Uganda's Experience with Xpert MTB/RIF Ultra and MTB/XDR: Practical Lessons for Strengthening TB Testing Pathways and Maximizing Program Impact

1 October, 2026

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Disclosure
This presentation is made on behalf of Cepheid.

Introduction of the TB burden

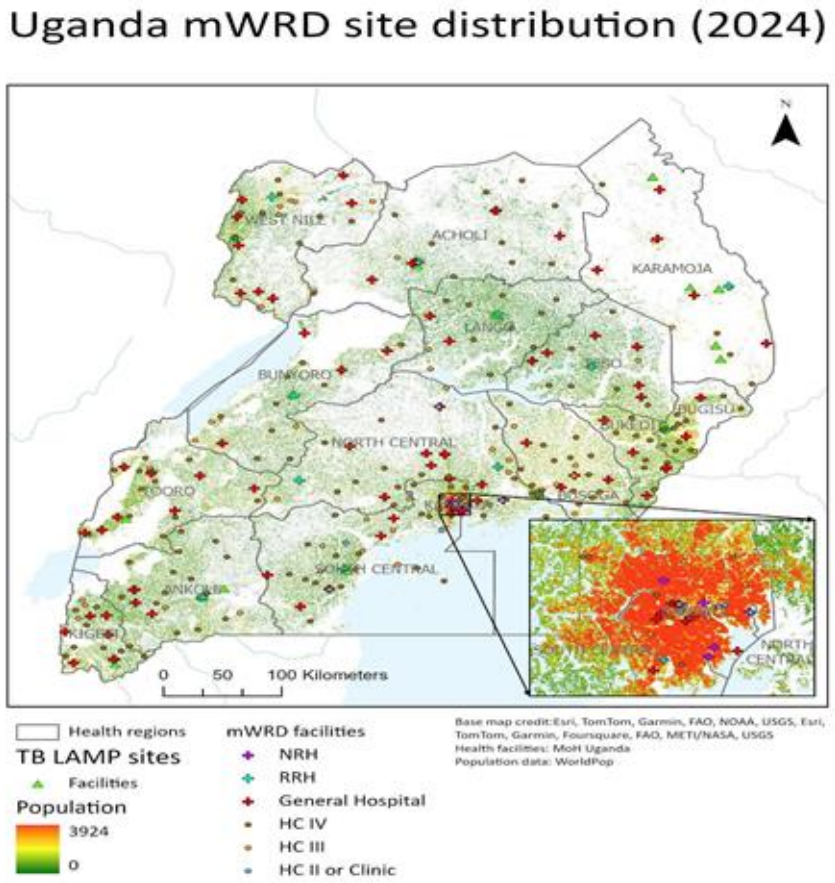
- Uganda a high burden country for both **TB** and **TB/HIV**(WHO).
- The TB Incidence 197 per 100,000*
- 99,000 TB patients estimated annually, 33% TB/HIV Coinfected*
- MDR/RR-TB incidence rate: 2.5 cases/100k; 1,200 cases/yr*
- Key drivers, HIV, Undernutrition, Smoking & Diabetes



* ***WHO GTB Report 2025***

Current State of Diagnostic Infrastructure

30% of popn live within 5km distance to mWRD

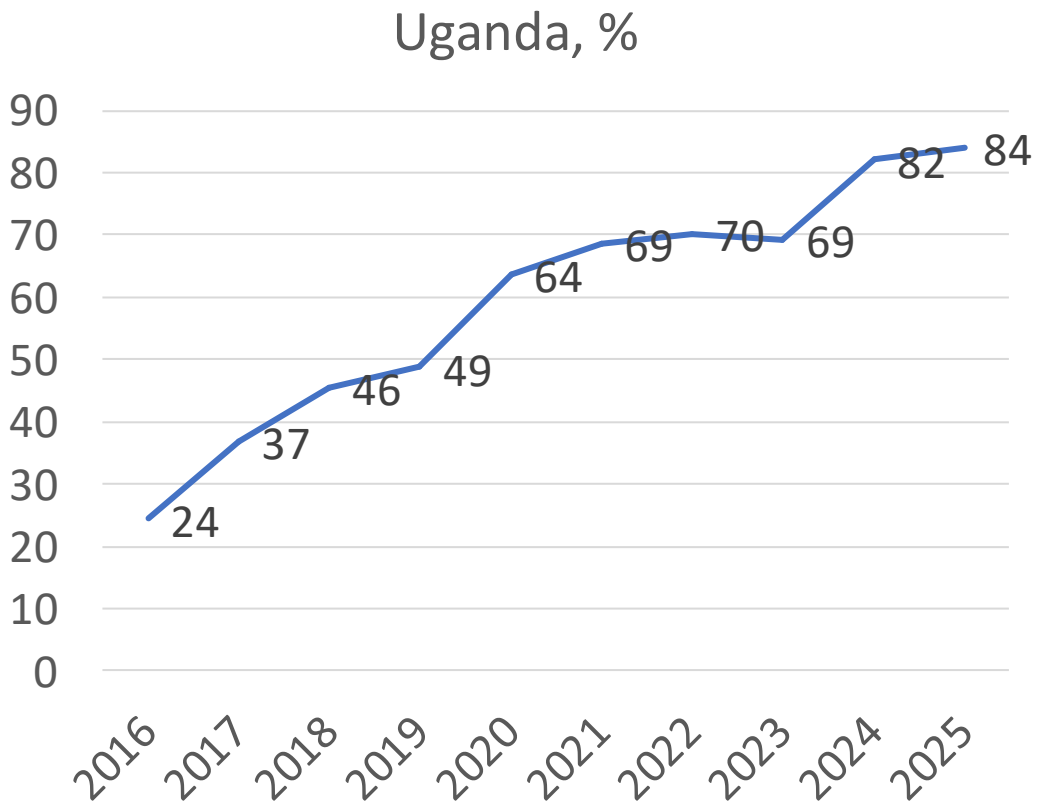


	Total
Population	45,905,417
Number of health facilities	8,637
Number of microscopy diagnostic sites (TB/Non-TB if relevant)	2,050
Number of GeneXpert sites/Xpert Ultra	348
Number of Truenat sites	41
Number of TB-LAMP sites	50
Number of nPOc sites	93
Number of Xpert MTB/XDR sites	176
Central culture + Drug sensitivity testing (DST) sites*	5

* 2 Public

Source: Internal Uganda MOH data

Access to molecular-WHO recommended rapid TB diagnostic tools (mWRD)



Source: WHO

Interventions

1. Continuous quality Improvement (CQI) through "GET" (GeneXpert for Every TB Patient) collaborative

2. CAST (community awareness, screening, testing, and treatment campaign)

3. Improving reporting: LabXpert

Intervention 1: "GET" (Gene Xpert for Every TB Patient)

- mWRD and universal access to DST for all TB patients
- Previous NSP target -90%*
- However, in 2023, mWRD access -suboptimal at 68%*
- With support from USG-supported IPs, we conducted QI collaborative was named "GET" (Gene Xpert for Every TB Patient), period 2023-2024.
- Eight regions with the greatest need for mWRD access were identified, with 5 demonstration sites in each region
- Biweekly catch-up meetings and coaching visits enabled cross-learning
- Monitored progress using customized process indicators
- Improvement measures were scaled to other health facilities with suboptimal performance

Source: Internal Uganda MOH data

Findings at root cause analysis and interventions at demonstration sites

Findings from the root cause analysis for the low uptake of mWRD



Patients

- Inability to provide sputum samples
- Treatment interruption



Heath workers

- Knowledge gaps
- Limited mWRD for patients diagnosed using LAM, X-rays etc.
- Sub-optimal documentation and repotting
- Non harmonized sample and result flow leading to long TAT



Facility Systems

- No sputum collection centers
- Sample processing challenges
- No FP to over see the intervention
- No running QI initiatives targeting mWRD

Interventions implemented at the demonstration sites



Patients

- Patient training on the provision of sputum samples
- Flexibility to allow patients to provide on the subsequent appointments
- Patient education on the importance for mWRD
- Incorporated MWRD monitoring in patient follow up



Heath workers

- Coaching and mentorships for health workers
- CQI projects to targeting LAM, X-ray and children
- Integrated sputum production techniques in health talks
- Routine review of records
- TAT: Engage cough monitors, use lab Xpert, streamlined flow of samples and results
- Line-listing of missed opportunities
- Prioritize mWRD during validation meetings

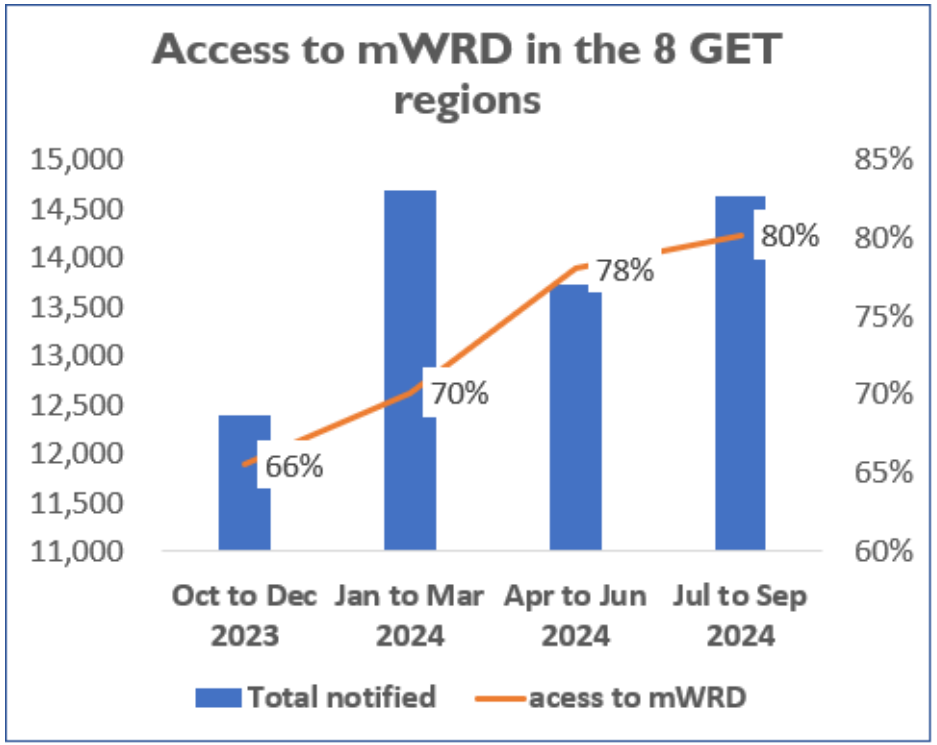


Systems

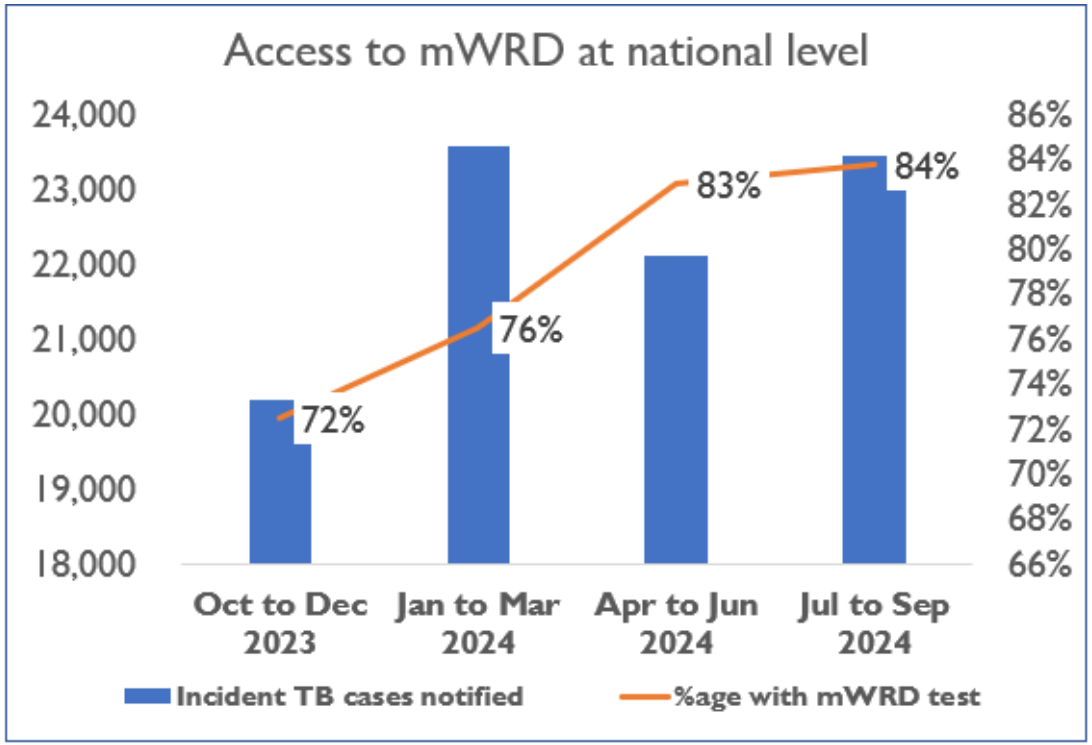
- Dash boards to monitor access to mWRD
- Sputum production points
- Flex hour processing of samples
- Re-designing hub transportation systems
- Sample redistribution
- Role assignment to over see mWRD
- Bench marking sessions

Source: NTLP QI Package

Impact of the GET collaborative



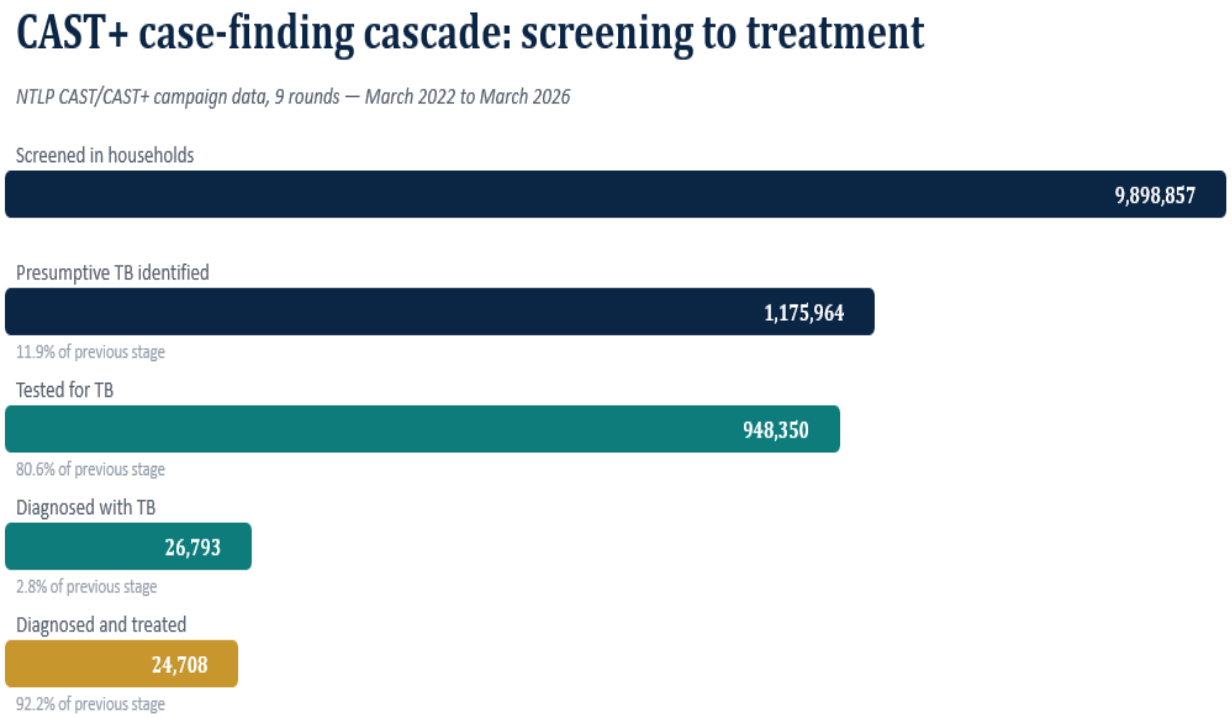
Regions: Acholi, Ankole, Bunyoro, Busoga, North Central, Teso, South Central & Tooro



This led to overall improvement in access to mWRD- which has been sustained

Source: Internal Uganda MOH data

Intervention 2: CAST+



CAST=community awareness, screening, testing, and treatment campaign

All sample must be referred to facilities with mWRD

Yield: 2.8%*

Linkage to treatment: 92.2%*

Gap: Limited surge capacity, 80.6%* of presumptive patients get tested

- Need for more mWRD equipment



VHT conducting door-to-door screening at Kokuwam Village, Namalu Sub-County, Nakapiripirit

Source: Internal Uganda MOH data

Intervention 3: Data connectivity-LabXpert

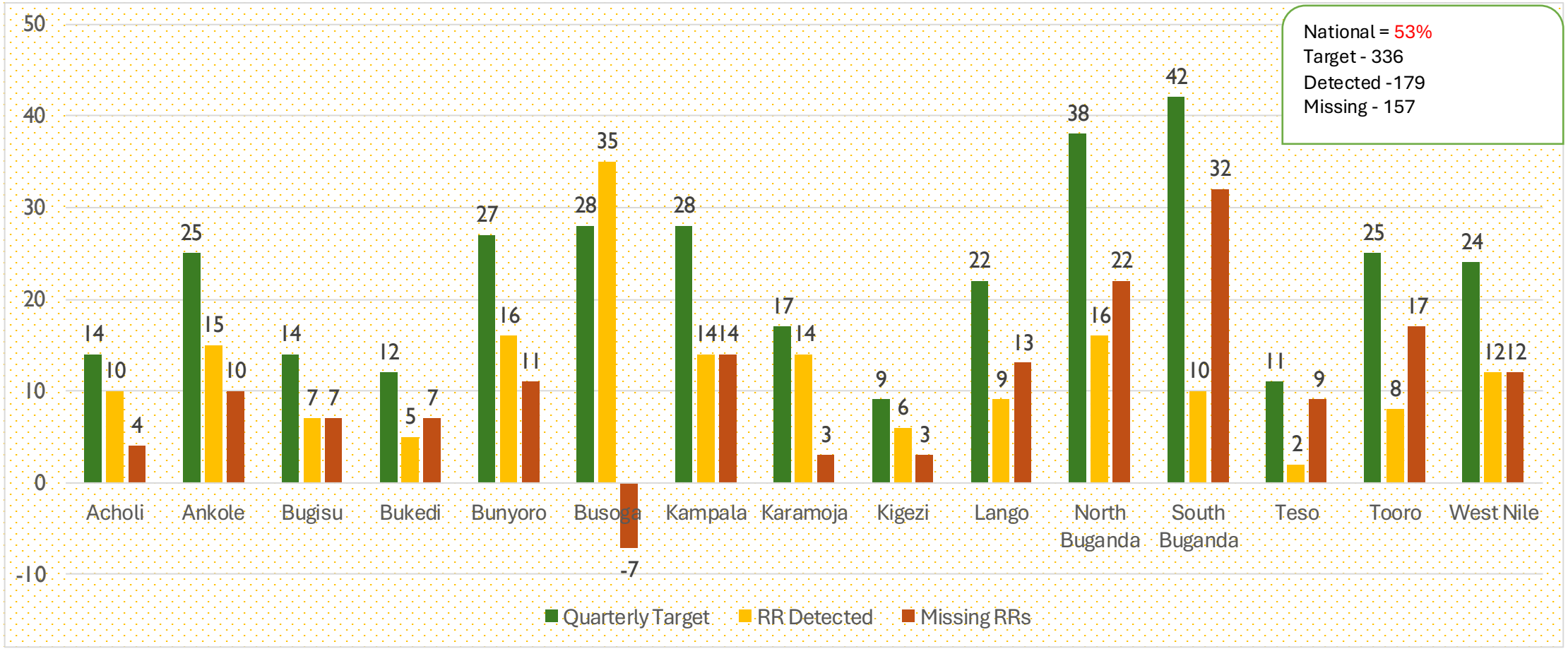
- LabXpert- web based system, supports automated data capture from diagnostic tools to enable real-time reporting and feedback

- This will support monitoring of GeneXpert utilization, equipment functionality, and TB detection and linkage of patients to treatment through sending of Alerts to patients and clinicians



Source: ntrl.labxpertds.com

Use of LabXpert to track DR-TB Detection- Jul - Sep 2026



Source: Internal Uganda MOH data

Molecular DST- beyond Rifampicin

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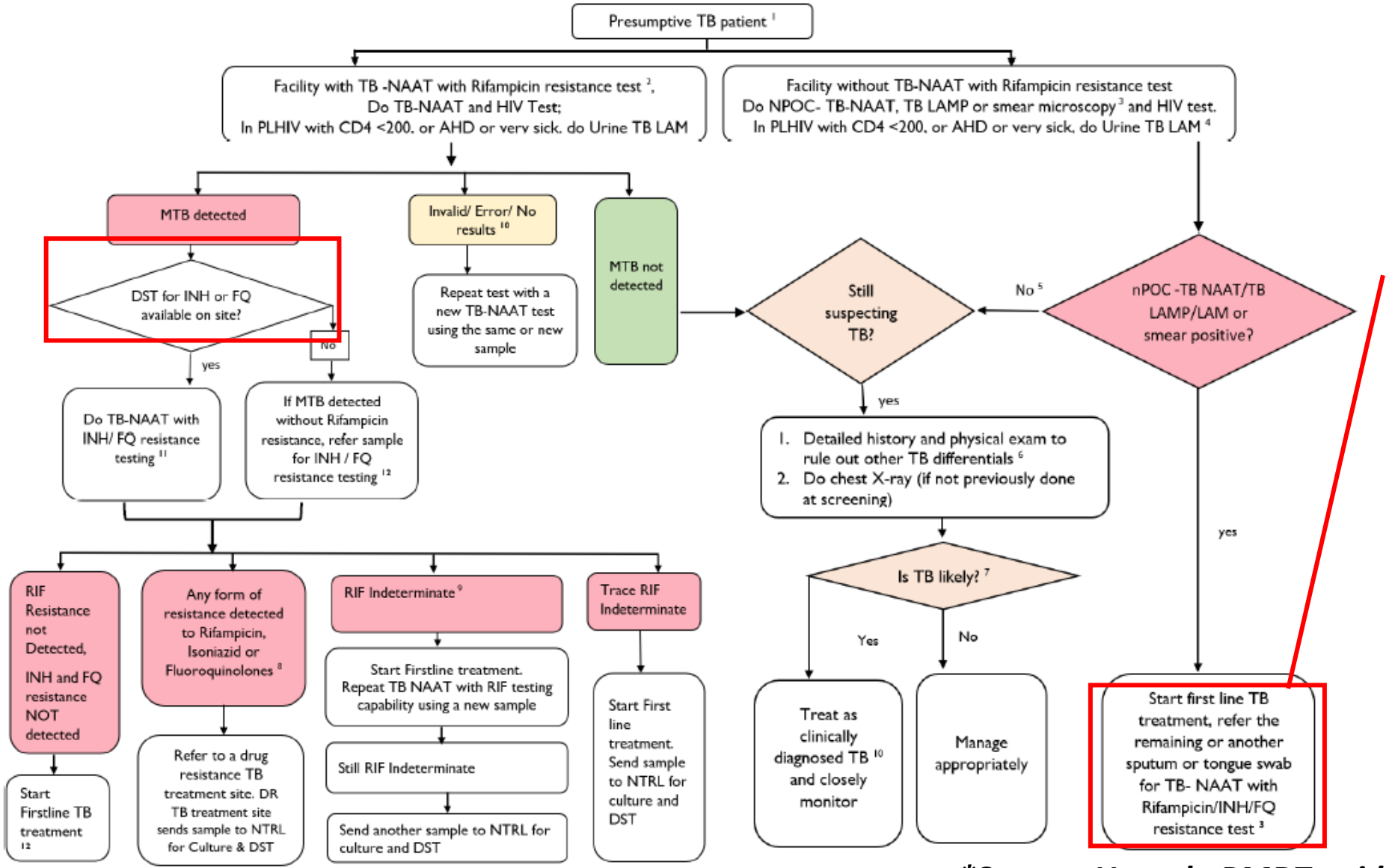
- Important that TB and DR-TB patients are initiated on the right treatment

- Aimed at stopping the spread of resistance, amplification of drug resistance and ensure favourable treatment outcomes

- This can be achieved through early diagnosis of drug resistance
- All efforts have been focused on Rifampicin (R), then 2nd line drugs- e.g FQ & SLID

- Gap is Isoniazid (H), yet most common form of TB drug resistance globally, with similar findings observed in Uganda DRS-2
- While Uganda PMDT guidelines provide for Hr-TB treatment, case finding efforts have been very limited

Revised diagnostic algorithm



nPOC Positive Referral to Xpert Vs Truenat site?

- **Xpert:** One sample for R, H&FQ
- Minimise need for more patient visits, sample collection

Source: Uganda PMDT guidelines - 2026 Addendum

Conclusion

- CQI approach has led to sustained increase in access to mWRD
- Data Connectivity through LabXpert- improved tracking of DR-TB and linkage to treatment
- Extended molecular DST- early detection of drug resistance, improve care and treatment outcomes

Acknowledgements

- Uganda NTRL/NTLP
- Implementing partners
- GENLAB Solutions International Ltd

Thank you for listening