

Tuberculosis

What is tuberculosis?

Tuberculosis (TB) is an infectious disease that can lead to ill health for a long time. Almost everyone who is properly treated for TB is cured. If TB is not treated, it can cause death.

What is the cause?

TB is caused by a type of bacteria called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs. They can destroy parts of the lungs, making it hard to breathe. The bacteria can spread to and damage other parts of the body, especially the brain, kidneys, bones, and joints. The lymph nodes can also become infected.

Most people who are infected with TB bacteria do not develop active TB; that is, they do not become sick and usually do not infect others. Their body defenses control the infection by building a wall around the bacteria. This is called latent or inactive TB. The walling-in process does not kill the bacteria, but the bacteria stop growing. If you have latent TB and later—even years later—become weak, ill, or undernourished, the TB bacteria may become active. The bacteria can then grow again and you may start having active TB.

If you are exposed to a large amount of TB bacteria, you may become ill with active TB soon after you are first infected with the bacteria.

TB is very contagious. It is spread mainly through the air. A person who has active TB can spread the disease by spraying droplets infected with the bacteria into the air by coughing, sneezing, speaking, singing, or laughing.

What are the symptoms?

The symptoms of TB can begin anytime from 2 months to several years after you are exposed. Possible symptoms are:

- Tiredness
- Weight loss and loss of appetite
- Fever
- Sweating at night
- Joint pain
- A cough that starts out dry but later produces sputum

Sometimes there are no symptoms.

How is it diagnosed?

Your healthcare provider will ask about your symptoms and give you a physical exam. You will need to have a tuberculin skin test, chest X-ray, and sputum culture:

- **Tuberculin skin test:** Your healthcare provider will inject a substance called tuberculin into your skin. If you are infected with TB, a lump will form where this shot was given within 3 days. This reaction is called a positive tuberculin test. It means that TB bacteria have invaded your body. It does not necessarily mean you have active, infectious TB. In fact, most people with positive tuberculin tests do not have active TB. If your test is positive, close family members should also have the test.

It is very important to follow your provider's instructions regarding follow-up after your TB test. In most cases you will be asked to come back 48 to 72 hours after you had the test so it can be checked. If your test created a lump on the skin, the lump will be measured to see if it's large enough to be considered a positive test.

A 2-step test method is used for older people because they may have a poorer immune response. If the first test is negative, the test is repeated in 7 to 10 days.

Many people born outside of the US have been vaccinated against TB with the BCG (Bacillus Calmette-Guérin) vaccine. This vaccine is not routinely given in the US. It may cause the skin to have a reaction after a TB skin test so that it looks like you have or had TB even when you do not. If you have had the BCG vaccine, be sure to tell your healthcare provider.

- **Chest X-ray:** If you have breathed in TB bacteria but have fought off the infection, your lungs may not be damaged and your chest X-ray may be normal. However, if you have an active infection and bacteria have attacked your lungs, the infection will show on a chest X-ray.
- **Sputum exam and culture:** Sputum is material coughed up from the lungs. It may include mucus and blood. A sample of sputum coughed up from the lungs can be viewed with a microscope to see if there are TB bacteria in the sputum. A culture test can be done to see if TB bacteria can be grown from the sputum. If TB bacteria do grow, you have TB. It may take up to 6 to 8 weeks for a sputum culture to give definite results.

How is it treated?

If you have active TB, you will be treated with medicines at home or in the hospital. You will probably be given several medicines, which you will need to take for several months. You usually have to take more than one medicine because one alone may not kill all the TB bacteria.

The medicines have side effects and can upset the stomach or cause liver problems. You will need to have blood tests while you are taking these drugs.

If your TB skin test is positive but you do not have active TB, you have latent TB and you will probably still need some treatment with medicine to kill the TB bacteria and prevent an active infection. This is especially important if you have other medical problems, such as diabetes, that make it harder for you to fight infections.

Tuberculosis has become a more common disease. New strains of the TB bacteria sometimes cannot be killed by the usual drugs and new treatments must be found. These new strains are called resistant TB, meaning that the TB bacteria have become resistant to the usual medicines.

Quarantine is a very old way to prevent disease and it is still used sometimes. It means that someone who is infected is kept separate from uninfected people. Sometimes people who have just been diagnosed with active TB have to be quarantined for a brief time. Because TB is so contagious and because the bacteria tend to be in every cough, sneeze, and breath, you may be quarantined for a few days or a couple weeks until your healthcare providers believe you can no longer infect others. Quarantine is especially important if you have an active TB infection with one of the resistant types of bacteria.

TB bacteria are more likely to become resistant if people who have TB do not take their TB medicines on the recommended schedule. To try to prevent the development of resistant strains, take your medicines exactly as your healthcare provider has directed.

How can I take care of myself?

Follow your healthcare provider's instructions. Ask your provider:

- How and when you will hear your test results
- How long it will take to recover
- What activities you should avoid and when you can return to your normal activities
- How to take care of yourself at home
- What symptoms or problems you should watch for and what to do if you have them

Other questions you may want to ask include:

- What kind of diet is best?
- How long after I start taking the medicines am I still contagious?
- If I am pregnant or breast-feeding, will the TB bacteria infect my child? Will the medicines I am taking hurt my child?
- How can I help keep my family and friends from getting infected?
- What are the side effects of the medicines?
- Are there any medicines I should avoid while taking the TB medicines?
- Can I drink alcohol while I am taking the TB medicines?

Make sure you know when you should come back for a checkup.

How can I help prevent tuberculosis?

To help keep the TB from spreading, people infected with TB bacteria must be diagnosed early.

If you have active TB, you can help prevent spread of the disease by following these guidelines:

- Start treatment with antibiotics as early as possible. Take all of your TB medicine exactly as prescribed.
- Put used tissues in a plastic bag and seal the bag before you throw it in the garbage. Keep disposing of used tissues in this way until your healthcare provider tells you that you are not contagious any more.
- Cover your mouth and nose when you cough, sneeze, or laugh.
- Wash your hands after sneezing or coughing or any time your hands are around your mouth or nose.

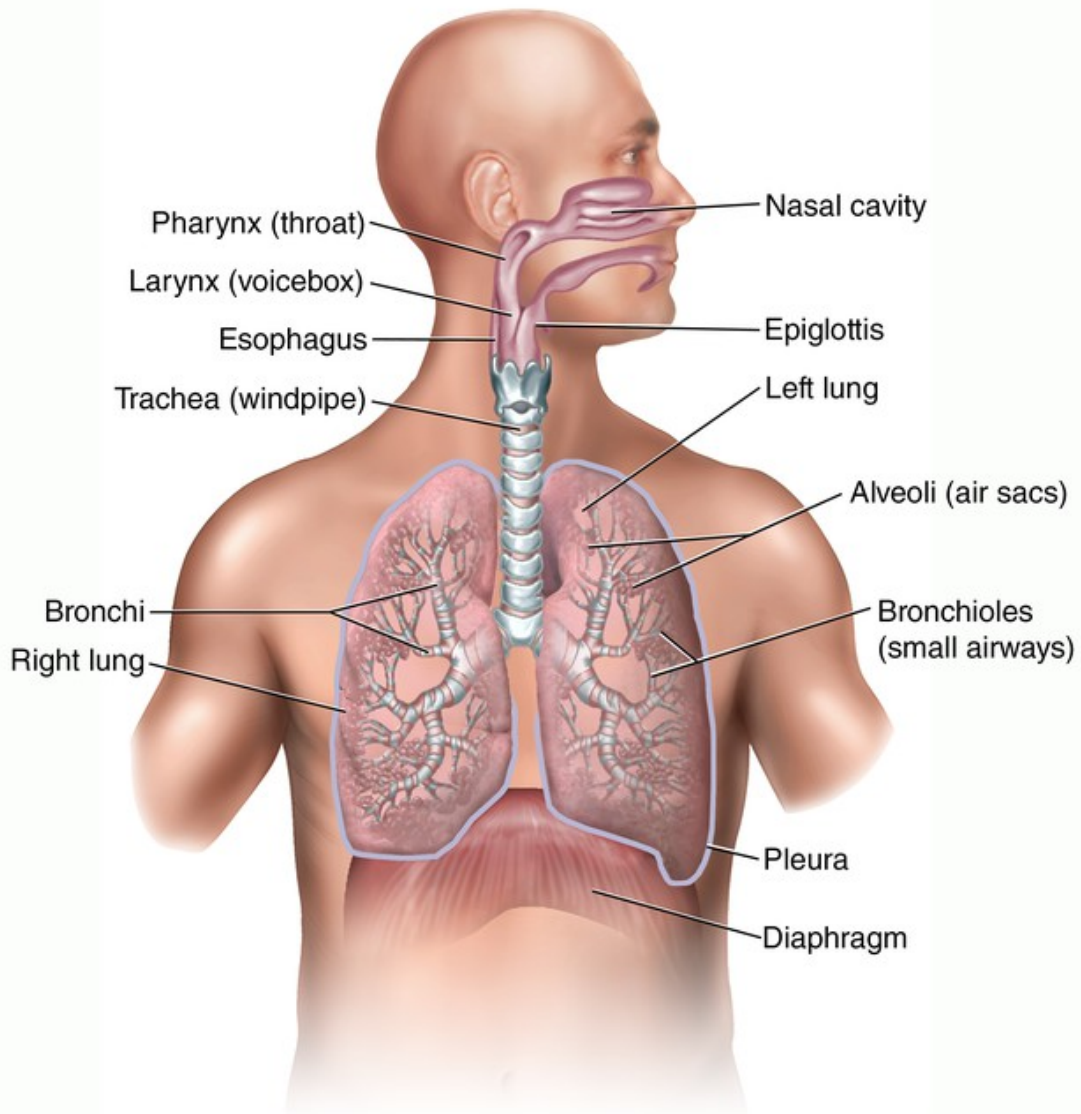
If you have latent TB, your provider may prescribe isoniazid to prevent an active infection. If you cannot take preventive medicine, make sure you keep your follow-up appointments with your provider. Checkups will find TB that is becoming active. The active TB can then be treated at an early stage before much, if any, lung damage is done and before many other people are infected.

If you work in a prison, hospital, or long-term care facility, or if you work with groups of people who have a high rate of TB, you should be tested for TB regularly. Check with your provider to find out how often you should be tested. You should also ask how often you should be checked for TB if you have a medical problem that weakens your immune system, such as diabetes or HIV infection.

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Respiratory System



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