

Multidrug-Resistant Tuberculosis (MDR-TB)

The bacteria that cause tuberculosis (TB) can develop resistance to the antimicrobial drugs used to cure the disease.

Multidrug-resistant TB (MDR-TB) is TB that does not respond to at least **isoniazid** and **rifampicin**, the 2 most powerful anti-TB drugs.

The 2 reasons why multidrug resistance continues to emerge and spread are **mismanagement of TB treatment** and **person-to-person transmission**. Most people with TB are cured by a strictly followed, 6-month drug regimen that is provided to patients with support and supervision. Inappropriate or incorrect use of antimicrobial drugs, or use of ineffective formulations of drugs (such as use of single drugs, poor quality medicines or bad storage conditions), and premature treatment interruption can cause drug resistance, which can then be transmitted, **especially in crowded settings such as prisons and hospitals**.

In some countries, it is becoming increasingly difficult to treat MDR-TB. **Treatment options are limited and expensive,** recommended medicines are not always available, and patients experience many adverse effects from the drugs. In some cases even more severe drug-resistant TB may develop. Extensively drug-resistant TB, XDR-TB, is a form of multidrug-resistant TB with additional resistance to more anti-TB drugs that therefore responds to even fewer available medicines. It has been reported in 117 countries worldwide.

Drug resistance can be detected using special laboratory tests which **test the bacteria for sensitivity to the drugs or detect resistance patterns.** These tests can be molecular in type (such as **Xpert MTB/RIF**) or else culture-based. Molecular techniques can provide results within hours and have been successfully implemented even in low resource settings.

New WHO recommendations aim to speed up detection and

improve treatment outcomes for MDR-TB through use of a novel rapid diagnostic test and a shorter, cheaper treatment regimen. At less than US\$ 1000 per patient, the new treatment regimen can be completed in 9–12 months. Not only is it less expensive than current regimens, but it is also expected to improve outcomes and potentially decrease deaths due to better adherence to treatment and reduced loss to follow-up.

Solutions to control drug-resistant TB are to:

- ✓ Cure the TB patient the first time around
- ✓ Provide access to diagnosis
- ✓ Ensure adequate infection control in facilities where patients are treated
- ✓ Ensure the appropriate use of recommended second-line drugs.