

DRUG-RESISTANT TUBERCULOSIS (TB)

THREAT LEVEL **SERIOUS**



847
Cases
in 2017



62
Deaths
in 2017



\$164,000
Per MDR case
\$526,000
Per XDR case

TB is caused by *Mycobacterium tuberculosis*, bacteria that usually attack the lungs. Drug-resistant TB develops when the antibiotics used to treat TB are misused or mismanaged, and it can spread.

WHAT YOU NEED TO KNOW

- TB spreads from person to person through the air. It is one of the world's most deadly infectious diseases.
- In most cases, TB is curable; however, people with TB can die without proper treatment. Treatment for drug-resistant TB is costly, lengthy, disrupts lives, and can have life-threatening side effects.
- MDR TB is resistant to two first-line antibiotics. XDR TB is resistant to some first- and second-line antibiotics.
- The number of drug-resistant TB cases in the United States remain stable due to effective control strategies.

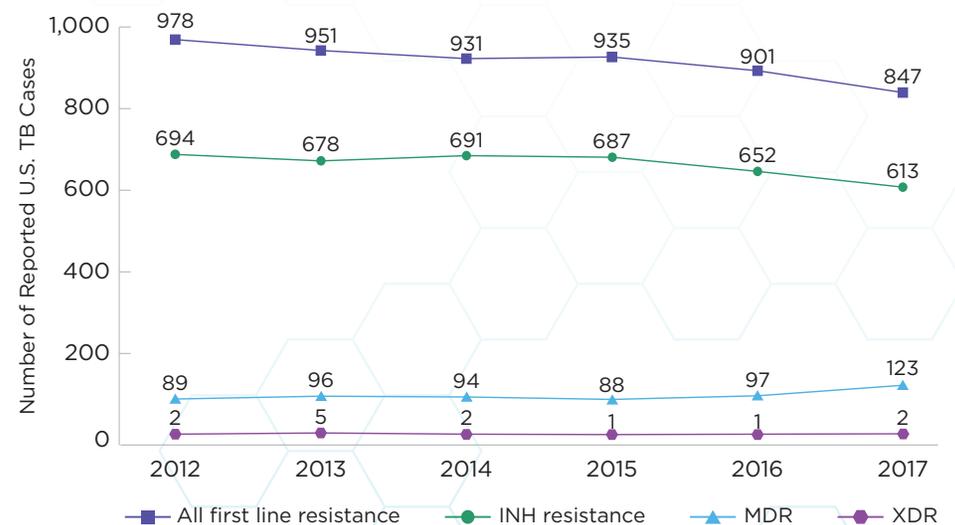
Data represents U.S. cases only. MDR: multidrug-resistant. XDR: extensively drug-resistant.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CASES OVER TIME

TB is most commonly resistant to isoniazid, one of the first-line TB antibiotics (called INH resistance).



TOXIC SIDE EFFECTS FROM TB TREATMENT

Dr. Dalene von Delft was a newly qualified doctor in South Africa when her dreams of becoming a pediatric surgeon were shattered. Dalene contracted MDR TB. Treatment took 19 harrowing months.



Dalene had to inject toxic second-line antibiotics that can cause severe side effects. She took 30 pills a day—24 for TB and six for the side effects of TB treatment. The treatment made her so ill that she started to go deaf. Dalene had to make potentially life-threatening decisions to stop treatment to preserve her hearing and career. She often listened to music, worried the songs would be the last she ever heard.

MDR TB affects people in the United States and around the world. Dalene recovered due to a new treatment that was in development. She founded a campaign to help protect healthcare workers and medical students against work hazards. CDC continues to work to stop the spread of TB and protect the health of all people.

TYPES OF RESISTANCE

TB treatment requires four first-line antibiotics: rifampin, isoniazid, pyrazinamide, and ethambutol. When TB becomes resistant to any of these drugs, it limits treatment options and puts the patient at risk for untreatable TB.



DRUG-RESISTANT TB

Resistant to 1 of 4 first-line antibiotics used to treat TB. The most common is INH-resistant TB, which is resistant to isoniazid.



MDR TB

Resistant to 2 of 4 first-line antibiotics, isoniazid and rifampin—the most potent drugs to treat TB.



XDR TB

Rare type of MDR TB that is also **resistant to at least 1 of the 3** second-line antibiotics, including fluoroquinolones. Second-line antibiotics can be toxic and cause severe side effects.



First-line antibiotics



Second-line antibiotics



ONLINE RESOURCES

About Drug-resistant TB

www.cdc.gov/TB/Topic/DRTB

TB Personal Stories

www.cdc.gov/TB/Topic/Basics/PersonalStories.htm