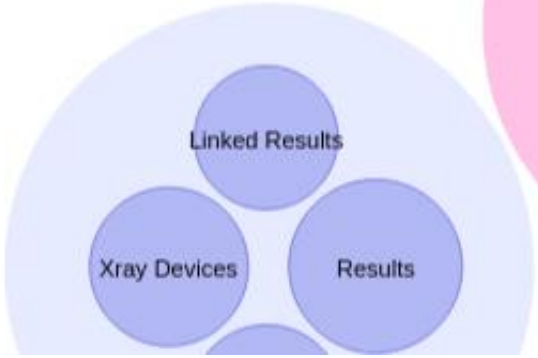
Enabled Monitoring of Human related Errors



And many more







And we are not mean, we can share this technology

GeneXpert Access care performance

Jan 2024 to September 2024

Ensure functionality of GeneXpert platforms

Observed KPIs

- Instrument availability, target 95%
- Module availability, target >95%
- Timely critical parts replacement in <5 days or less, target >=90%
- Preventive Maintenance (PM) on time, target 90%

Access care performance (Jan-Aug 2024)

Month	System availability (target 95%)	Module availability (target 95%)	Critical part replacement (target >90%)	PM (target >90%)
January	94.5%	98.3%	7%	0%
February	90%	90%	2%	0%
March	98.3%	93.9%	20%	13%
April	98.3%	97.9%	38%	8%
May	97.5%	96.5%	63%	8%
June	97.8%	98.8%	81%	8%
July	99.3%	97.9%	50%	100%
August	99.1%	99.3%	50%	100%

Reasons for performance

- Transition period in service provision between Jan and March 2024 from private vendor to Cepheid direct support
- A lot of backlog cases from 2023, priority was given to critical part replacement over PM
- Regionalisation of field technical teams
- Availability of boot stock from Cepheid
- Transparency and accountability

Thank you