

tuberculosis

Tuberculosis (TB) is illness caused by a bacterium called *Mycobacterium tuberculosis* (*M. Tb*). It can be transmitted when someone with lung TB coughs, expelling the bacteria.

People infected with *M. Tb* were usually exposed during childhood, although people can become infected at any time of life. *M. Tb* sometimes causes illness soon after the initial exposure – this is called **primary TB** – but usually a healthy immune system can prevent *M. Tb* from causing disease. However, the organisms remain in the lungs and in some cases may cause disease years later – this is called **reactivation TB**.

People with HIV are at greater risk of developing primary TB when first exposed to the bacteria, and the weakening of the immune system makes them much more likely to develop reactivation TB.

TB most often affects the lungs, causing symptoms such as shortness of breath, cough, weight loss, weakness and fever. The bacteria may spread to other parts of the body, causing many different symptoms. TB is a potentially life-threatening condition.

Active TB can cause a large increase in HIV viral load, which usually decreases again once the TB is properly treated.

Preventing TB

For HIV-negative people there is a live vaccine against TB known as the BCG vaccine, although its effectiveness appears to vary in different populations. It should not be given to people with HIV, in whom it may cause a disease similar to TB.

It is important to avoid contact with people who have active lung TB until they are non-infectious. If you are exposed to someone with TB, see your doctor as soon as possible.

If you are HIV-positive and have already been exposed to TB and are latently infected, some doctors recommend a course of the drug

isoniazid. This has been shown to reduce the risk that you will develop active tuberculosis.

Tests for TB

Doctors can use a skin test called a PPD test to see whether you have been exposed to *M. Tb*. A positive test result means that you have been exposed to the organisms, although they may not be active and causing disease. However, some people with HIV do not respond to skin tests such as the PPD test, because of immune damage. If you have had the BCG immunisation against *M. Tb* you may get a positive result with the PPD test even though you have not been exposed to *M. Tb*.

Tests such as physical examinations, chest x-rays, testing phlegm, and (sometimes) examining the lung via a fibre-optic bronchoscope are needed to diagnose active lung TB. TB in other parts of the body may be found by testing samples of, for example, lymph node or liver tissue.

Treating TB

Active TB is treated with a combination of antibiotics. Successful treatment usually requires at least six months of therapy, without missing doses, and using drugs to which the organisms are susceptible. Like HIV, the TB organisms can develop resistance to treatment drugs, and some strains are resistant to several different drugs. These strains can cause very serious disease called **multi-drug resistant tuberculosis** (MDR-TB), and can be transmitted to others. MDR-TB can usually be treated successfully after identifying which drugs the organisms are still susceptible to.

Protease inhibitors can interact with some TB treatment drugs, so alternative TB drugs may have to be used, or the protease inhibitor may have to be stopped until the TB treatment is completed.

In developing countries, doctors often use a way of treatment known as DOTS – Directly Observed Therapy, Short-course. Volunteers or health-care workers are present every time a dose is due, to ensure none are missed and maximise its effects.

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