

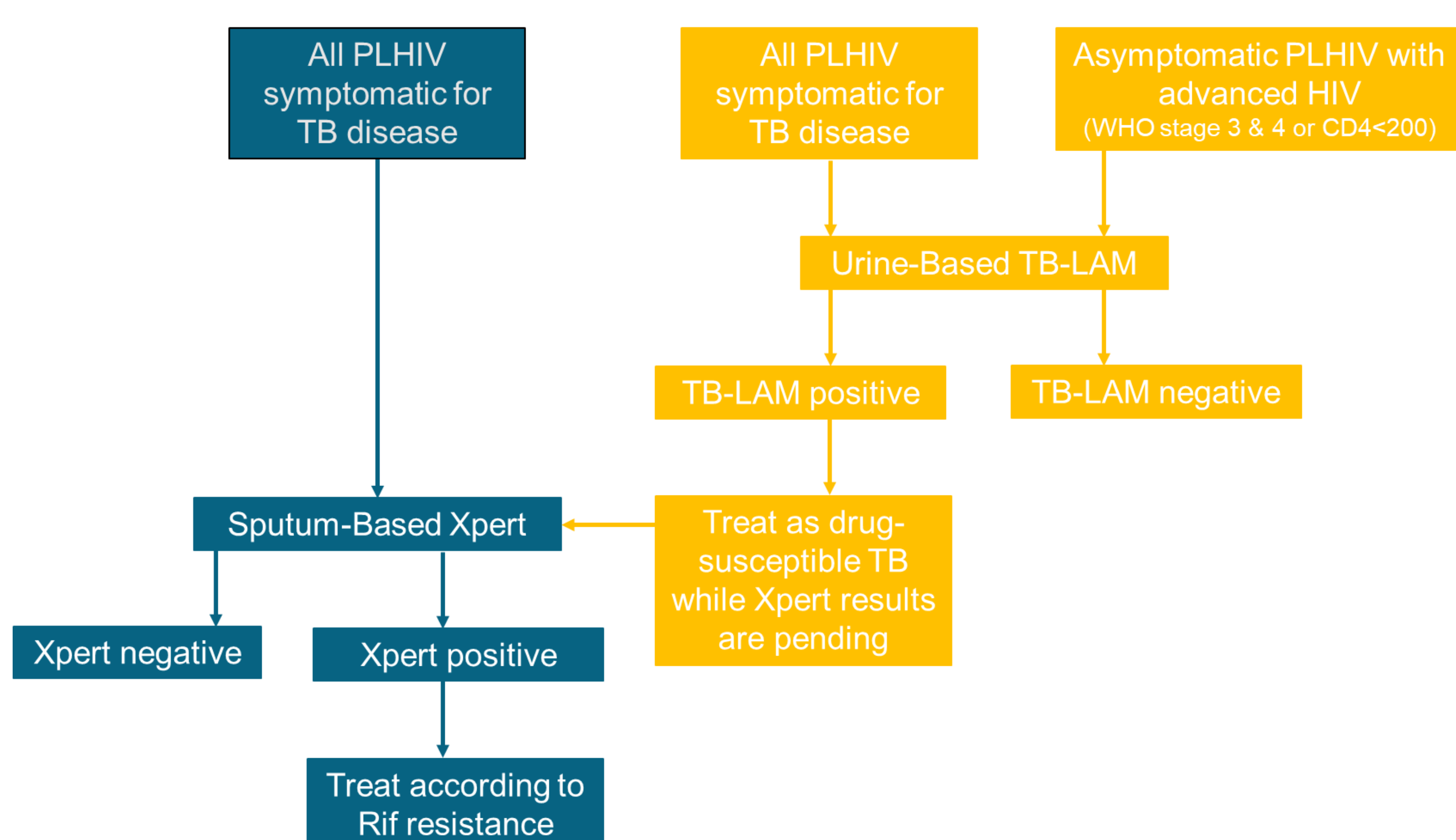
Background

- Globally, tuberculosis (TB) is the leading cause of death among people living with HIV (PLHIV). PLHIV have up to a 20 times higher risk of developing active TB compared to those without HIV infection.
- TB screening should be offered to all PLHIV at the time of HIV diagnosis and at all follow-up visits. Xpert MTB/RIF of sputum has been the gold standard test for TB diagnosis among clients presenting with TB symptoms.
- To expand TB case detection efforts, the Zimbabwe Ministry of Health and Child Care (MoHCC) has introduced urine-based TB-LAM screening for clients with advanced HIV disease who present as asymptomatic for TB at select high-volume facilities in Harare.

Description

- Prior to TB-LAM implementation, we conducted on the job training for laboratory technicians and sensitized clinicians on identification of eligible clients for testing, sample collection, and client management.
- TB-LAM positive clients were eligible to initiate same-day TB treatment while a confirmatory diagnosis from onsite Xpert MTB/RIF was pending.

Figure 1: Comparison of TB Screening & Treatment Algorithm Before and During Integration of TB-LAM



- We reviewed TB program records from seven months before TB-LAM implementation (October 2020–April 2021) and five months of TB-LAM implementation (May–September 2021) at three high-volume public health facilities in Harare.
- Data were abstracted from MoHCC registers and captured in Excel and descriptive statistics were generated using Stata version 17.
- Health workers at each facility were interviewed to determine acceptability and ease of administration of urine-based TB-LAM.
- We present TB case detection, compare time-to-treatment before and after implementation of TB-LAM, and perceived benefits of TB-LAM screening among healthcare workers at three facilities in Harare.

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Lessons Learned

TB Case Detection

- During the pre-TB LAM period, 218 clients provided sputum for Xpert testing only, of whom 12.4% (n = 27) were TB positive.
- Ninety-four clients provided urine for TB-LAM of whom 23.4% (n = 22) were TB positive.
- 72 PLHIV who were asymptomatic for active TB disease were tested using TB-LAM and 68.2% (n = 15) were TB positive (Table 1).

Table 1: TB Case Detection among PLHIV by Symptom Status Before and After Implementation of TB-LAM, Frequency (%)

	Pre-TB LAM period		TB-LAM period	
	Total Tested	Total Xpert Positive	Total Tested	Total LAM Positive
	218	27 (12.4)	94	22 (23.4)
Symptomatic for TB	203 (93.1)	25 (92.6)	22 (23.4)	7 (31.8)
Asymptomatic for TB	15 (6.9)	2 (7.4)	72 (76.6)	15 (68.2)

- In the absence of TB-LAM testing, these 15 cases of asymptomatic TB would have remained undiagnosed based on question-based symptom screening for Xpert alone.

Treatment Initiation

- During the pre-TB LAM period, 81.5% (n = 22) of the Xpert-positive cases were initiated on TB treatment.
- During the TB-LAM period, 90.9% (n = 20) of the TB-LAM positive cases were initiated on treatment.

Time Between Specimen Collection and Treatment

- The median time from specimen collection to initiation of TB treatment was four days for cases diagnosed by Xpert versus one day among cases tested with TB-LAM.
- TB-LAM testing increased the proportion of clients that were started on treatment on the day of specimen collection from 12 to 30% (Table 2).

Table 2: Time between Screening and Starting TB treatment Before and After Implementation of TB-LAM, Frequency (%) or Median (IQR)

	Pre-TB LAM period	TB-LAM period
Started TB treatment	22 (81.5%)	20 (90.9%)
Days between specimen collection and starting treatment	4 (1-7)	1 (0-3)
Started Treatment same day as specimen collection	3 (12.0)	6 (30.0)

Perspectives from Healthcare Workers

- Health workers described TB-LAM as acceptable, simpler to administer, and shortens turnaround time for an actionable diagnosis.
- Additionally, other benefits of the assay mentioned by health workers were that all clients were able to produce a urine sample and specimen collection and processing requires minimal biosafety measures.

Conclusion

- Introduction of TB-LAM testing increased the proportion of TB clients initiated on treatment and shortened the time between testing and starting treatment.
- Scale-up of TB-LAM can improve TB diagnosis among PLHIV co-infected with TB and facilitate timely treatment initiation, especially among clients with asymptomatic TB.