PATIENT INFORMATION

QuantiFERON® Tuberculosis Screening Test

What is tuberculosis?

Tuberculosis (TB) is a disease caused by infection with bacteria called *Mycobacterium tuberculosis*. TB usually affects the lungs (respiratory infection), but it can affect other parts of the body as well.

When a person who has a respiratory TB infection coughs, sneezes, or spits, droplets containing TB bacteria are released into the air. If another person breathes in those droplets, he or she becomes exposed to the bacteria. This is how TB bacteria are typically spread from one person to another.

Not everyone who has TB bacteria in their bodies will become sick. Those who do not become sick are said to have latent TB infection. Those who do become sick have an active infection.

- People with **latent** TB infections usually have strong natural defense (immune) systems that keep the TB bacteria from multiplying. They do not develop TB symptoms and cannot spread TB to others. It is possible, however, for a person with a latent infection to develop an active infection. This happens to about 1 in 10 people who have untreated latent TB infections.[1]
- An **active** TB infection means the TB bacteria are multiplying. This will cause a person to have symptoms of TB disease. Active TB is highly contagious (easily spread from one person to another).

Certain people are at greater risk of developing an active TB infection when exposed to TB bacteria. These include people who[1-3]:

- Have recently (within the past 2 years) been infected with TB bacteria.
- Were not correctly treated for TB infection in the past.
- Have medical conditions (such as pregnancy, HIV infection, diabetes, or cancer) or take medications (such as those used to prevent rejection after an organ transplant) that weaken the immune system.
- Live in (or recently relocated from) parts of the world where the rates of TB infection are high.
- Are in close contact (either at work, school, or home) with 1 or more people who have an active TB infection.
- Smoke.
- Abuse alcohol or drugs.

Symptoms of an active TB infection may include[1,3]:

- A long-lasting cough that may bring up bloody mucus (sputum).
- Chest pains.
- Unexplained weight loss.
- Loss of appetite.
- Weakness or tiredness (fatigue).
- Fever.
- Night sweats.

Without treatment, an active TB infection may cause serious illness or even death. TB is treated with a combination of antibiotics that must be taken for several months.[1,3]

What does a TB screening test do?

A TB screening test can be used to find out if you have ever been exposed to TB bacteria and have a latent infection.

TB screening may be done in one of the following ways:

- **Tuberculin skin test (TST):** Your doctor will inject a small amount of a substance called purified protein derivative (PPD) under your skin. If you have ever been exposed to TB bacteria, you will develop a red, raised bump on your skin at the injection site. You must return to your doctor's office 2 or 3 days after receiving the injection to have the injection site examined.
- **A blood test, such as QuantiFERON:** A sample of your blood will be tested in a laboratory to find out how strongly your immune system reacts to TB bacteria.

If the results of a TB screening test are positive, your doctor may recommend additional texts and exams (such as chest X-rays) to find out if you have an active or latent TB infection.[3]

What is the QuantiFERON TB test?

QuantiFERON is a blood test that screens for TB. It can be used instead of or in addition to the tuberculin skin test to find out if you have ever been exposed to TB bacteria. The QuantiFERON test offers the following advantages over the TST:

- It is a modern alternative to the TST, which is more than 100 years old.[2]
- It requires just 1 office visit for a blood draw. There is no need to return to your doctor so he or she can examine your skin to see whether a reaction to injected PPD has occurred.[2]
- It appears to be more accurate than the TST in identifying people who may have latent TB infection.[4,5]
- It has been shown to be more reliable than the TST in identifying those who may progress from latent TB infection to active TB disease.[4,5]
- If you have ever been vaccinated against TB with the bacille Calmette-Guérin (BCG) vaccine, the PPD skin test may show a false-positive result. There is no such risk with the QuantiFERON test. For this reason, QuantiFERON is the preferred TB test for people who have been vaccinated against BCG.[2]
- QuantiFERON test results may be available sooner than TST/PPD.[2] When you have the skin test, you must wait 2 or 3 days before returning to your doctor to find out whether you have been exposed to TB bacteria.

Where can I find more information?

American Lung Association
Help line: 800-LUNGUSA (586-4872)
www.lung.org

Centers for Disease Control and Prevention (CDC)
Telephone: 800-CDC-INFO (800-232-4636)
www.cdc.gov

National Heart, Lung, and Blood Institute
Telephone: 866-284-4107
http://www.niaid.nih.gov

References
1. World Health Organization. Tuberculosis fact sheet. http://www.who.int/mediacentre/factsheets/fs104/en/index.html. Reviewed February 2013. Accessed June 19, 2013.
2. Centers for Disease Control and Prevention. Updated Guidelines for Using Interferon Gamma Release Assays to Detect *Mycobacterium tuberculosis* Infection – United States, 2010. *Morbidity and Mortality Weekly Report.* 2010;59(No RR-55).
3. Centers for Disease Control and Prevention. Basic TB facts. http://www.cdc.gov/tb/topic/basics/default.htm. Last updated March 13, 2012. Accessed June 19, 2013.
4. Diel R, Loddenkemper R, Meywald-Walter K, Niermann S, Niehaus A. Predictive value of a whole blood IFN-γ assay for the development of active tuberculosis disease after recent infection with mycobacterium tuberculosis. *American Journal of Respiratory and Critical Care Medicine.* 2008;177:1164-1170.
5. Diel R, Loddenkemper R, Niermann S, Meywald-Walter K, Nienhaus A. Negative and positive predictive value of a whole-blood interferon-γ release assay for developing active tuberculosis. *American Journal of Respiratory and Critical Care Medicine.* 2011;183:88-95.

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