

## MULTI-DRUG RESISTANT TUBERCULOSIS

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Multi-drug resistant tuberculosis (MDR-TB), resistant to rifampicin and isoniazid, is more common in individuals previously treated for tuberculosis. The main cause of MDR-TB is transmission rather than de novo resistance during treatment. TB strains lacking catalase are typically resistant to isoniazid. Rifampicin resistance is often caused by mutations in the *rpoB* gene. Outcomes for treated MDR-TB patients are generally poor, with only around 56% achieving cure. Treating MDR-TB is challenging, requiring long, less effective, and more toxic drug regimens compared to drug-susceptible TB. The current recommended treatment spans 18-24 months and involves at least five drugs, each less potent than rifampicin, isoniazid and more toxic. Treatment is tailored to the specific drug resistance pattern, necessitating close monitoring for side effects. Directly Observed Therapy (DOT) is commonly used to ensure adherence to the complex regimen. Medications such as fluoroquinolones, injectable agents, second-line oral drugs, and other second-line drugs are employed in treatment. There are several drugs used in the treatment of drug-resistant tuberculosis, 1. Fluoroquinolones (e.g., moxifloxacin, levofloxacin), 2. Injectable agents (e.g., amikacin, kanamycin), 3. Second-line oral drugs (e.g., linezolid, bedaquiline, clofazimine) and 4. Other second-line drugs (e.g., cycloserine, para-aminosalicylic acid). The intensive phase of treatment usually involves daily administration of an injectable agent for 6-8 months, followed by a continuation phase with other drugs. Treatment regimens should be adjusted based on drug susceptibility data, discontinuing drugs to which the isolate is resistant and adding new ones to ensure at least five active drugs in the regimen. Regimens are customized based on resistance patterns and infection severity, often combining multiple drugs.

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