

QUESTIONS & ANSWERS

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The Children's Hospital of Philadelphia®



VACCINE EDUCATION CENTER

Tuberculosis (TB)

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?

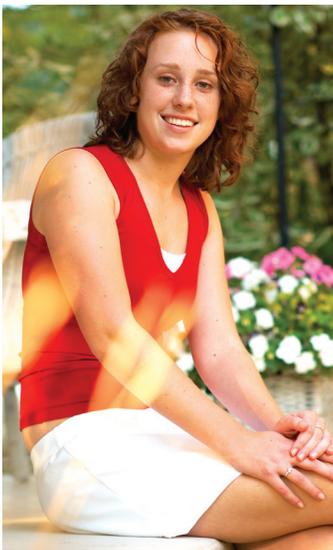
Even though TB is less common in the United States, about 2 billion people, or one in three, are infected globally. Even in places where TB has been less common, the disease has become more problematic for those infected with HIV. In fact, one in eight of the approximately 8.8 million people diagnosed with TB in 2010 were also infected with HIV.

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, handshakes, sharing food or toothbrushes, or touching items, like bed linens, of an ill person.

What are the symptoms of TB?

About nine 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 one 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 meningitis, in which the infection occurs in the central nervous system.

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 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.

Information provided by the Vaccine Education Center at The Children's Hospital of Philadelphia

vaccine.chop.edu

Tuberculosis (TB) *continued*

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 (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. One drawback of these blood tests is that currently they cannot distinguish between a latent and an active TB infection. Efforts continue to develop better tests.

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 his or her 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 six to 12 months. It is imperative that an infected person take the entire course of medication; otherwise, the treatment may not be successful, the person could become sick again or the bacteria could become resistant, meaning that they 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 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, BCG is not particularly effective in 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 in two circumstances: (1) people living in the home of someone with TB who refuses to take anti-TB medicines, and (2) people living in the home of someone infected with a strain of TB that is highly resistant to TB medicines. Anyone concerned about exposure to or protection from TB should contact his or her local public health department.

