Algorithm for managing people living with HIV who are suspected of having TB (ambulatory)

1st visit

- HIV-positive or unknown\(^a\) and
- Suspected of having TB\(^b\) and no danger signs\(^c\)

**Xpert MTB/RIF\(^{d,e}\)**

2nd visit

- Xpert MTB/RIF-positive for TB
- Xpert MTB/RIF-negative for TB or test not available

**Response**

- No or partial response
- Provide isoniazid preventive therapy

**Further investigation for TB and other diseases\(^g\)**

**TB likely**

- Treat for TB\(^f\)
- ART
- Co-trimoxazole preventive therapy

**TB unlikely**

- Treat for bacterial infection\(^h\) and/or *Pneumocystis* pneumonia
- ART assessment\(^i\)
- Provide co-trimoxazole preventive therapy as appropriate

**Further investigations for TB\(^g\)**

\(a\) For all people with unknown HIV status, HIV testing should be performed according to national guidelines.

\(b\) Suspicion of TB is defined by the presence of any one of the following symptoms.

- For adults and adolescents living with HIV: current cough, fever, weight loss or night sweats.
- For children living with HIV: poor weight gain, fever, current cough or history of contact with a TB case.

\(c\) Danger signs include any one of the following: respiratory rate >30 per minute, temperature >39°C, heart rate >120 beats per minute and unable to walk unaided.

\(d\) For people suspected of having extrapulmonary TB, extrapulmonary specimens should be obtained for Xpert MTB/RIF (cerebrospinal fluid, lymph nodes and other tissues: Xpert MTB/RIF has low sensitivity for pleural fluid and data are limited for stool, urine or blood).

\(e\) A urine lateral flow lipoarabinomannan (LF-LAM) assay should not be performed for people with no danger sign unless they have a CD4 cell count ≤100 cells/µL.

\(f\) If Xpert MTB/RIF shows rifampicin resistance, treatment for multidrug-resistant TB should be initiated. If the person is considered at low risk for rifampicin resistance, a second Xpert MTB/RIF test should be performed on a fresh specimen. Collect and refer a sample for culture and additional drug sensitivity testing.

\(g\) Further investigations for TB include chest X-ray, clinical assessment and a repeat Xpert MTB/RIF using a fresh specimen. Refer a sample for TB culture where feasible. If Xpert MTB/RIF is not available, conduct acid-fast bacillus (AFB) microscopy. AFB-positive is defined as at least one positive smear, and AFB-negative as two or more negative smears. If extrapulmonary TB is suspected, extrapulmonary specimens should be obtained and sent for culture and abdominal ultrasound may be performed. These investigations may require additional visits.

\(h\) Antibiotics with broad-spectrum antibacterial activity (except fluoroquinolones) should be used.

\(i\) ART should be recommended for all adults, regardless of CD4 cell count or clinical stage.
Algorithm for managing people living with HIV and suspected of having TB (seriously ill)

- HIV-positive or unknown and
- Seriously ill, suspected of having TB and danger signs

Immediate referral not possible
- Xpert MTB/RIF
- Parenteral antibiotics for treatment of bacterial infections
- Consider treatment for Pneumocystis pneumonia
- Urine lateral flow lipoarabinomannan (LF-LAM) assay
- Chest X-ray if available

Immediate referral to a higher level facility

Xpert MTB/RIF-positive
- Treat for TB
- ART
- Co-trimoxazole preventive therapy

Xpert MTB/RIF-negative or no test available
- Clinical worsening or no improvement after 3-5 days
- Improvement after 3-5 days

Immediate referral to a higher level facility

TB unlikely
- Reassess for other HIV-related diseases
- ART assessment
- Isoniazid preventive therapy
- Co-trimoxazole preventive therapy
- Complete the course of parenteral antibiotics

For all people with unknown HIV status, HIV testing should be performed according to national guidelines.

Suspicion of TB is defined by the presence of any one of the following symptoms.
- For adults and adolescents living with HIV: current cough, fever, weight loss or night sweats.
- For children living with HIV: poor weight gain, fever, current cough or history of contact with a TB case.

Danger signs include any one of the following: respiratory rate >30 per minute, temperature >39°C, heart rate >120 beats per minute and unable to walk unaided.

For people suspected of having extrapulmonary TB, extrapulmonary specimens should be obtained for Xpert MTB/RIF (cerebrospinal fluid, lymph nodes and other tissues: Xpert MTB/RIF has low sensitivity for pleural fluid and data are limited for stool, urine or blood). If Xpert MTB/RIF is not available, conduct AFB microscopy. AFB-positive is defined as at least one positive smear and AFB-negative as two or more negative smears. Refer the specimen for TB culture where feasible.

Antibiotics with broad-spectrum antibacterial activity (except fluoroquinolones) should be used.

The LF-LAM assay may be used to assist in diagnosing active TB in peripheral settings among both in-and out-patients who are seriously ill, regardless of CD4 count. Whenever possible, a positive LF-LAM should be followed up with other tests such as Xpert MTB/RIF. While awaiting results of other tests, clinicians could consider initiating TB treatment immediately based on the positive LF-LAM and their clinical judgment.

If Xpert MTB/RIF shows rifampicin resistance, treatment for multidrug-resistant TB should be initiated. If the person is considered at low risk for rifampicin resistance, a second Xpert MTB/RIF test should be performed on a fresh specimen. Collect and refer a sample for culture and additional drug sensitivity testing.

If Xpert MTB/RIF shows negative results, the test can be repeated using a fresh specimen.

Further investigations for TB include chest X-ray, clinical assessment, a repeat Xpert MTB/RIF using a fresh specimen and culture. If extrapulmonary TB is suspected, extrapulmonary specimens should be obtained and sent for culture and abdominal ultrasound may be performed.

ART should be recommended for all adults, regardless of CD4 cell count or clinical stage.