

TB Elimination

Extensively Drug-Resistant Tuberculosis (XDR TB)

What is Extensively Drug-Resistant Tuberculosis (XDR TB)?

Extensively drug resistant TB (XDR TB) is a rare type of multidrug-resistant tuberculosis (MDR TB) that is resistant to isoniazid and rifampin, plus any fluoroquinolone and at least one of three injectable second-line drugs (i.e., amikacin, kanamycin, or capreomycin). MDR TB is caused by an organism that is resistant to at least isoniazid and rifampin, the two most potent TB drugs.

How is XDR TB spread?

Drug-susceptible TB and XDR TB are spread the same way. TB bacteria are put into the air when a person with TB disease of the lungs or throat coughs, sneezes, shouts, or sings. These bacteria can float in the air for several hours, depending on the environment. Persons who breathe in the air containing these TB bacteria can become infected.

TB is not spread by

- shaking someone's hand
- sharing food or drink
- touching bed linens or toilet seats
- sharing toothbrushes
- kissing

Why is XDR TB so serious?

Because XDR TB is resistant to the most potent TB drugs, the remaining treatment options are less effective, have more side effects, and are more expensive. XDR TB is of special concern for persons with HIV infection or other conditions that can weaken the immune system. These persons are more likely to develop TB disease once they are infected, and they also have a higher risk of death if they develop TB disease.

Who is at risk for getting XDR TB?

Drug-resistant TB (MDR or XDR) is more common in people who:

- Do not take their TB medicine regularly
- Do not take all of their TB medicines as prescribed by their doctor
- Develop TB disease again, after having taken TB medicine in the past
- Come from areas of the world where drug-resistant TB is common
- Have spent time with someone known to have drug-resistant TB disease

How can I prevent myself from getting TB?

Avoid close contact for a prolonged period of time with known TB patients in crowded, enclosed environments like clinics, hospitals, prisons, or homeless shelters.

Can the TB vaccine (BCG) help prevent XDR TB?

The TB vaccine is called Bacille Calmette-Guérin (BCG), and it is used in many countries to prevent severe forms of TB in children. However, BCG is not generally recommended in the United States because it has limited effectiveness for preventing the most common forms of TB and in preventing TB in adults. The effect of BCG against XDR TB would likely be similar to the effect on drug-susceptible TB.

If I have drug-susceptible TB, how can I prevent getting drug-resistant TB?

The most important thing is for you to continue taking all your TB medicines exactly as prescribed. No doses should be missed and treatment should

not be stopped early. You should tell your health care provider if you are having trouble taking the medications or if you have any side effects. If you plan to travel, talk with your health care provider, and make sure you have enough medicine to last while away.

Can XDR TB be treated and cured?

Yes, in some cases. Some TB control programs have shown that cure is possible for an estimated 30% to 50% of affected people. Successful outcomes depend greatly on the extent of the drug resistance, the severity of the disease, whether the patient's immune system is weakened, and adherence to treatment.

What are the symptoms of XDR TB?

The general symptoms of TB disease include feelings of sickness or weakness, weight loss, fever, and night sweats. The symptoms of TB disease of the lungs may also include coughing, chest pain, and coughing up blood. Symptoms of TB disease in other parts of the body depend on the area affected. If you have these symptoms, you should contact your doctor or local health department.

What should I do if I have been around someone who has XDR TB?

If you think you have been exposed to someone with XDR TB disease, you should contact your doctor or local health department about getting a TB skin test or blood test for TB infection. You should tell the doctor or nurse when you spent time with this person. You should also tell the doctor or nurse where the person with XDR TB is being treated. It will be important to know about this person's treatment. If your test for TB infection is positive, you will need special follow up.

How long does it take to find out if you have XDR TB?

If TB bacteria are found in the sputum (phlegm), the diagnosis of TB can be made in a day or two, but this finding will not be able to distinguish between drug-susceptible TB and drug-resistant

TB. To determine drug susceptibility, the bacteria need to be grown and tested in a specialized laboratory. Final diagnosis for TB, and especially for XDR TB, may take from 6 to 16 weeks.

Is XDR TB a problem in the U.S?

The risk of acquiring XDR TB in the United States appears to be low because XDR TB is uncommon in the U.S. However, TB can spread easily. As long as XDR TB exists, the risk to people in the United States is not zero, and the U.S. public health system must address the threat.

How many cases of XDR TB have been reported in the U.S.?

In the United States, 57 cases of XDR TB have been reported between 1993 and 2010*.

Is it safe to travel to countries where cases of XDR TB have been reported?

Although MDR and XDR TB are occurring globally, they are still rare. HIV-infected travelers are at greatest risk if they come in contact with a person with MDR or XDR TB.

All travelers should avoid high risk settings where there are no infection control measures in place. Documented places where transmission has occurred include crowded hospitals, prisons, homeless shelters, and other settings where susceptible persons come in contact with persons with TB disease.

What can health care providers do to prevent XDR TB?

Health care providers can help prevent MDR and XDR TB by quickly diagnosing TB cases, following recommended treatment guidelines, monitoring patients' response to treatment, and making sure therapy is completed.

*The National Tuberculosis Surveillance System (NTSS) 1993-2010.

Providers should also ensure proper implementation of infection control procedures to prevent exposure to TB in hospitals or health-care settings where TB patients are likely to be seen.

Why does there seem to be more cases of XDR TB now than there were in the past?

In 2006, CDC, the World Health Organization (WHO), and other global leaders in TB reported the results of a survey regarding drug-resistant TB conducted by 25 reference laboratories comprising the Global Supranational TB Reference Laboratory Network, the National TB Surveillance System in the United States, the national reference laboratory of South Korea, and the national MDR TB patient registry in Latvia. The findings indicated that 20% of *M. tuberculosis* isolates were MDR, and 2% also were resistant to many additional TB drugs. This highly resistant form of TB was identified in every region of the world where there was lab capacity to identify it. In a report published in 2006, the highly resistant form of TB was named XDR TB. Since then, more countries have improved their laboratory capacity to test for XDR TB and their ability to report XDR TB. These factors have contributed to an apparent increase in drug-resistant TB because of better diagnosis and better reporting.

What is CDC doing to prevent TB from becoming a bigger problem both domestically and globally?

CDC is collaborating with other federal agencies and international partners to raise awareness and enhance strategies for TB prevention worldwide by:

- Strengthening TB services for people living with HIV/AIDS;
- Guiding preparedness and outbreak investigation responses;
- Improving access to TB drugs;
- Conducting routine surveillance (including drug susceptibility) and periodic surveys;

- Implementing new, rapid diagnostic tests;
- Developing and promoting, national and international TB testing standards;
- Conducting program evaluation (e.g., National TB Indicators Project [NTIP]);
- Building capacity of health care providers to diagnose and treat TB;
- Reinvigorating the Federal TB Task Force;
- Providing assistance to improve TB program capacity in the U.S. and abroad; and
- Developing education, risk, and media communications (Web- and print-based) to aid in preparedness and public awareness of TB prevention and control issues.

Additional Information

1. CDC. Extensively Drug-Resistant Tuberculosis Information. <http://www.cdc.gov/tb/topic/drtb/xdrtb.htm>
2. CDC. Questions and Answers About TB. <http://www.cdc.gov/tb/publications/faqs/default.htm>
3. CDC. Tuberculosis: General Information. <http://www.cdc.gov/tb/publications/factsheets/general/tb.htm>
4. CDC. Multidrug Resistant Tuberculosis. <http://www.cdc.gov/tb/publications/factsheets/drtb/mdrtb.htm>
5. CDC. Tuberculosis Information for International Travelers. <http://www.cdc.gov/tb/publications/factsheets/general/tbtravelinfo.htm>
6. CDC. Extensively Drug-Resistant Tuberculosis—United States, 1993—2006. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5611a3.htm>
7. CDC. CDC's Role in Preventing XDR TB. <http://www.cdc.gov/tb/publications/factsheets/drtb/cdcandxdrtb.htm>

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