

# Tuberculosis and HIV Coinfection

## What is Tuberculosis (TB)?

TB is a disease caused by bacteria called *Mycobacterium tuberculosis*. This disease primarily affects the lungs, but can attack any organ in the body. TB is spread through the air from one person to another. The bacteria are put into the air when a person with TB disease of the lungs or throat coughs or sneezes. People nearby may breathe in these bacteria and become infected. However, not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: **latent TB infection and active TB disease**. Both of these conditions are treatable and curable.

## What is the difference between latent TB infection and active TB disease?

In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria and stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called **latent TB infection**. *There are an estimated 10 to 15 million persons in the United States with latent TB infection.* Many people who have **latent TB infection** never develop **active TB disease**. In these people, the TB bacteria remain inactive for a lifetime without causing disease. A person with **latent TB infection** does not feel sick and cannot spread TB bacteria to others.

However, in some cases TB bacteria can become active if the immune system can't stop them from growing. These bacteria begin to multiply in the body and cause **active TB disease**.

Because HIV weakens the immune system, people with latent TB infection and HIV infection are at **very high risk** of developing active TB disease. In fact, the risk is **800 times** greater for a person with HIV infection.

### People with latent TB infection:

- Have TB bacteria in their body that are alive, but inactive
- Do not feel sick
- Cannot spread TB bacteria to others
- May become sick if the bacteria become active in their body
- Usually have a positive TB skin test
- Need treatment for latent TB infection **as soon as possible** to prevent them from developing active TB disease

### People with active TB disease:

- Have active TB bacteria in their body
- Feel sick and may experience symptoms such as fever, weight loss, and a bad cough that lasts longer than 2 weeks
- May spread TB bacteria to others
- Usually have a positive TB skin test
- Need to take medicine to cure active TB disease
- **Can die from this life-threatening disease if undiagnosed or untreated**

## What is a TB skin test?

The TB skin test is a method used to diagnose TB infection. A small needle is used to inject some testing material, called tuberculin, into the upper layers of the skin, usually done on the inside of the forearm. The person getting the test must return two to three days later to have the test site on the arm examined by a nurse or doctor. If there is a reaction on the arm, the size of the reaction is measured. A positive reaction, usually a small bump, means that the person probably has TB infection. Other tests are needed to determine if the person has latent TB infection or active TB disease.

All HIV-infected people should be given a TB skin test to find out if they have TB infection. Some people who are infected with both HIV and TB will not react to the TB skin test. This is because the immune system is not working properly. Anyone who is HIV infected and has a negative TB skin test should also be given other medical tests such as a chest x-ray if they have symptoms of active TB disease. To find out where TB skin tests are offered in your community or to determine if your organization should provide skin testing services, contact your local health department's TB control program.

## Why Should I Be Concerned About TB and HIV Coinfection?

- Without treatment, as with any other opportunistic infection, HIV and TB can work together to shorten the life of the person infected.
- Someone with **latent TB infection** and HIV infection is up to **800 times** more likely to develop **active TB disease** during his or her lifetime than someone without HIV.
- Among people with **latent TB infection**, HIV is the strongest known risk factor for progressing to **active TB disease**.
- A person that has both HIV and active TB disease has an AIDS-defining condition.

## Good News

The good news is that HIV-infected persons with either latent TB infection or active TB disease can be effectively treated. The first step is to identify HIV-infected persons with latent TB infection or active TB disease by ensuring that they get a TB skin test and any other needed tests. The second step is to help the people with latent TB infection and those with active TB disease get proper treatment. Rapid progression from latent TB infection to active TB disease can easily be prevented. Active TB disease can be treated and cured in HIV-infected persons.

## Treatment

There are a number of treatment options for HIV-infected persons with either latent TB infection or active TB disease. For the latest guidelines about the different treatment regimens, refer to the resources listed on the back of this brochure and also consult with your local health department. It is important for HIV-infected patients to be closely monitored by a physician during any type of treatment to prevent negative drug interactions.

**The medicine usually used to treat latent TB infection:**

- Isoniazid (INH)

Taken as prescribed, INH will kill the TB bacteria in the body and prevent the development of active TB disease.

**The medicines usually used to treat active TB disease:**

- Isoniazid (INH)
- Rifampin
- Pyrazinamide
- Ethambutol
- Streptomycin

To treat active TB disease, several different drugs are needed because there are many bacteria to be killed. Taking several drugs will do a better job of killing all of the bacteria and preventing them from becoming resistant to the drugs.

A crucial component of treating active TB disease is **directly observed therapy (DOT)**. With **DOT**, a health worker watches the patient swallow each dose of TB medication. **DOT** increases patient adherence and prevents relapses, continued transmission, and the development of drug resistance. If resources are available, **DOT** may also be beneficial for the treatment of latent TB infection, especially in HIV-infected persons. To find out if your organization can help with **DOT** services, please contact your local health department's TB control program.