MULTIDRUG-RESISTANT TUBERCULOSIS

TREATMENT AND SCREENING PROTOCOL

Tuberculosis (TB) is an infectious disease that most often affects the lungs and is caused by mycobacterium tuberculosis. In 2022, ~10.6 million people fell ill with TB globally, including ~5.8 million men, ~3.5 million women, and ~1.3 million children. Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the two most effective first-line TB drugs. While MDR-TB is treatable, patients often face various psychological and financial burdens during their treatment.

TREATMENT AND SCREENING PROTOCOL

- Globally, there were ~450 million incident cases of MDR-TB, up by ~3.1% from ~437 million in 2020 due to an increased overall incidence in TB between 2020 and 2021.
- MDR-TB remains a public health crisis and a health security threat. Only about 2 in 5 people with MDR-TB accessed treatment in 2022.

INITIAL SCREENING

The doctor will screen for symptoms such as **coughing, weight loss, fever, night sweats, and fatigue.**

The practitioner will ask for the medical history to assess exposure, **including contact with TB cases, past TB treatment, or travel history.**

*Xpert MTB/RIF is widely used for initial TB screening, with ~**33%** of newly diagnosed global TB cases tested with it.*

DIAGNOSIS

Providers should directly assess specific patient categories, including **children <5 years, highly immunocompromised individuals, and those with TB symptoms/previous positive IGRA or TST.**

Diagnostic Tests for MDR-TB

Sputum Test	Xpert MTB/RIF	Drug Susceptibility testing

*According to WHO, in 2022, **~400 mn** people were diagnosed with MDR-TB.*

TREATMENT

Before starting a patient on treatment for MDR- TB, it is to be ensured that active TB is ruled out.

A. Administer 9 months of treatment for presumed MDR TB

- ≥15 years old: Moxifloxacin 400 mg by mouth daily
- <15 years old: Levofloxacin 15–20 mg/kg by mouth daily

B. If unable to tolerate Moxifloxacin, switch to Levofloxacin:

- Adults ≥18 years: Levofloxacin 500 mg daily if ≤45.5kg; 750 mg daily if >45.5kg
- Children <18 years: Levofloxacin 15–20 mg/kg daily (max 750 mg)
- Renal failure/dialysis: Levofloxacin 750–1000 mg 3 times weekly for creatinine clearance <30 mL/min

C. If unable or unwilling to take fluoroquinolones, monitor the patient for at least two years after the last MDR TB exposure.

*Regular checkups and monitoring for **adverse effects** are necessary, and consultation with a medical practitioner is advised if any issues arise.*

KEY BURDEN AREAS

MDR-TB is a devastating disease that poses significant challenges for patients beyond the physical burden of the infection.

Key Burden Areas	Description
Financial Hardships	WHO estimates MDR-TB treatment in low-income countries at USD 4,000–6,000, while costs in high-income countries can range from USD 100,000 to USD 500,000. However, initiatives such as UNITAID's Medicine Patent Pool works with pharmaceutical companies to lower prices and enhance access to affordable MDR-TB drugs, resulting in substantial cost savings.
Lack of Mental Health Support	The psychological burden of MDR-TB, including fear of treatment failure and isolation, is often overlooked. Limited access to mental health services further undermines emotional well-being and treatment adherence.
Treatment Adherence Challenges	The complex and lengthy treatment regimen, coupled with side effects, lack of support, and logistical challenges such as transportation difficulties, can make adherence difficult, thereby compromising treatment outcomes and risking further drug resistance.
Delayed Diagnosis	Access to rapid and accurate diagnostic tests for MDR-TB is often limited, especially in resource-constrained settings. This delay in diagnosis can worsen the prognosis and increase transmission risks.

Right from understanding key issues to advising you through the right set of insights and recommendations, Aranca Research, consolidation, and insightful analysis to aid in-depth understanding of therapy and effective decision-making

HOW CAN ARANCA HELP?

01 **Patient journey mapping**: pre- and post-diagnosis, field stories and burdensome part of disease from patient and caregiver perspective.

02 **Disease Progression Modelling**: Parameters used in disease progression, disease and symptom progression

03 **Patient Breakpoint Analysis:** Understanding key pain points in the patient journey from the patient and caregiver perspective

04 **Unmet needs mapping and Quality of life(QoL)**: Disease progression, Symptoms impacting QoL, Daily activity impairment

05 **Economic Burden and Unmet Need Analysis**: Impact of a disease on the patient's economic well-being and unmet needs analysis

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