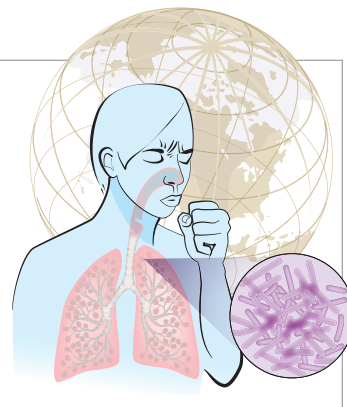


## What is Tuberculosis (TB)?

TB is a contagious disease that is transmitted from person to person through coughing and breathing in airborne droplets that contain bacteria. TB primarily affects the lungs, but can affect any part of the body. As one of the most common infections in the world, TB remains a major problem in many countries and among vulnerable populations.



### What causes TB?

TB is caused by slow-growing bacteria called *Mycobacterium tuberculosis*. When these bacteria enter the lungs, they are usually walled off into harmless capsules (granulomas) in the lung, causing **infection** but not disease. These capsules may later wake up weeks, months or decades later causing **active TB disease**.

### Who gets TB infection and TB disease?

People who are more likely to acquire **TB infection** are the following: (1) People recently exposed to someone who has symptomatic TB disease; (2) People who live in congregate settings with high risk persons; (3) People who live or have lived in countries where TB is common; or (4) People who are health care workers who are in contact with TB patients when proper infection control procedures are not followed. Many people who acquire TB infection do not have symptoms and may never develop TB disease. These people have **latent** TB infections (LTBI). However, people with TB infection who have weaker immune systems due to diabetes, HIV infection, kidney failure, or take certain immunosuppressive medications such as TNF-alpha blockers may be more likely to develop active **TB disease** with symptoms.

### What are the signs and symptoms of TB disease?

Symptoms are usually mild and tend to present over a period of weeks, months, or sometimes years. TB disease symptoms are often initially mistaken for a smoker's cough, allergies, or chronic bronchitis from a lingering cold or flu infection. TB infection most often

affects the lungs but can cause problems in other parts of the body. The classic symptoms of TB in the lungs include:

- Cough lasting more than three weeks
- Unexplained weight loss
- Low-grade fever
- Night sweats

If you have these symptoms, you should check with your health care provider.

### How is TB diagnosed?

Given that latent TB infection is asymptomatic, infection must be diagnosed using a screening test, either a **tuberculin skin test (TST)** or a blood test called an **interferon gamma release assay (IGRA)**. The TB skin test is also called a Mantoux test or a PPD skin test because the material used in the skin test is called purified protein derivative (PPD). These tests detect the immune response our body mounts to components of *Mycobacterium tuberculosis*. A positive result indicates that a person has been infected with the tuberculosis bacteria at some point in his or her life.

TB disease is suspected clinically when a person presents with the symptoms mentioned above usually together with abnormal findings on a chest x-ray. If TB disease is suspected, the person should be isolated from the public until the diagnosis is made and treatment is started as he or she can be contagious and transmit *Mycobacterium tuberculosis* to others.

TB disease is often diagnosed by microscopic examination of three separate samples of sputum (phlegm) often collected on different days. The sputum

is first looked at under a microscope using a special dye (acid fast bacillus AFB stain) to see if any tuberculosis bacteria can be found. It is not always positive as there may be only a small number of bacteria so a culture is always needed. **Sputum cultures** are done to grow the bacteria to confirm the diagnosis and determine the best combination of drugs for treatment. Bronchoscopy is sometimes needed to obtain lung samples if a patient is unable to produce sputum. In addition to these tests, chest X-ray and CT chest imaging are performed to evaluate for any lung abnormalities. If TB is suspected in a different part of the body, a different sample or a tissue biopsy may be needed. (To learn more about bronchoscopy, see the ATS Patient Information Series “Flexible Bronchoscopy” at [www.thoracic.org/patients](http://www.thoracic.org/patients))

### How is TB treated?

Treatment of **latent TB infection** consists of 1 or 2 oral medications that kill the bacteria and greatly reduces the risk of the infection progressing to TB disease immediately and later in life. There are several treatment options that include isoniazid taken daily for six to nine months, rifampin taken daily for 3 to 4 months or isoniazid plus rifapentine taken once weekly for 12 weeks. If you have or are at risk for liver disease, your doctor may need to follow your liver blood tests to ensure these medications do not cause any harm.

**TB disease** is usually treated with 4 anti-TB medications for at least six months. If TB is in the bones, brain or other hard-to-reach areas, treatment will be longer. This can mean taking 6-12 pills per day! Many patients find this difficult without the support of workers trained in providing directly observed treatment (DOT). DOT is the universal standard for treating TB worldwide. DOT helps detect side effects early and prevents missed doses and breaks in treatment that reduce the benefit of treatment and can lead to drug-resistant strains of bacteria.

### How can I prevent TB?

TB is spread by tiny airborne droplets created by coughing. It is not spread by sharing food, utensils, drinks, touching, or having sex. Covering the mouth and nose when coughing is an important way to stop the spread of TB and other airborne diseases. If you have TB disease and are coughing, it is important to wear a mask and limit contact with others until your health care provider tells you that you are no longer

contagious while on treatment. Seeking care right away and finding out you have TB is the best way to stop its spread since treatment of disease helps you not be contagious, decreasing transmission.

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## Rx Action Plan

- ✓ Symptoms of TB should prompt you to see your health care provider without delay.
- ✓ You should ask specifically about the possibility of TB because the diagnosis may not be on your health care provider’s mind.
- ✓ Contact your health care provider if you have had exposure to a person with TB. You should also contact your provider if you have symptoms of TB and if you have lived, worked, or had prolonged travel in a country or area where TB is common. For example, Asia, Africa, Eastern Europe, Central and South America are endemic for TB, as are some inner cities where the poor and homeless congregate.
- ✓ TB disease is often preventable! Knowing your “TB status” is important because, if needed, treatment of TB infection will kill the few TB bacteria in your body before it progresses into active TB disease.

**Healthcare Provider’s Contact Number:**

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### Resources:

**World Health Organization**

<http://www.who.int/tb/en/>

**U.S. Centers for Disease Control**

<https://www.cdc.gov/tb/>

**U.S. National Library of Medicine–Medline Plus**

<https://medlineplus.gov/tuberculosis.html>

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