CONDITION

Tuberculosis (TB)

Tuberculosis is a bacterial infection that usually affects the lungs but can involve almost any part of the body.

WHAT IT IS
Bacterial infection that most often affects the lungs

BODY SYSTEM
Lungs and potentially any body system

MAIN SYMPTOMS
Persistent cough, fever, night sweats, weight loss

WHAT CAUSES IT
Infection with Mycobacterium tuberculosis bacteria

HOW IT IS DIAGNOSED
Molecular testing and culture of sputum or affected tissue

MAIN TREATMENT
Several antibiotics taken together for months

CAN IT BE CURED?
Yes - effective antibiotics usually clear the infection

IS IT AN EMERGENCY?
Sometimes - severe breathing trouble or major bleeding

LONG-TERM OUTLOOK
Most people recover with complete, effective treatment

Overview

Tuberculosis, usually called TB, is an infection caused by bacteria called Mycobacterium tuberculosis . It most often affects the lungs. It can also affect lymph nodes, bones, the brain, kidneys, abdomen, or other parts of the body.

TB has two main forms:

TB matters because untreated active infection can damage organs and spread to other people. It is usually curable with the right combination of antibiotics like amoxicillin or doxycycline . Treatment must be completed carefully because missed or ineffective treatment can allow the bacteria to become resistant to medicines.

- Inactive TB infection , also called latent TB, means the bacteria are present but controlled by the immune system. You do not have symptoms and cannot spread TB to other people.
- Active TB , sometimes called TB disease, means the bacteria are multiplying and causing illness. Active TB in the lungs or throat can spread through the air.

Symptoms

Active TB in the lungs can develop slowly. Symptoms may be mild at first and continue for weeks or months.

Common symptoms include:

Symptoms outside the lungs depend on which body part is affected. TB in lymph nodes may cause a painless swelling, often in the neck. TB affecting bones or joints may cause ongoing pain and reduced movement. TB in the abdomen can cause pain or swelling.

TB around the brain and spinal cord, called TB meningitis, may cause severe headache, confusion, vomiting, neck stiffness, or unusual sleepiness. This requires urgent hospital assessment.

Inactive TB infection causes no symptoms. A person can feel completely well while carrying the bacteria.

These symptoms can have many causes other than TB. Testing is needed to find out what is causing them.

- A cough that does not go away
- Coughing up mucus or blood
- Chest pain, especially when coughing or breathing
- Fever or chills
- Heavy sweating during sleep
- Unexplained weight loss
- Poor appetite
- Tiredness or weakness

Causes and risk factors

TB spreads through tiny airborne particles released when someone with active TB in the lungs

or throat coughs, speaks, sings, or sneezes. Spread is more likely after prolonged or repeated time together in an enclosed, poorly ventilated space.

TB does not usually spread through handshakes, shared plates, toilet seats, clothing, or touching objects.

Not everyone who breathes in the bacteria becomes ill. The immune system may contain the infection for years. Active TB can sometimes develop soon after infection or later if immune control weakens.

The chance of exposure or active illness is higher for people who:

Having a risk factor does not mean that you have TB. It helps a healthcare team decide whether testing is appropriate.

- Live with or spend substantial indoor time with someone who has infectious TB
- Have recently lived in or travelled for an extended period where TB is common
- Live or work in crowded settings where exposure may occur
- Have HIV or another condition that weakens the immune system
- Take medicines that suppress immune activity
- Are very young or older
- Have poor nutrition, diabetes, silicosis, or severe kidney problems
- Smoke or have harmful alcohol or drug use

Diagnosis

Testing for TB may involve several steps. No single screening test can show everything about the infection.

A TB blood test, called an interferon-gamma release assay or IGRA, checks whether the immune system has reacted to TB bacteria. A tuberculin skin test checks for a similar immune response in the skin. These tests can support a diagnosis of TB infection, but they cannot by themselves tell whether the infection is active.

A chest X-ray can look for changes that suggest lung TB. However, an X-ray does not confirm the cause, and some people with TB may have less typical findings.

If active lung TB is suspected, you will usually be asked to provide sputum, which is mucus coughed up from deep in the lungs. Testing may include:

Culture provides important confirmation but can take several weeks because TB bacteria

grow slowly. Treatment may begin before culture results are complete when the overall evidence strongly suggests active TB.

For TB outside the lungs, fluid or a small tissue sample may be taken from the affected area. Imaging such as ultrasound, CT, or MRI may also be needed.

Public health teams may arrange testing for household members and other close contacts. This is a routine part of limiting spread, not a sign that every contact has become infected.

- A rapid molecular test that looks for genetic material from TB bacteria
- Microscopy to look for bacteria in the sample
- Culture, in which the laboratory grows the bacteria
- Drug-susceptibility testing to find which antibiotics will work

Treatment and management

Active TB is treated with several antibiotics together. Using multiple medicines helps kill bacteria at different stages and lowers the chance of drug resistance.

Treatment usually lasts for months. The exact combination and length depend on where the TB is located, whether the bacteria are sensitive to standard medicines, your age and general health, and how you respond. TB affecting the brain, bones, or other sites may need a different approach.

It is important to take every medicine as arranged and not stop when you begin to feel better. Some bacteria may still be present after symptoms improve. A TB service may use in-person or video-supported treatment to help you complete the course.

Blood tests and other checks may be needed during treatment. TB antibiotics can cause side effects or interact with other medicines. Tell the treatment team about all prescription medicines, over-the-counter products, supplements, and hormonal contraception you use.

Contact the treatment team promptly if you develop yellow skin or eyes, dark urine, severe nausea, marked loss of appetite, changes in vision, numbness, a widespread rash, or another concerning symptom. Some TB medicines can harmlessly turn urine, sweat, saliva, or tears orange-red, but the team should explain what to expect.

Drug-resistant TB means that some standard antibiotics cannot kill the bacteria. Treatment then uses medicines selected from laboratory results and often needs specialist supervision. It can still be treated, although the course may be more complex.

Inactive TB infection may be treated with preventive antibiotics to reduce the chance of active TB developing later. The decision considers your test results, exposure history, age, immune

health, and the possible benefits and harms of treatment.

Complications

Without effective treatment, active TB can damage the lungs or other affected organs. Lung damage may lead to long-term breathlessness, repeated chest infections, or coughing up blood.

TB can spread through the bloodstream. This is called disseminated or miliary TB and can involve several organs. TB meningitis can damage the brain and nerves. TB affecting the spine can weaken bones and, in severe cases, press on the spinal cord.

Treatment can also become more difficult if the bacteria develop resistance. This is more likely when an antibiotic combination is ineffective, medicines are not absorbed properly, or treatment is repeatedly interrupted.

Early assessment, appropriate antibiotic testing, and completing treatment reduce these risks.

Prevention

TB cannot always be prevented. Someone may be exposed without knowing it, and inactive infection can remain silent for years. However, several measures can lower the risk of infection or later illness.

Finding and treating active TB limits the time that bacteria can spread. If you have infectious lung TB, the TB team will explain how long to avoid close contact, work, school, or shared indoor spaces. This is based on your symptoms, test results, treatment, and local public health advice.

Good ventilation and properly fitted respiratory masks can reduce airborne spread in higher-risk settings. Covering coughs and following the TB team's instructions also help. Ordinary surface cleaning alone does not prevent airborne transmission.

Testing close contacts can find active TB early and identify inactive infection that may benefit from preventive treatment.

The bacille Calmette-Guérin vaccine, usually called BCG, offers useful protection against some severe forms of TB in children. It does not give complete protection against lung TB. Who is offered BCG differs by country and individual risk.

Living with it and what to expect

Many people with drug-sensitive TB start to feel better within the early part of treatment, but improvement does not mean treatment is finished. Cough, tiredness, and reduced stamina may take longer to settle.

You may need regular appointments, sputum samples, blood tests, or imaging. These visits check whether treatment is working and whether medicines are causing problems. If a medicine is difficult to take, tell the TB team rather than stopping it on your own. They may be able to manage side effects or adjust the treatment safely.

Temporary limits on close indoor contact can feel isolating. These restrictions are generally used only while there is a meaningful risk of spread. The treatment or public health team will tell you when normal contact, work, or school can resume.

Most people complete treatment and recover. Some have lasting effects, particularly after extensive lung, bone, brain, or nerve involvement. Follow-up may include breathing assessment, rehabilitation, or care for the affected organ.

After successful treatment, TB can occur again through relapse or a new infection. Seek assessment if persistent cough, fever, night sweats, or unexplained weight loss returns.

When to get medical help

Arrange a prompt medical assessment if you have a cough lasting several weeks, especially with fever, night sweats, weight loss, chest pain, or blood-streaked mucus. You should also seek assessment if you have had close contact with someone diagnosed with active TB, even if you feel well.

If you are taking TB medicines, contact your treatment team promptly about significant side effects, missed doses, or difficulty keeping the medicines down. This is routine follow-up and helps the team keep treatment safe and effective.

Seek emergency medical care if you have:

If possible, tell emergency staff that TB is suspected or being treated. They can use the right infection-control measures while caring for you.

- Severe difficulty breathing
- More than a small amount of coughed-up blood
- Fainting, severe weakness, or signs of shock
- A severe headache with confusion, neck stiffness, seizures, or unusual drowsiness

- Swelling of the face or throat, widespread blistering rash, or breathing difficulty after medicine

Common questions

Is TB contagious?

Active TB in the lungs or throat can spread through the air. Inactive TB cannot spread to other people. TB affecting only another body part is often not contagious, although lung involvement may need to be ruled out.

Can TB be cured completely?

Yes. Most drug-sensitive TB can be cured with a full course of effective antibiotics. Drug-resistant TB can also often be treated, but it requires specialist-selected medicines and may take longer.

How long can I spread TB to other people?

There is no single safe number of days for everyone. Infectiousness falls with effective treatment, but the timing depends on the site of infection, symptoms, laboratory results, drug resistance, and response. Follow the specific advice from your TB or public health team.

What is the difference between inactive and active TB?

Inactive TB means the bacteria are controlled, cause no symptoms, and cannot spread. Active TB means the bacteria are multiplying and causing illness. Active lung or throat TB may be contagious.

Can I get TB from sharing food or cups?

TB is mainly spread by breathing air shared with someone who has infectious lung or throat TB. It is not generally spread through food, dishes, cups, bedding, or casual touch.

Will I always test positive after TB treatment?

TB blood and skin tests may remain positive after successful treatment because they measure the immune system's memory of the bacteria. They are not normally used to prove that treatment worked. Symptoms, sputum results, imaging, and clinical follow-up are more useful.

Sources

- World Health Organization. WHO consolidated guidelines on tuberculosis: Module 2 - Screening: systematic screening for tuberculosis disease . 2021.

- World Health Organization. WHO consolidated guidelines on tuberculosis: Module 4 - Treatment: drug-susceptible tuberculosis treatment . 2022 update.
- Centers for Disease Control and Prevention. Clinical Overview of Tuberculosis Disease . Tuberculosis clinical guidance.
- Centers for Disease Control and Prevention. Clinical Testing and Diagnosis for Tuberculosis . Tuberculosis clinical guidance.
- National Institute for Health and Care Excellence. Tuberculosis: prevention, diagnosis, management and service organisation . NICE guideline NG33.
- Nahid P, Dorman SE, Alipanah N, et al. Official American Thoracic Society, Centers for Disease Control and Prevention, and Infectious Diseases Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis . Clinical Infectious Diseases. 2016;63(7):e147-e195.