

Tuberculosis – children >10 years and adult



REPUBLIC OF KENYA
MINISTRY OF HEALTH

TB SCREENING AND DIAGNOSTIC ALGORITHM FOR CHILDREN ≥10yrs AND ADULTS



GeneXpert is the recommended initial test for TB diagnosis. However, where a facility has no GeneXpert, smear microscopy SHOULD BE USED as another sample is collected & referred for GeneXpert. TB LAM should be used where indicated among PLHIV as per guidelines. TB LAM SHOULD NOT be used as an alternative to GeneXpert testing.

Does the client have any of the following signs & symptoms?

1. Cough of any duration

2. Hotness of body

3. Drenching night sweats

4. Unintended weight loss

5. Chest pain

6. BMI less than 18.5 or Z score ≤ -2

YES

If Yes, to any of the signs and symptoms above the patient requires a clinical review

Take a comprehensive history and a thorough examination. Decide on classification as a presumptive TB case cases

Is the client/patient a presumptive TB case?

NO

Is a sample available for TB testing?

NO

Consider a CXR¹

Consider clinical diagnosis of TB

NO

Evaluate and manage for other conditions

Consider TB preventive therapy (TPT) as per TBI guidelines

Is the GeneXpert service available on site?

NO

Is smear microscopy available on site?

NO

If not available, collect and refer sample for GeneXpert

TB LAM should be considered for eligible PLHIV²

- o Positive TB LAM test – Initiate DS TB treatment. Evaluate once GeneXpert results received
- o NB: A negative TB LAM test does not rule out TB

YES

Obtain a sample³ for GeneXpert

TB LAM should be considered for eligible PLHIV²

- o Positive TB LAM test – Initiate DS TB treatment. Review once GeneXpert results received
- o NB: A negative TB LAM test does not rule out TB

Is the GeneXpert service available on site?

YES

Is smear microscopy available on site?

YES

If yes, collect 2 samples; one for smear microscopy and an additional sample for GeneXpert

If smear microscopy is positive, start DS TB treatment and review the patient once GeneXpert results are received

TB LAM should be considered for eligible PLHIV²

- o Positive TB LAM test – Initiate DS TB treatment. Evaluate once GeneXpert results received
- o NB: A negative TB LAM test does not rule out TB.

Gene Xpert Results

MTB Detected Rifampicin Resistance Detected (RR)

1. Collect a sample for FL & SL LPA, culture and 1st and 2nd line DST

2. Conduct baseline work up for DR TB treatment

3. Comprehensive review by a DR TB clinical review team

4. Start DR TB treatment as per guidelines.

Based on DST results, DR TB clinical team to adjust regimen as necessary.

Follow up as per DR TB treatment guidelines

Mandatory clinical review meetings for Patients

Monthly smears and cultures are mandatory during the treatment duration.

MTB Detected Rifampicin Resistance not Detected (TS)

Patients at high risk for DR TB groups

1. Collect a sample for FL & SL LPA, culture and 1st and 2nd line DST

2. Start DS TB treatment while awaiting DST results.

Revised treatment based on DST results Follow up as per guidelines.

DR TB

Patients at low risk for DR TB groups

1. Start DS TB treatment.

Follow up:

1. Clinical improvement assessment

2. Smear microscopy at months 2/3,5,6

3. If drug resistance is detected, treat for DR TB as per guidelines.

MTB Not Detected (N)

If already on TB treatment (smear positive, TB LAM positive), continue until other diagnostic test results received and reviewed even if MTB Not Detected

NTM is likely if smear microscopy was positive, and MTB not detected on GeneXpert

- Send a sample for culture for definitive diagnosis of NTM
- Continue with TB treatment until culture results received and reviewed

Evaluate for other respiratory illnesses e.g. asthma, pneumonias, COPD, bronchiectasis and cancer as other possible conditions

Obtain a CXR and review with CXR³ report and treat for TB as applicable.

Consider EPTB

Refer for further evaluation when a definitive diagnosis is yet to be found

Consider repeat GeneXpert.

MTB Detected, Rifampicin resistance indeterminate (TI)

1. Treat as DS TB

2. Immediately collect another sample and repeat GeneXpert (Ultra) test

3. Collect a sample for FL & SL LPA, culture and 1st and 2nd line DST

4. Revise regimen based on DST results.

MTB detected Trace⁴

1. Collect another sample and repeat GeneXpert test.

2. Treat as per the repeat result.

Invalid/Error

1. Collect another sample and repeat GeneXpert test.

2. Treat as per the repeat result.

Footnotes

¹ Samples for GeneXpert – sputum, CSF, Pleural aspirate, Peritoneal fluid, synovial fluid, Gastric Aspirate, Nasopharyngeal aspirate, FNA, Lymph node biopsy, Pus, stool

² Indications for use of TB-LAM, as an adjunct test to GeneXpert:

- PLHIV with advanced disease (WHO stage 3 or 4 or CD4 count <200 cells/mm³ (or <25% for children <5years old) with presumed TB
- PLHIV that have any danger signs of severe illness: respiratory rate >30 breaths per minute, temperature >39°C, heart rate >120 beats per minute, unable to walk unaided
- Currently admitted to hospital

³ All CHEST X-rays should be reported and the reports reviewed by the clinician for definitive management. Refer to the CXR algorithm for TB diagnosis

⁴ MTB detected Trace – Results from sample with few bacilli (paucibacillary TB). Rifampicin resistance status.

HIV Testing, using the HTS algorithm 1, is recommended during TB screening and diagnosis.

Screening for diabetes is recommended among all adult patients with TB disease

Key	DR TB risk classification among patients
CXR	Chest X-ray
DR TB	Drug Resistant TB
DS TB	Drug Susceptible TB
DST	Drug Susceptibility Testing
EPTB	Extra pulmonary TB
FL	First line
LPA	Line Probe Assay
MTB	Mycobacteria Tuberculosis
NTM	Non-Tuberculous Mycobacteria
TST	Tuberculin skin test
SL	Second line

DR TB risk classification among patients

High risk for DR TB*

1. All previously treated TB patients; treatment failures, relapses, treatment after loss to follow up
2. Contacts of Drug Resistant TB patients
3. TB patients with a positive smear result at month 2 or month 5 of TB treatment
4. Patient who develops TB symptoms while on IPT or has had previous IPT exposure
5. Healthcare Workers with TB symptoms
6. Prisoners with TB symptoms
7. Refugees with TB symptoms

Low risk for DR TB

All presumptive TB cases who are NOT in the high risk group

*ALL the high risk patients MUST be prioritized to receive DST – GeneXpert, FL and SL LPA, culture and FL and SL DST.

POSITIVE SMEAR RESULT AT	Action
Month 2/3	<ul style="list-style-type: none"> • Evaluate for adherence, and other causes of delayed conversion • Request for all the following drug susceptibility tests (DST): GeneXpert, FL LPA and SL LPA. Culture and FL and SL DST • Continue with RHZE for one more month, or longer if DST results not received by then • Adjust treatment regimen based on DST results • Repeat smear microscopy at end of month 3. If smear positive continue with RHZE and review DST results and inform the SCLC immediately • Do not proceed to the continuation phase (RH) without a DST result confirming susceptibility to RH (rifampicin and isoniazid)
Month 5 or month 6	<ul style="list-style-type: none"> • Declare treatment failure and stop anti-TB treatment • Review by the sub county and county TB clinical review teams • Evaluate for adherence, other causes of delayed conversion and treatment failure • Request for GeneXpert, FL LPA and SL LPA, Culture and FL and SL DST • Review DST results and re-initiate treatment based on DST results and other clinical findings
Smear positive or culture positive at month 3 or later	<ul style="list-style-type: none"> • Evaluate for adherence, and other causes of delayed conversion • Request for the following drug susceptibility tests (DST) (GeneXpert, Culture and First Line (FL) and SL DST, FL LPA and SL LPA) depending on the initial resistance pattern <ul style="list-style-type: none"> • Review by the sub county and county clinical review teams <ul style="list-style-type: none"> • Evaluate for adherence, other causes of reversion and treatment failure <ul style="list-style-type: none"> • Review the DST results • Declare failure if at the end of the extended intensive phase (refer to DR TB guidelines) • Send a case summary to the national clinical team after review by the county clinical team • Do not proceed to the continuation phase (depending on treatment regimen) without a DST result
Smear positive smears and/or cultures during continuation phase	<ul style="list-style-type: none"> • Declare treatment failure <ul style="list-style-type: none"> • Review by the sub county and county clinical review teams <ul style="list-style-type: none"> • Evaluate for adherence, other causes of reversion and treatment failure <ul style="list-style-type: none"> • Review the DST results • Send a case summary to the national clinical team after review by the county clinical team

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