



## *Just the Facts...* **Tuberculosis Screening in Healthcare Workers** **Frequently Asked Questions**

### ***What is the “Booster Phenomenon” in tuberculosis skin testing?***

Some people infected with *Mycobacterium tuberculosis* (TB) may have an immune system that has “forgotten about” the infection, and have an initially negative skin test reaction to tuberculin, if the test is given many years after they were infected. This skin test, however, may “remind” the immune system about the infection (or “boost” the immune system’s ability to react to the tuberculin.) This can cause a positive reaction when the person is next tested, which is then interpreted as a conversion indicating new infection.

### ***What is “Two-Step” testing?***

Two-step testing can be used to identify individuals with remote past history of infection with TB, so that their later positive skin tests are not misinterpreted as new infection. It is recommended for individuals who will have repeat TB skin tests (e.g., healthcare workers), and is used as the baseline test for new employees, unless they have had a tuberculin skin test within the last year.

### ***How is “Two-Step” testing done?***

The baseline tuberculin test is applied and read as usual. If this test is negative, the employee is brought back in one to three weeks for a repeat skin test. If this is also negative, then the employee is considered uninfected, and is tested as usual in subsequent years. However, if the second test is positive, the worker should be considered infected and treated accordingly, but this would not be considered a conversion.

### ***Should healthcare workers with a history of Bacille Calmette-Guerin (BCG) vaccine be tested with Purified Protein Derivative (PPD)?***

Yes. The Centers for Disease Control and Prevention (CDC) recommends that workers with a history of BCG vaccine be screened in the same way as other employees. Positive reactions to tuberculin testing from the BCG vaccine tend to wane over time, and most healthcare workers who received BCG had it many years ago, as children. The CDC therefore recommends that a positive reaction in a BCG vaccinated person should be considered an indication of infection; the amount of induration used to indicate infection is the same for those with or without past history of BCG.

### ***What is a positive reaction?***

For adults without occupational risk factors for TB exposure, an area of 15 mm induration is considered positive. For healthcare workers, the cut-off for deciding whether a PPD is reactive depends on the local risk for tuberculosis. In facilities where there is minimal risk for exposure to TB, a cut-off of 15 mm is used. For facilities where TB patients may receive care, a cut-off of 10 mm is used. For children, the size of induration indicating infection varies with age. A positive reaction in any individual under the age of 35 warrants consideration of prophylactic isoniazid.

### ***What is a conversion?***

For health care workers who have been negative in the past, 10 mm of induration is considered a tuberculin skin test conversion indicating recent infection. Healthcare workers, no matter what age, with a conversion should be treated with prophylactic isoniazid unless there is a contraindication to this.

***How should a tuberculin reaction be measured?***

It is not unusual to have erythema at a skin test site. Erythema without induration is not considered a positive result. The area of induration should be measured in millimeters. The ball-point pen technique has been advocated as one way to improve the reliability of skin test interpretation, with some research support. In this technique, a ball-point pen is used to draw a line toward one edge of the area of induration, perpendicular to the long axis of the arm. The pen stops where the induration starts. Another line is drawn from the opposite aspect of the arm, toward the area of induration, and again, the pen stops where the induration starts. The area of induration is measured between the points where the pen stopped.

***How often should a person with a positive PPD get a chest X-ray?***

For CONUS locations, there is no need for annual or periodic chest X-rays. A chest X-ray is only indicated at the point that a positive reaction is documented, or upon entrance to employment for new healthcare workers with a history of a positive reaction. Chest X-ray should be part of the evaluation of an employee reporting suspicious symptoms.

***What about clinics serving military populations overseas?***

Tuberculosis is more prevalent in some OCONUS populations, and screening procedures may therefore vary from the recommendations for U.S. sites. You should consult your Regional Medical Command for information about tuberculosis screening in your geographic area.

***Where can I get more information?***

The CDC Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Healthcare Facilities is found at: <http://www.cdc.gov/mmwr/PDF/rr/rr4313.pdf>.