Job Aid For Health Professionals

TB
MDR-TB
XDR-TB
TB Screening Questions

Ask about presence of TB related symptoms
- Cough for more than 2 weeks
- Blood in sputum
- Fever with night sweats
- Chest pain/ breathlessness
- Weight Loss
- Loss of appetite
- Malaise, tiredness

Any current or past history of long-term illness (TB, HIV)?
Any history of TB in family members or close contacts?
Is any one in family/friends on TB treatment?

Pointers to suspect DR-TB
- HIV positive
- Family member/ close contact under treatment for DR-TB
**TB Diagnostic tests**

**Adult**
- Sputum smear for AFB
- Sputum culture for AFB
- DST (when indicated)
- Chest X-ray
- If Miliary/Extrapulmonary TB suspected: CSF exam, Biopsy of LN, X-ray spine, Abdominal USG

**Child**
- Gastric aspirate for AFB
- Gastric aspirate culture for AFB
- DST (when indicated)
- Chest X-ray-
- Mantoux Test
- Miliary/Extrapulmonary TB suspected: CSF exam, Biopsy or FNA of LN,
- X-ray spine, Abdominal USG

**DST should be reserved for the following individuals**
- Patients who remain sputum smear positive after 2-3 months’ of intensive therapy;
- Treatment failure and interruption cases;
- Close contacts of MDR tuberculosis cases who have S/s of TB;
- High risk individuals who have S/s of TB, e.g. health care workers.
Management of a Suspected TB Case

- **Clinical assessment** - Clinical signs present
- **TB Diagnostic tests:** AFB in pathological Sputum specimen smear, Positive TB culture, Chest X-ray suggestive of active TB, MX Test: Positive
- **Offer HIV test, if status unknown:** Opt out/VCT

**Prior TB T/t history**
- **YES**
  - Clinical assessment
    - Review prior treatment records and lab test results
    - Offer HIV test, if status unknown: Opt out/VCT

**NO**

**Screen for MDR-TB and XDR-TB**
- **Confirm MDR-TB**
  - Provide appropriate treatment according to MDR-TB job aid
- **Confirm XDR-TB**
  - Provide appropriate treatment according to XDR-TB job aid

**Suspect Drug Resistant-TB?**
- **YES**
  - History/Clinical assessment suggestive
  - DST results confirms DR-TB
  - Provide DOTS/First-line TB treatment
  - Patient education: stress on treatment adherence, regular follow-up
  - Close contact screening and evaluation
- **NO**
  - Follow-up: Clinical assessment and Lab tests
  - Improving: Continue treatment and follow-up
  - Not improving: Assess for second-line treatment

**TB disease ruled out:** Provide appropriate management (non-TB)

**Prior TB T/t history**
- **YES**
  - Review prior treatment records and lab test results
- **NO**

**TB risk assessment and symptom screen done**
- Check for presence of TB related symptoms
- Ask prior TB treatment history

**Suspect Drug Resistant-TB?**
- **YES**
  - Provide DOTS/First-line TB treatment
  - Patient education: stress on treatment adherence, regular follow-up
  - Close contact screening and evaluation
- **NO**
  - Follow-up: Clinical assessment and Lab tests
  - Improving: Continue treatment and follow-up
  - Not improving: Assess for second-line treatment
Review of Prior TB Treatment History

Ask
- Did you ever receive treatment for TB for more than 1 month/ any illness?
- Did you complete the full-course of treatment?
- If not completed the treatment, ask reasons
- How was the response of earlier treatment? Improved/worsened

Review records
- Review diagnosis, diagnostic/lab test results, any DST result
- Any treatment regimen provided, Duration of treatment, number of episodes of treatment taken, duration of non-compliance, any adverse reactions
- Any follow-up notes
- Previous long term hospitalization
- Exposure to mining industry
- History of incarceration

Pointers to suspect DR-TB
- Incomplete treatment
- Multiple episodes of non-compliance
- Worsening of symptoms/ No improvement
- Prior DST suggestive of DR
First-line TB Treatment

New adult patient
Intensive Phase (2 months): Start INH, Rifampicin, Pyrazinamide, Ethambutol daily 7 days per week
Continuation Phase (4 months): continue INH and Rifampicin daily, 7 days a week

Retreatment adult patient
Intensive Phase: For initial 2 months: Start INH, Rifampicin, Pyrazinamide, Ethambutol and Streptomycin; All drugs given 7 days a week except Streptomycin can be given 5 times a week.
For 3rd month: RHZE
Continuation Phase (5 months): continue INH, Rifampicin & Ethambutol daily for 7 days a week

Children
Intensive Phase (2 months): Start INH, Rifampicin, Pyrazinamide, daily
Continuation Phase (4 months): continue INH and Rifampicin
Dosages of treatment: 7 times per week in the intensive phase AND for continuation phase treatment
Patient education: treatment adherence, cough etiquette, regular follow up

Close contacts monitoring

Pointers to suspect DR-TB
• Multiple episodes of treatment non compliance
• No clinical improvement or worsening of symptoms/signs
• Follow up lab tests and X ray shows worsening
• Follow up DST results suggestive of drug resistance
Management of MDR-TB Case

Pointers to Suspect MDR-TB
- Category II failures (chronic TB cases)
- Close contact of known MDR-TB case
- Prior DST results confirmed MDR-TB
- MDR-TB endemic region

HIV patients in highly endemic regions for M(X)DR-TB
- High risk individuals with Symptoms of TB
- Newly diagnosed patients with history of TB
- Patients who remain smear positive after 2-3 months of intensive phase of TB treatment
- Symptomatic patients with history of incarceration
- Symptomatic patients with history of prolonged hospitalization

Provide appropriate treatment according to XDR-TB job aid

- Suspected XDR-TB?
- Close contact of XDR TB case
- DST results confirms XDR-TB

INJECTABLE PHASE
(At least 6 months depending on culture conversion, 6-7 times a week)

- Provide MDR-TB treatment regimen
- Treatment adherence counseling
- Close contact screening and evaluation

PERIODIC MONTHLY FOLLOW UP

CONTINUATION PHASE
(12 - 18 months, depending on culture conversion)

YES

CONFIRM MDR-TB SUSPICION
- Clinical assessment
- Review prior treatment history and DST results
- TB Diagnostics tests
- HIV screening, if status unknown: VCT/opt-out
- Infection control triage

YES

ACTIVE MDR-TB CONFIRMED
- DST results confirms resistance to INH and Rifampicin
- Clinical signs of active TB present
- AFB in pathological specimen/ culture

YES

Provide appropriate treatment according to XDR-TB job aid

- Provide DOTS/First-line TB treatment according to guidelines
- Patient education: focus on treatment adherence
- Assess TB risk in close contacts/family members

NO

USAID POCKET GUIDE
<table>
<thead>
<tr>
<th>Classification</th>
<th>Name of Drug</th>
<th>Daily Dosage</th>
<th>Side-effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong> First line oral anti TB agents</td>
<td><strong>Isoniazid (H)</strong></td>
<td>Adult and child (mg/kg): 4-6</td>
<td>300 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adult dosage:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Common:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uncommon:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Rifampicin (R)</strong></td>
<td>10-20</td>
<td>450 mg (&lt;50 kg) 600 mg (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shortness of breath, Shock, Haemolytic anaemia, Acute renal failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Ethambutol (E)</strong></td>
<td>25</td>
<td>800 mg 1.2 g (&lt;50 kg) 1.216 g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cutaneous reaction, Peripheral neuropathy</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pyrazinamide (Z)</strong></td>
<td>30-40</td>
<td>1.0-1.5 g (&lt;50 kg) 1.5-2.0 g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sideroblastic anaemia</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2 Injectable anti TB agents</strong></td>
<td><strong>Streptomycin (S)</strong></td>
<td>15-20 (adult) 20-40 (child)</td>
<td>500-750 mg (&lt;50 kg) 1g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Common:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uncommon:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Kanamycin (Km)</strong></td>
<td>15-30 (child)</td>
<td>500-750 mg (&lt;50 kg) 1g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical renal failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Amikacin (Am)</strong></td>
<td>15-22.5 (child)</td>
<td>500-750 mg (&lt;50 kg) 1g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical renal failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Capreomycin (Cm)</strong></td>
<td>15-30 (child)</td>
<td>500-750 mg (&lt;50 kg) 1g (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical renal failure</td>
<td></td>
</tr>
<tr>
<td><strong>Group 3 Fluoroquinolones</strong></td>
<td><strong>Oxofloxacin (Ofx)</strong></td>
<td>15-20 (child)</td>
<td>800 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Levofoxacin (Lfx)</strong></td>
<td>7.5-10 (child)</td>
<td>750 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Moxifloxacin (Mfx)</strong></td>
<td>7.5-10 (child)</td>
<td>400 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group 4 Oral Bacteriostatic 2nd line anti TB agents</strong></td>
<td><strong>Ethionamide (Eto)</strong></td>
<td>15-20</td>
<td>500 mg (&lt;50 kg) 750 mg (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Protamide (Pto)</strong></td>
<td>15-20</td>
<td>500 mg (&lt;50 kg) 750 mg (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Cycloserine (Cs)</strong></td>
<td>10-20</td>
<td>500 mg (&lt;50 kg) 750 mg (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pamnosal cylc a d (PAS)</strong></td>
<td>150</td>
<td>8 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Terizidone</strong></td>
<td>15-20</td>
<td>500 mg (&lt;50 kg) 750 mg (≥50 kg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group 5 Anti TB agents with unclear efficacy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(not recommended for routine use in MDR TB patients by WHO)*
## Monitoring during treatment of drug-resistant TB

<table>
<thead>
<tr>
<th>Monitoring Evaluation</th>
<th>Recommended Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation by Clinician</td>
<td>At baseline, and at least monthly until conversion, then Every 2-3 months</td>
</tr>
<tr>
<td>Screening by DOT worker</td>
<td>At every DOT encounter</td>
</tr>
<tr>
<td>Sputum smear and cultures</td>
<td>At baseline, Monthly Bi-monthly cultures acceptable during continuation phase</td>
</tr>
<tr>
<td>Weight</td>
<td>At baseline and weekly during intensive phase Monthly during continuation phase</td>
</tr>
<tr>
<td>Height</td>
<td>At baseline in adults</td>
</tr>
<tr>
<td>Body mass index</td>
<td>At baseline and then monthly</td>
</tr>
<tr>
<td>Drug Susceptibility Testing (DST)</td>
<td>At baseline For patients who remain culture-positive, it is not necessary to repeat DST within less than 3 months of treatment</td>
</tr>
<tr>
<td>Chest radiograph</td>
<td>At baseline, and then every six months Also when indicated by clinician</td>
</tr>
<tr>
<td>Serum creatinine</td>
<td>At baseline, then monthly during injectable phase</td>
</tr>
<tr>
<td>Serum potassium</td>
<td>Monthly during injectable phase</td>
</tr>
<tr>
<td>Thyroid stimulating hormone</td>
<td>Every six months if receiving ethionamide and/or PAS Monitor monthly for signs of hypothyroidism</td>
</tr>
<tr>
<td>Liver serum enzymes</td>
<td>Periodic monitoring (every 1-3 months) in patients receiving pyrazinamide for extended periods or for patients at risk for or with symptoms of hepatitis</td>
</tr>
<tr>
<td>HIV screening</td>
<td>At baseline, and repeat if clinically indicated</td>
</tr>
<tr>
<td>Pregnancy tests</td>
<td>At baseline for women of childbearing age, and repeat if indicated</td>
</tr>
<tr>
<td>Audiometry</td>
<td>At baseline and when indicated</td>
</tr>
<tr>
<td>Eye test</td>
<td>At baseline and when necessary</td>
</tr>
<tr>
<td>Lung CT-scan</td>
<td>When indicated</td>
</tr>
</tbody>
</table>
**Management of a Suspected XDR–TB Case**

**Pointers to Suspect XDR-TB**
- Failure on 2nd line TB treatment
- Close contact of known XDR-TB
- Prior DST results confirmed XDR-TB
- HIV +ve, individuals in high MDR TB prevalent areas

**Confrm XDR-TB suspicion**
- Clinical assessment
- Review prior treatment history and DST results
- TB Diagnostics tests
- HIV screening, if status unknown: VCT/opt-out
- Infection control triage

**Active XDR-TB confirmed**
- Clinical signs of active TB present
- Prior treatment history suggestive
- AFB in pathological specimen/culture
- DST results confirms resistance to INH and Rifampicin, a fluoroquinolone and an injectable (amikacin, Kanamycin or Capreomycin)
- Chest X-ray suggestive of active TB

**Provide XDR-TB treatment regimen**
- Treatment adherence counseling
- Close contact screening and evaluation

**INJECTABLE PHASE**
(At least 6 months depending on culture conversion, 6-7 times a week)

**PERIODIC MONTHLY FOLLOW UP**

**CONTINUATION PHASE**
(12-18 months, depending on culture conversion)

**JOB AID on Close Contacts Monitoring**

**No DST required. Clinical assessment required and take action according to findings of the assessment.**
Infection Control Measures

Preventing Transmission of TB

Follow cough etiquette
- Cover the nose and mouth when coughing or sneezing
- Avoid coughing directly into hands use tissue or other cloth
- Use sleeve if no tissue or cloth available
- Dispose of tissues in the nearest waste container immediately after use
- Wash hands with soap & water or antiseptic hand rub after contact with respiratory secretions and contaminated objects/materials.

Adherence to treatment regimen

Regular treatment follow up

What can communities do to prevent transmission of TB?
- Community outreach, contact tracing, provider initiated screening: Focus on high risk groups
- Targeted MDR/XDR advocacy and awareness programs for communities
- Support social mobilization activities to increase awareness about TB as a curable disease
- Regular cases strengthening home/community level support
Out-patients at clinic:
Ensure proper ventilation of waiting area by open windows and exhaust fans, if possible

Identify patients who are coughing

- Give tissues and ‘cover your cough’ instructions
- Provide surgical mask to the patient if available
- Ask TB symptoms and risk factor screening questions

TB Screening: Suspected Infectious TB patient
- Is known to have TB infection and/or has signs and symptoms of pulmonary or laryngeal TB, or
- Has a positive acid-fast bacilli (AFB) sputum smear, or
- Has a persistent cough lasting 2 or more weeks and one or more symptoms of TB disease (e.g., fever, night sweats, fatigue, unexplained weight loss, bloody sputum), or
- Has been started on anti-tuberculosis medications for clinical suspicion of active pulmonary or laryngeal TB, but has completed less than 2 weeks of treatment or has not demonstrated clinical response.

Exposure Control Methods Implemented
- Segregate patient in the closed examination room or alternate waiting area near open window
- Ensure proper ventilation of waiting area by open windows and exhaust fans