

## **Information on Two-Step TB Skin Test**

The two-step test is NOT the usual PPD skin test in which you receive an injection of PPD and the test area is observed one time at specific time frame.

The two-step PPD test is used to detect individuals with past TB infection who now have diminished skin test reactivity. This procedure reduces the likelihood that a boosted reaction is later interpreted as a new infection.

The reason for the 2 stage PPD test appears to be the "booster phenomenon." It occurs in some people who were infected with TB in the past because the body loses its ability to react to the tuberculin solution. Thus, when these people are tested many years after the initial infection they may have a negative reaction. However, if they are tested a second time within up to one year of the first test, they may have a positive reaction. This positive reaction is due to a "boosted" ability to react to the tuberculin solution. To avoid misinterpretation between a boosted response and a new infection, many facilities employ the 2-step testing procedure. In this procedure a person is given a baseline PPD test. If the test is negative, a second test is administered one to three weeks later. If the second test is negative, the person is considered uninfected. If the second test is positive, then the person is considered to have a "boosted" reaction to an infection that occurred a long time ago.

Beyond that, secondary testing is useful to help offset potential false negative testing results. The sensitivity of tuberculin testing in patients presenting with newly diagnosed pulmonary tuberculosis can be as low as 80% in immuno-suppressed or otherwise unhealthy or compromised patients. The 20 percent false-negative rate is due to a combination of immuno-suppression of delayed hypersensitivity from cytokines as well as factors relating to acute illness and/or poor nutrition. Even once these patients have returned to normal health and nutrition status, such as those of the general population, the sensitivity of tuberculin testing is still only approximately 95 percent. This one-in-twenty false negative rate could certainly warrant the use of secondary testing, especially for those subjects in a healthcare setting.

The number of visits required may be reduced to three by using the following procedure.

However, if the health care agency does not want to follow this procedure, you must follow their directions. At the Student Health Services, their protocol requires that students come back at 48 - 72 hours of the first PPD test for a read. Thus, this requires four visits rather than three visits as described below.

### **The Four Visit Approach**

#### **Visit 1, Day 1**

The PPD antigen is applied under the skin.

**Visit 2, Day 3**

The PPD test is read. If the first test is positive, it indicates that the individual is infected with TB. A chest X-ray and evaluation is necessary. If the individual is asymptomatic and the chest X-ray indicates no active disease, the individual can enter patient care areas.

**Visit 3, Day 7**

A second PPD skin test is applied to those individual in whom the PPD skin test is negative.

**Visit 4, Day 9**

The second test is read. A positive test 2nd test indicates TB infection in the distant past. The individual is referred for a chest X-ray and evaluation by a physician. An asymptomatic individual whose chest X-ray indicates no active disease may enter patient care areas.

For those individuals who were vaccinated against TB with BCG vaccine, you still can be tested with PPD after a 3-5 year period post the BCG vaccination. Positive PPD tests at this point could indicate TB infection. Thus, a chest x-ray is necessary.

**The Three Visit Approach****Visit 1, Day 1**

The first skin test is applied and the individual returns in 7 days for the test to be read. If the first test is positive, it indicates that the individual is infected with TB. A chest X-ray and evaluation is necessary. If the individual is asymptomatic and the chest X-ray indicates no active disease, the individual can enter patient care areas.

**Visit 2, Day 7**

A second skin test is applied on individuals whose first test was negative at 7 days.

**Visit 3, Day 9 or 10**

The second test is read. A positive test 2nd test indicates TB infection in the distant past.

The individual is referred for a chest X-ray and evaluation by a physician. An asymptomatic individual, whose chest X-ray indicates no active disease may enter patient care areas.

The majority of significant PPD skin test reactions will remain "positive" for 7 days after application. Those that have diminished or disappeared by day 7 will be boosted back to positive by the 2nd skin test. Reducing the number of visits from 4 to 3 will not reduce the sensitivity of the two-step test.