

Title: PPD testing is a valid screening tool for tuberculosis infection in individuals vaccinated with BCG

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Abstract: Many immigrants in the Twin Cities area come from areas where TB is endemic, and BCG vaccination in infancy is a standard part of TB control efforts. PPD testing is a widely used screening tool in the US, but concern for cross-reactivity in BCG-vaccinated patients may confuse results. This study shows that PPD testing may be used to screen for tuberculosis in adults that were vaccinated with BCG vaccination during infancy. A cutoff induration of 15mm should be used to define a positive PPD test regardless of BCG vaccination status.

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Tuberculosis Vaccination and Testing

What is a tuberculin skin test (TST)?

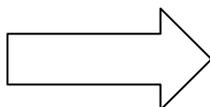
A tuberculin skin test involves injecting a small amount of fluid containing tuberculosis proteins under the skin in your forearm. It is also called a purified protein derivative (PPD) test. You must return to the clinic within 48-72 hours to have a health care provider examine the injection site.

How the TST is done



Photo courtesy of the Department of Health and Human Services

48-72 hours later



How the TST is read



Courtesy of the Saskatchewan Tuberculosis Control Guide

Why is this test done?

This test is performed to help determine if you have been infected with the bacterium called *Mycobacterium tuberculosis*. This is a very serious infection that can affect the lungs, brain, spine, kidneys, and many other organs. If you are infected with this bacteria and you have active disease, you could pass this infection on to other people. The PPD test cannot be used to tell if you have active or latent (previous infection that is now dormant) infection, but it is used to tell if you may need further evaluation or treatment.

What if I have been vaccinated against TB?

The Bacillus Calmette-Guérin vaccination is used in many parts of the world to help prevent tuberculosis infection and to help prevent tuberculosis disease that spreads beyond the lungs, especially in children. A collection of 26 studies from 16 regions around the world where BCG vaccination has been done showed that a reaction > 15mm wide means that you have been infected with the TB bacterium. Smaller reactions (10mm wide) in adults that were vaccinated within the first year of life are 80% likely to mean that you were infected. Smaller reactions are harder to interpret, and your doctor may need more information to make a decision about your care.

What does a positive test mean?

Your physician will use the results of the TST, any symptoms you may have (cough, fever, night sweats), and any information you have about possible exposures to other people with tuberculosis to decide the next best steps in your care. You may need to have a chest Xray to see if the TB bacterium has infected your lungs. You may also need to take medications for several months even if you do not feel sick in order to make sure that the TB bacterium does not become active and cause disease.

References

Wang L, Turner MO, Elwood RK, Schulzer M, FitzGerald JM. (2002). A meta-analysis of the effect of Bacille Calmette Guerin vaccination on tuberculin skin test measurements. *Thorax*, 57: 804-809

US Preventative Services Task Force. Screening for tuberculosis infection, including Bacille Calmette-Guérin immunization. *Guide to Clinical Preventative Services*; 1996. Available at: www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat3.section.10931#13112.