

Frequently Asked Questions: XDR-TB

1. What is XDR-TB?

XDR-TB, an abbreviation for extensively drug-resistant tuberculosis (TB), is a form of TB which is resistant to at least four of the core anti-TB drugs. XDR-TB involves resistance to the two most powerful anti-TB drugs, isoniazid and rifampicin, also known as multidrug-resistance (MDR-TB), in addition to resistance to any of the fluoroquinolones (such as ofloxacin or moxifloxacin) and to at least one of three injectable second-line drugs (amikacin, capreomycin or kanamycin). MDR-TB and XDR-TB both take substantially longer to treat than ordinary (drug-susceptible) TB, and require the use of second-line anti-TB drugs, which are more expensive and have more side-effects than the first-line drugs used for drug-susceptible TB.

2. How do people get XDR-TB?

People may get XDR-TB in one of two ways. It may develop in a patient who is receiving treatment for active TB, when anti-TB drugs are misused or mismanaged, and is usually a sign of inadequate clinical care or drug management. It can happen when patients are not properly supported to complete their full course of treatment; when health-care providers prescribe the wrong treatment, or the wrong dose, or for too short a period of time; when the supply of drugs to the clinics dispensing drugs is erratic; or when the drugs are of poor quality.

The second way that people can develop XDR-TB is by becoming infected from a patient who is already ill with the condition. Patients with TB of the lungs can spread the disease by coughing, sneezing, or simply talking. A person needs only to breathe in a small number of these germs to become infected. However only a small proportion of people infected with TB germs develop the disease. A person can be infected by XDR-TB bacteria but not develop the active disease, just as with drug-susceptible TB

3. How easily is XDR-TB spread?

Studies suggest that there is probably no difference between the risk of transmission of XDR-TB and any other forms of TB. The spread of TB bacteria depends on factors such as the number and concentration of infectious people in any one place together, and the presence of people with a higher risk of being infected (such as those with HIV/AIDS). The likelihood of becoming infected increases with the time that a previously uninfected person spends in the same room as an infectious case. The risk of spread increases where there is a high concentration of TB bacteria, such as can occur in poorly-ventilated environments like overcrowded houses, hospitals or prisons. The risk of spread is reduced if infectious patients receive timely and proper treatment.

4. How can a person avoid becoming infected with XDR-TB?

While patients with XDR-TB may be as infectious as those with ordinary TB, the chances of a TB infection being XDR-TB is lower due to the rarity of the condition. The measures to be taken are the same as those for the prevention of ordinary TB. Close contact with a patient with infectious TB is to be avoided especially in poorly ventilated spaces. The risk of becoming infected with TB is very low outdoors in the open air. TB patients should be encouraged to follow good cough hygiene, for example, covering their mouths with a handkerchief when they cough, or even, in the early stages of treatment, using a surgical mask, especially when in closed environments with poor ventilation.

5. How can a person who already has ordinary TB avoid getting XDR-TB?

The most important thing is for the health care workers and community to provide all the means (information, counselling, and material support) that enable patients to continue taking all their treatment as prescribed. No doses should be missed and above all, treatment should be taken right through to the end. If a patient finds that side-effects are a problem, for example, the tablets make them feel sick, then they should inform their doctor or nurse, because often there is a simple solution. If they need to go away for any reason, patients should make sure they have enough tablets with them for the duration of the trip.

6. Can XDR-TB be cured or treated?

XDR-TB patients can be cured, but with the current drugs available, the likelihood of success is much smaller than in patients with ordinary TB or even MDR-TB. Cure depends on the extent of the drug resistance, the severity of the disease and whether the patient's immune system is compromised. Patients infected with HIV may have a higher mortality. Early and accurate diagnosis are important so that effective treatment is provided as soon as possible. Effective treatment requires that a good selection of second-line drugs is available to clinicians who have special expertise in treating such cases.

7. How common is XDR-TB?

XDR-TB is rare, however 77 countries worldwide had reported at least one case by the end of 2011. Information from countries with reliable data suggests that about 9% of MDR-TB cases worldwide have XDR-TB. WHO estimates that there are about 650,000 MDR-TB cases in the world at any one time. Only a small proportion of these cases are detected and treated appropriately given that many low and lower middle-income countries still lack sufficient diagnostic capacity to detect MDR/XDR-TB.

8. How do countries prevent XDR-TB?

National TB control programmes working with all health services can prevent XDR-TB by ensuring that all practitioners working with people with TB adhere to the [International Standards for TB Care](#). These emphasize providing proper diagnosis and treatment to all TB patients, including those with drug-resistant TB; assuring regular, timely supplies of all anti-TB drugs; proper management of anti-TB drugs and providing support to patients to maximize adherence to prescribed regimens; caring for MDR/XDR-TB cases in services with proper ventilation, and minimizing contact with other patients, particularly those with HIV, especially in the early stages before treatment has had a chance to reduce the infectiousness.

9. Can the TB vaccine, known as BCG, prevent XDR-TB?

The BCG vaccine prevents severe forms of TB in children, such as TB meningitis, but is less effective in preventing pulmonary TB in adults, the commonest and most infectious form of TB. It is expected that the effectiveness of BCG against XDR-TB is similar as for ordinary TB. Nevertheless, new vaccines are urgently needed, and WHO is actively advocating for the development of new vaccines.

10. What is the link between XDR-TB and HIV/AIDS? Why in some places is XDR-TB linked with HIV?

People living with HIV are at greater risk of developing TB – as well as XDR-TB - than people without HIV, because of their weakened immunity. In few places where XDR-TB strains circulate more frequently, people with HIV are therefore more likely to be infected with XDR-TB than elsewhere. To date, in most of the places with high rates of HIV infection, XDR-TB has not been widespread. For this reason, the majority of people with HIV who develop TB will have ordinary TB and can be treated with standard first-line anti-TB drugs. For those with HIV infection, treatment with antiretroviral drugs will likely reduce the risk of developing XDR-TB, just as it does with ordinary TB. Patients with both XDR-TB and HIV who do not receive antiretroviral drugs are at high risk of dying.

11. How can I tell if I might have TB or XDR-TB?

XDR-TB can only be diagnosed in a well-equipped laboratory. Symptoms of XDR-TB are no different from ordinary TB: a cough with thick, cloudy mucus (or sputum), sometimes with blood, for more than 2 weeks; fever, chills, and night sweats; fatigue and muscle weakness; weight loss; and in some cases shortness of breath and chest pain. If you have these symptoms, it does not mean you have XDR-TB. But it does mean you must go and see a doctor for a check-up. If you are already on treatment for TB, and at least some of these symptoms are not improving after a few weeks of medication, you should inform your clinician or nurse.

12. How quickly can XDR-TB be diagnosed?

If TB bacteria are found in the sputum, the diagnosis of TB can be made in a day or two. To confirm XDR-TB, however, it may take from 6 to 16 weeks.

13. Is it safe to travel to places where XDR-TB has been identified?

XDR-TB is still very rare but has been documented in many countries. People who are most at risk, if they do come into contact with someone with XDR-TB, are those with reduced immunity to infectious diseases, such as those with HIV infection or other medical conditions that can weaken a person's immunity. It is also advised that such people should avoid areas where there are no infection control measures in place. Air travel carries only very minimal risks of infection with any kind of TB. Concerned travellers should seek advice before their visit from their doctor, national authorities, or trusted travel web sites such as [WHO's](#).

14. What should be done if a person has been in contact with a known or suspected case of XDR-TB?

Anyone who has been in contact with someone known, or suspected of having, XDR-TB should consult their doctor or a local TB clinic and be screened to see if they have TB. This is most important if the person has any symptoms of TB. If they have a cough, they will be asked to provide a sample of sputum, which will be tested for evidence of TB disease. If TB is found, treatment will be started with the drugs to which the person's TB is most likely to respond. If there is any evidence of infection with TB bacteria but without TB disease, preventive treatment may be given or the person may simply be asked to attend health services periodically for a check up.

15. Should patients with XDR-TB be isolated while on treatment or after treatment options have failed?

In order to make the diagnosis, patients with suspected TB or XDR-TB are sometimes admitted to hospital. In order to protect other patients and health workers in the hospital, isolation of such patients is part of good quality care. Once the diagnosis is made and treatment begun, for patients who are willing to undergo treatment, isolation is usually neither necessary nor appropriate. Isolation has a very limited role to play in patients in whom treatment has failed. Studies have shown that treating TB patients at home with appropriate infection measures in place generally poses no substantial risk to other members of the household. By the time a diagnosis is made, the household contacts have already been exposed to the patient's infection. However, in the absence of options for curative treatment, all infection control measures at household should be strengthened. Whenever this is not feasible then options for voluntary isolation and delivery of palliative and end of life care should be offered to the patient.

16. What risks do health-care workers face with XDR-TB, particularly those who may be HIV-positive themselves?

To protect health-care workers who may come into contact with infectious TB patients, appropriate and strict infection control measures must be implemented in health-care facilities at all times. Health-care workers are also encouraged to make sure that they are aware of their HIV status so that they can restrict putting themselves at risk of exposure.

17. What is WHO doing to combat XDR-TB?

Firstly, WHO is ensuring that the health authorities responsible for TB care and control receive accurate information about XDR-TB. Latest information on XDR-TB, and related TB issues, are published on the [WHO Stop TB web site](#). Secondly, WHO advises that good TB prevention, care and control prevents the emergence of drug resistance in the first place, and that the proper treatment of MDR-TB prevents the emergence of XDR-TB. Thirdly, WHO is regularly updating its guidance to Ministries of Health on the management of drug-resistant TB patients and diagnostic policies.

Further information

Centers for Disease Control and Prevention. Emergence of Mycobacterium tuberculosis with extensive resistance to second-line drugs worldwide. MMWR Morb Mortal Wkly Rep 2006; 55: 301-305.

Guidelines for the programmatic management of drug-resistant tuberculosis: Emergency Update 2008. WHO/HTM/TB/2008.402. Geneva, World Health Organization, 2008.

The Tuberculosis Coalition for Technical Assistance. International Standards of Care. 2006. Available from: www.who.int/tb/publications/2006/istc_report_shortversion.pdf

Resolution WHA62.15. Prevention and control of multidrug-resistant tuberculosis and extensively drug-resistant tuberculosis. In: Sixty-second World Health Assembly, Geneva, 18–22 May 2009, Resolutions and decisions; annexes. Geneva, World Health Organization, 2009 (WHA62/2009/REC/1):25–29. Available from: apps.who.int/gb/ebwha/pdf_files/WHA62-REC1/WHA62_REC1-en.pdf

Towards universal access to diagnosis and treatment of multidrug-resistant and extensively drug-resistant tuberculosis by 2015. WHO progress report 2011. WHO/HTM/TB/2011.3. Geneva, World Health Organization, 2011

Multidrug and extensively drug-resistant TB (M/XDR-TB): 2010 global report on surveillance and response. WHO/HTM/TB/2010.3. Geneva, World Health Organization, 2010.

Global Tuberculosis Control 2011. WHO/HTM/TB/2011.16. Geneva, World Health Organization, 2011.

Guidance on ethics of tuberculosis prevention, care and control. WHO/HTM/TB/2010.16. Geneva, World Health Organization, 2010.

26 January 2012