“Detection of Rifampicin Resistance in Pulmonary and Extrapulmonary Tuberculosis Using Truenat: A Laboratory-Based Study”

Antimicrobial Chemotherapy Conference

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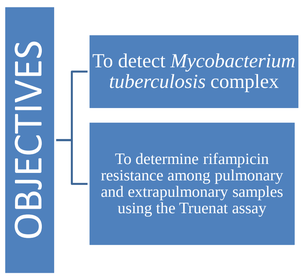
BACKGROUND

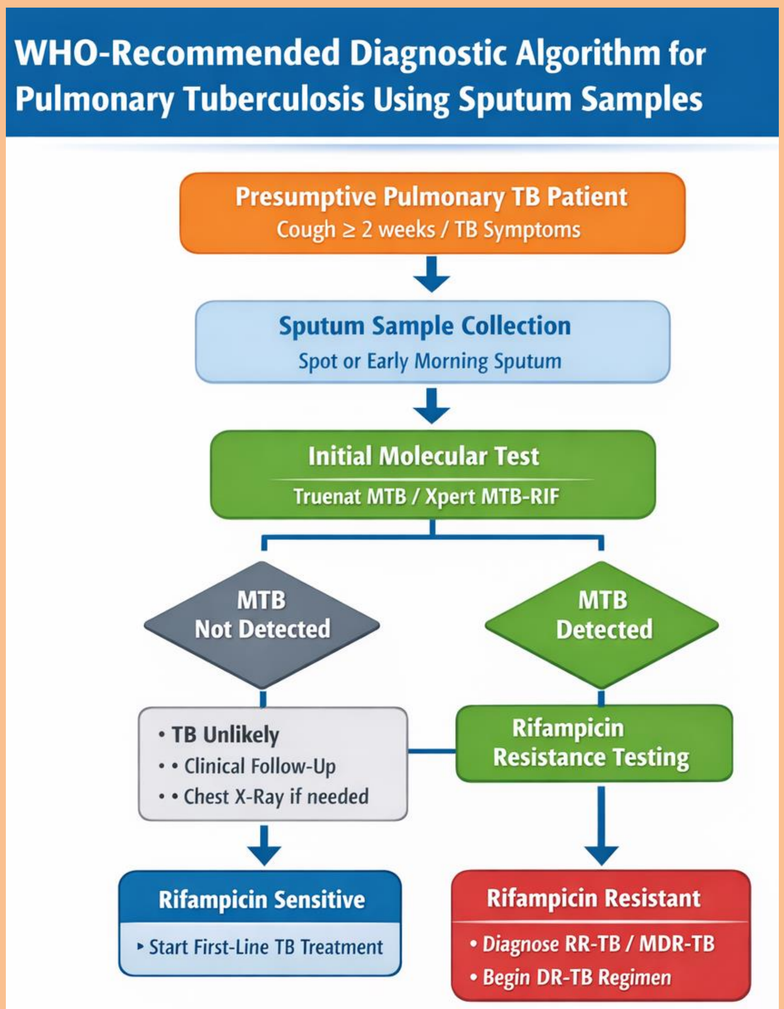
- Tuberculosis remains a major global health challenge.
- Rifampicin resistance indicates MDR-TB.
- Rapid molecular tests enable early diagnosis.
- Truenat assays, endorsed by the World Health Organization, offer a portable PCR solution.

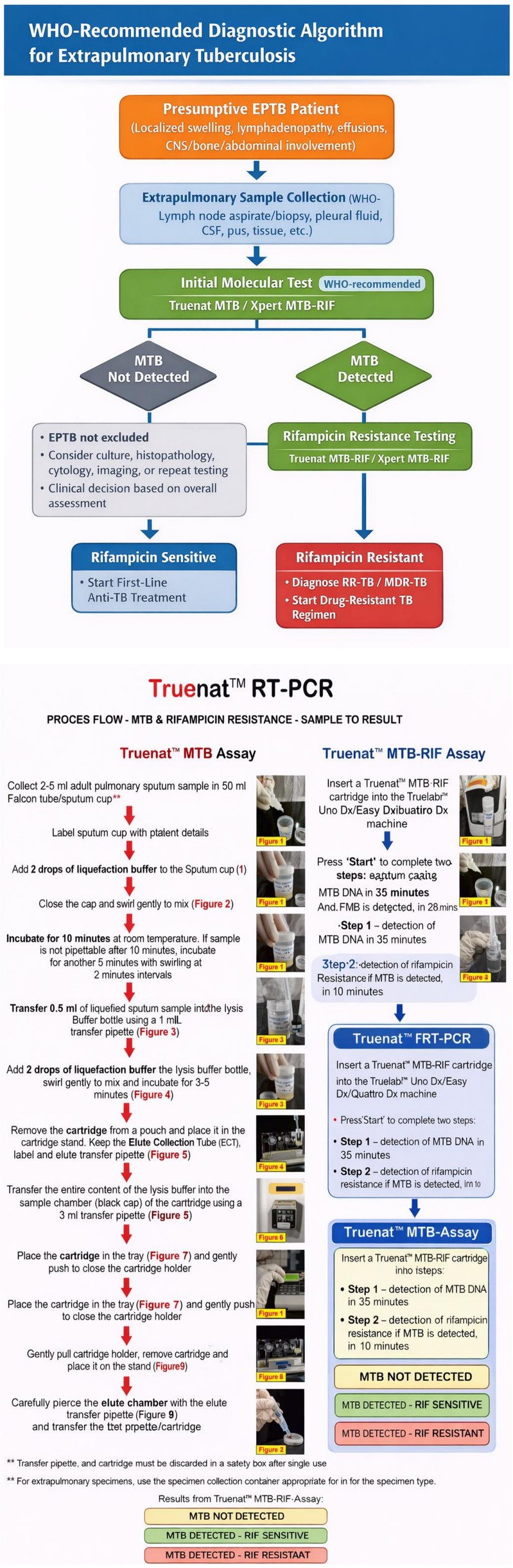
OBJECTIVES



METHODOLOGY

TYPE OF STUDY: Hospital based cross sectional descriptive study
STUDY PERIOD: July 2023 to May 2024
PLACE OF STUDY: All India Institute of Medical Sciences, Guwahati
TYPES OF INVESTIGATION:
A total of 1005 clinical samples from patients suspected of tuberculosis were included.
The specimens comprised of both pulmonary (sputum, bronchoalveolar lavage, endotracheal aspirates) and extrapulmonary samples (pus, body fluids, tissue, etc.).
All samples were processed and tested with standard operating procedures using Truenat MTB and MTB-RIF Dx assays.
Data including patient demographics, type of sample, and test results were analysed.





RESULTS

July 2023 to May 2024: 1005 samples

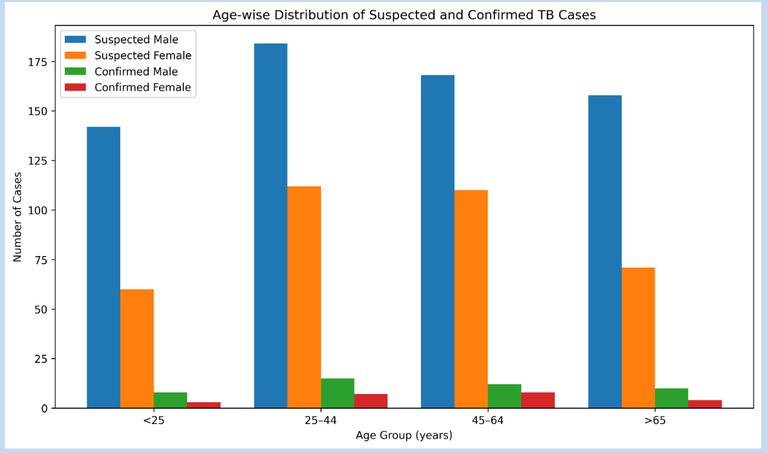


Fig 1: MTB Detection by Truenat in Pulmonary and Extrapulmonary TB in different age groups.

- Overall TB burden is highest in the 25–44 age group, followed by 45–64
- Male predominance is evident in every age category

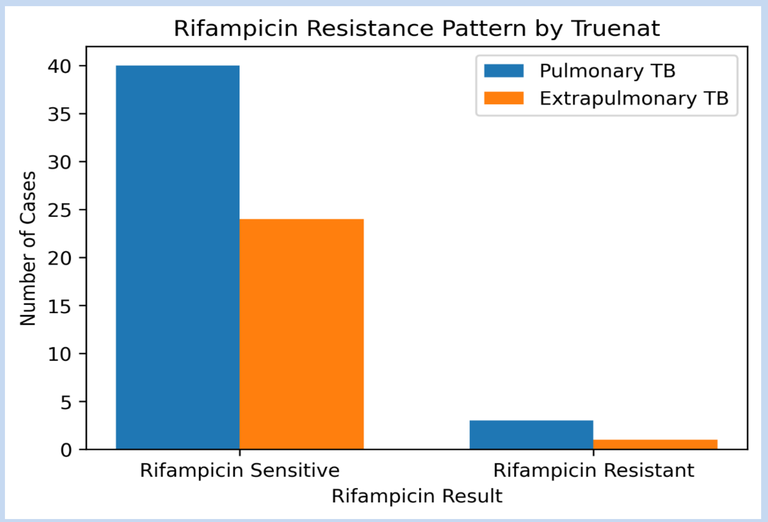


Fig 2: Rifampicin Resistance Pattern by Truenat.

DISCUSSION

This laboratory-based study demonstrates that Truenat MTB and MTB-RIF Dx assays are effective tools for the rapid detection of tuberculosis and rifampicin resistance in both pulmonary and extrapulmonary specimens. The ability to identify rifampicin resistance at an early stage enables timely initiation of appropriate therapy and supports prompt management of drug-resistant TB. Detection of resistance in extrapulmonary samples highlights the importance of testing all suspected TB specimens irrespective of the site of disease. The portability and ease of use of Truenat make it particularly valuable in resource-limited settings, strengthening its role in routine diagnostic algorithms and national TB control programs.

CONCLUSION

- This study highlights the importance of molecular tests like Truenat for rapid detection of TB and rifampicin resistance.
- Using these tests in routine diagnosis helps in early treatment and reduces disease spread, especially in resource-limited settings.
- Detection of rifampicin resistance in extrapulmonary TB supports testing all suspected TB samples, regardless of site.

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