

TUBERCULOSIS (TB)

WHAT YOU SHOULD KNOW

WHAT IS TUBERCULOSIS (TB)?

Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis* and typically leads to a chronic bacterial infection. In most cases, TB affects the lungs, but other parts of the body can also be infected, including organs, body cavities, or bones and joints.

HOW COMMON IS TB?

Even though TB is less common in the United States, about 2 billion people, or 1 in 4, may be infected globally. About 3,500 people die from TB *every day*. Even in places where TB was historically less common, the disease has become more problematic, specifically due to the susceptibility of those infected with HIV. People with HIV are 30 times more likely to develop “active TB,” meaning TB that is not controlled by the individual’s immune system, leading to bacterial replication, symptoms, and increased ability to spread the infection.

HOW IS TB SPREAD?

Tuberculosis is mainly spread through the air from person to person. This occurs when a person who is infected with TB coughs, sneezes or speaks. The bacteria contained in the respiratory droplets can then be inhaled by others. TB is not spread through kissing, shaking hands, sharing food or toothbrushes, or touching items, like bed linens, of an ill person.

WHAT ARE THE SYMPTOMS OF TB?

About 9 of every 10 people infected with TB will experience a latent (silent) infection, meaning they will not experience symptoms of disease and may not even realize they have been infected. If untreated, these people may remain infected for decades and, for some, infection will progress to disease characterized by low-grade fever, night sweats, lack of energy, irritability, weakness, weight loss, and progressive respiratory symptoms, beginning with a mild cough and advancing to symptoms consistent with severe lung damage, such as bloody sputum, chest pain and difficulty breathing.

For those who immediately develop disease (about 1 in 10), they can experience symptoms described above that, if left untreated, can lead to a disseminated form of TB that affects multiple organs or the central nervous system, causing meningitis.



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WHO IS AT RISK OF TB INFECTION?

Anyone can be infected with TB, but the risk increases in people who are infected with HIV; have other immune-compromising health problems, such as diabetes or cancer; smoke; or abuse alcohol or drugs. In addition, people who come in close contact with someone who has TB and those who work with at-risk populations in hospitals, nursing homes, correctional facilities and homeless shelters are also at increased risk.

IS THERE A TEST FOR TB?

Yes. Two different types of TB tests are available: the TB skin test (TST), commonly referred to as the tuberculin test, and TB blood tests.

The skin test is the most common and is performed by injecting — under the skin — a small amount of something called “purified protein derivative” (or PPD), which contains proteins purified from a strain of tuberculosis. If a person has been exposed to TB, a reaction will occur. Unfortunately, this test can result in false positives or negatives, so results need to be analyzed with respect to the risk factors of the person being tested. Prior vaccination with the bacille Calmette-Guérin (BCG) vaccine can also complicate the test results.

TB blood tests are newer, and they tend to be more specific, measuring for particular proteins in the blood. They do not have the same issue regarding prior vaccination, but they are susceptible to issues with accuracy if the sample is not processed in a timely manner. They also tend to be more expensive.

WHAT DOES A POSITIVE SKIN TEST MEAN?

Even if a skin test returns positive, it does not mean that a person is currently infected with TB. A positive skin test implies that the person has been exposed to TB at some point during their lifetime. Other tests, such as an X-ray of the lungs and a sputum sample, are typically used to determine if the person has an active TB infection.

CAN TB BE TREATED?

TB can be treated with a series of antibiotics; however, the length of treatment can often be four to nine months, depending on the medications used. Even if the infected individual starts to feel better, it is imperative that they take the entire course of medication. If they do not do so, the treatment may be unsuccessful, causing the person to become sick again or leading to bacterial resistance, meaning that the bacteria will no longer be killed by the antibiotics available for treatment.

WHAT IS MULTIDRUG-RESISTANT TB?

Someone infected with multidrug-resistant TB is infected with TB bacteria that are not easily killed by the antibiotics typically used to treat TB. Therefore, the infection is more difficult and more expensive to treat.

IS THERE A TB VACCINE?

Yes. The TB vaccine is called the bacille Calmette-Guérin (BCG) vaccine. It is a live, weakened form of the bacteria made from a bovine, not a human, strain of tuberculosis. BCG is administered in a single dose as a shot in the upper arm. The BCG vaccine is not routinely recommended in the United States, but it is used in some select circumstances. See “Who should receive the TB vaccine?” for additional information.

The BCG vaccine has been shown to prevent diseases like meningitis and severe systemic infection (called miliary TB) caused by tuberculosis. However, the BCG vaccine is not particularly effective at preventing lung infection, the most common form of tuberculosis.

WHO SHOULD RECEIVE THE TB VACCINE?

BCG is not routinely recommended for use in the United States. The vaccine is, however, recommended for specific groups of children and healthcare workers based on the expectation of continued exposure as well as other specific circumstances. Anyone concerned about exposure to or protection from TB should contact their local public health department.

*This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents, the public and healthcare professionals and is composed of scientists, physicians, mothers and fathers devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies.
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