

Advances in TB Diagnosis

The effective treatment of MDR-TB is a life-saving intervention

Early diagnosis of both TB and DR-TB are the key for an effective TB control



Novel technologies for rapid screening of anti-TB drug resistance have become a priority in Tuberculosis research

Molecular line probe assays for rapid screening of patients at risk of MDR-TB

Policy statement by WHO and Partners June 27, 2008

Endorsement of the two commercial line probe assays for rifampicin resistance detection:
Tests are CE marked and meet predefined performance targets in controlled evaluation studies

Both tests are highly sensitive and specific for rifampicin resistance detection from TB strains

AFB (TB) – Mycobacterium identification & MDR screen by molecular genotyping

- **NEWER VERSION**
- Specimen: Sputum, BAL, Tracheal secretions...
- ZN smear positive **and smear negative** pulmonary samples
- Method: DNA strip technology(Hains Germany), Line probe assay(LPA)
- Schedule: Every Thursday
- Report: Friday
- **WHO ENDORSED TEST FOR RAPID MDR SCREENING IN PATIENTS**

Report

- **Direct Identification as M.tb complex from samples**
- Drugs reported:
- Isoniazid(low and high level) resistance
- Rifampicin resistance
- **Rapid MDR diagnosis**
- Sensitivity $\geq 98\%$ (rif), $>90\%$ (inh)
- Specificity $>99\%$ (rif and iso)

AFB(TB)- Mycobacterium identification & XDR screen by molecular genotyping

- Direct Identification as M.tb complex
- Drugs reported:
 - Flouroquinolone group resistance
 - Injectable aminoglycoside resistance
- **Rapid XDR diagnosis**

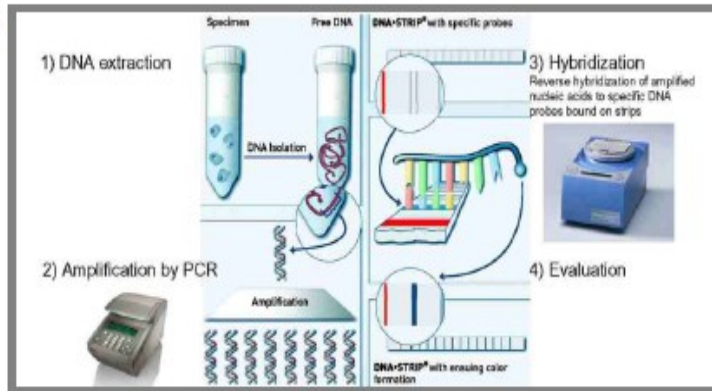
TRANSFORMING THE DIAGNOSIS OF TUBERCULOSIS



Conventional Culture

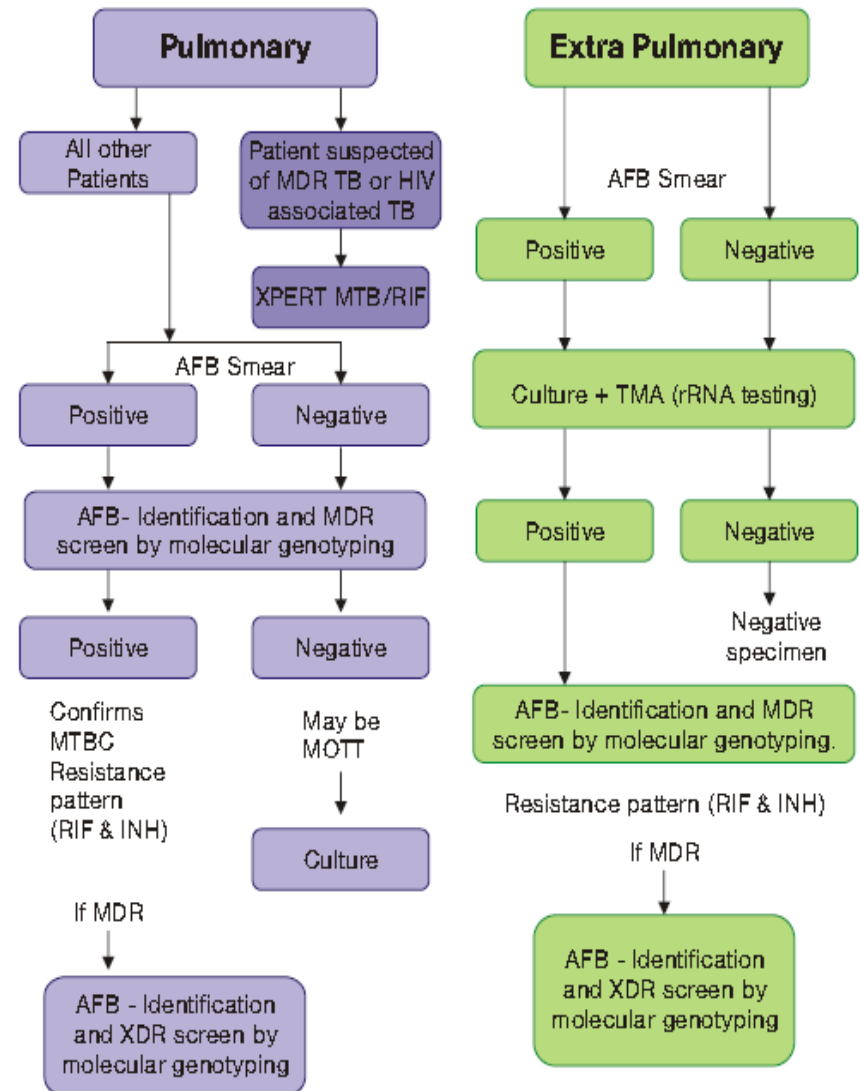


PCR



Algorithm for diagnosis of tuberculosis

Sample Type



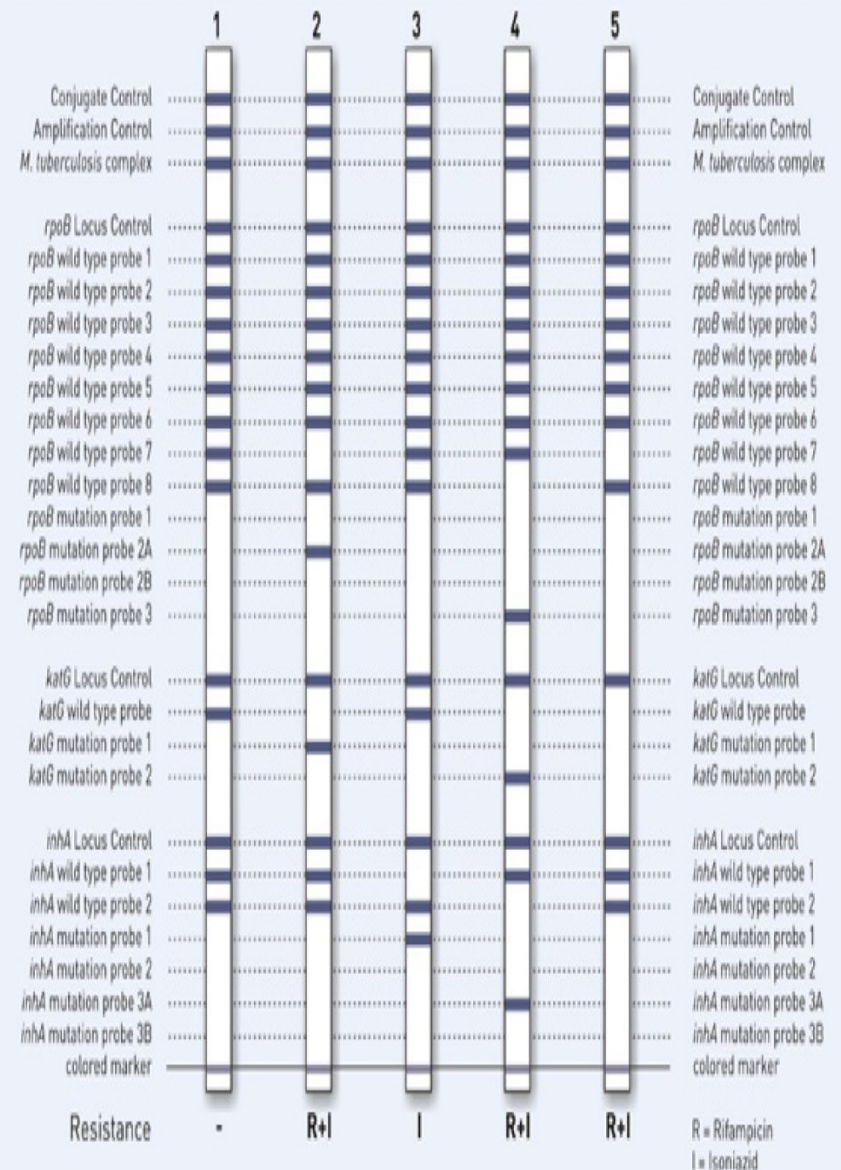
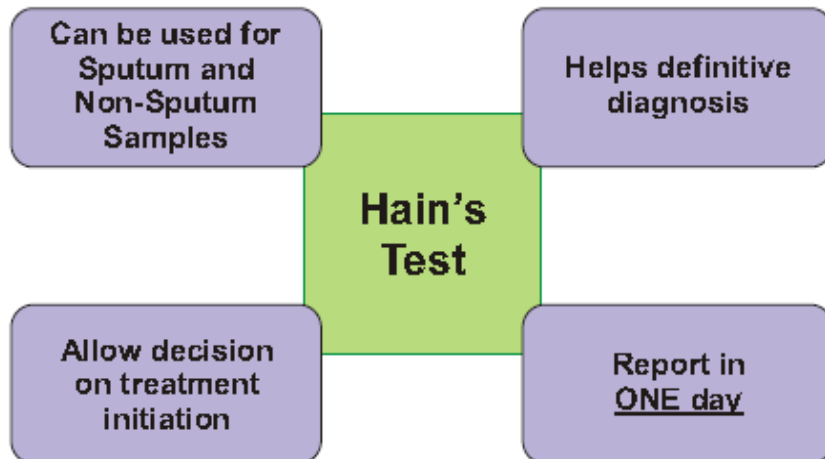
In addition to being sensitive and specific, it is also endorsed by WHO

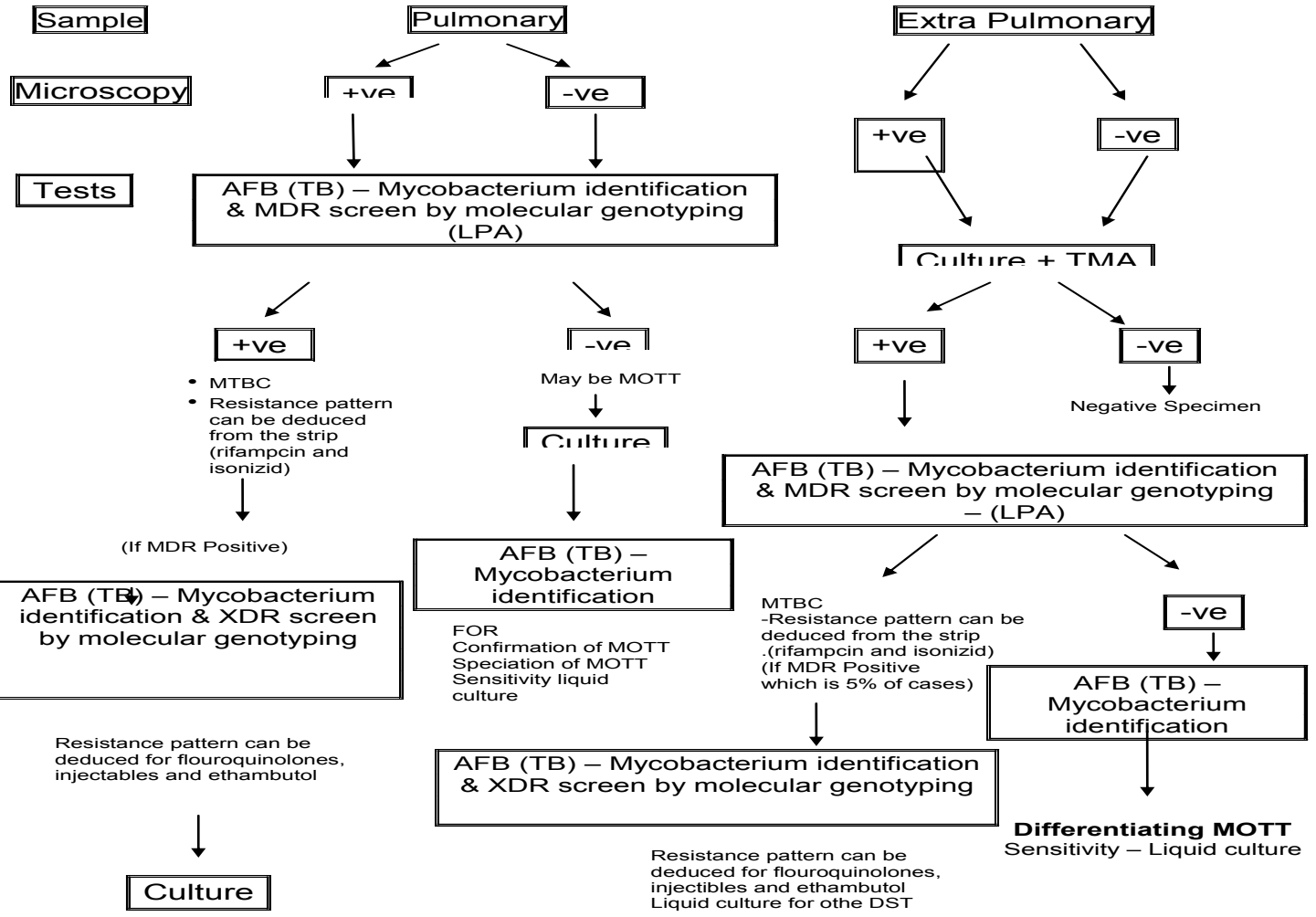
“A Globally Established, WHO endorsed test for diagnosis of TB within 24 hours”

- Mycobacterium Tuberculosis (MTB) Complex Identification
- Identification of Mono-Resistance
- Identification of MDR

Detects resistance by demonstration of mutations in

- rpoB gene : Rifampicin resistance
- katG gene : high level Isoniazid resistance
- inh A gene : low level Isoniazid resistance





Xpert MTB/RIF

- **WHO recommended initial diagnostic rapid test in individuals suspected of MDR-TB or HIV/TB cases.**
- Fully automated diagnostic molecular test:
- Simultaneously detects TB and rifampicin drug resistance with same day results(few hours).
- HIV coinfection decrease sensitivity of Microscopy, but Xpert unaffected.

- NPV for detection of RIF resistance is >99%
- Conventional microscopy and culture are still required for other drugs resistance testing.
- Sensitivity >99% in smear positives and >80% in smear negatives. Specificity ard.98.5%.

METROPOLIS

EXCELLENCE IN DIAGNOSTICS

for your health, nothing less will do



New

- MGIT 960 is a fully automated, nonradiometric liquid culture system. Based on Fluorescent principles, it is the Newer Gold standard in TB diagnosis

