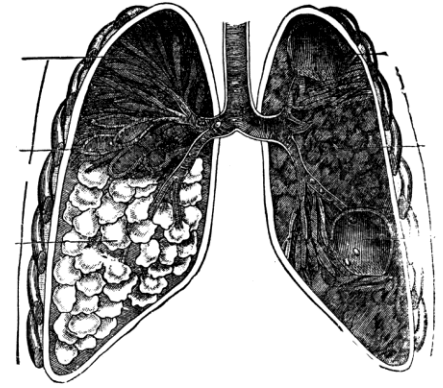


Tuberculin Skin Testing

The **Mantoux tuberculin skin test** (TB skin test) is the standard method of determining whether a person is infected with *Mycobacterium tuberculosis*.

The TB skin test is performed by injecting 0.1 ml of tuberculin purified protein derivative (PPD) into the inner surface of the forearm with the needle bevel facing upward. When placed correctly, the injection should produce a pale elevation of the skin (a wheal) 6 to 10 mm in diameter.

The skin test reaction should be read between 48 and 72 hours after administration. A patient who does not return within 72 hours will need to be rescheduled for another skin test.



The reaction is determined by measuring the tested area to determine the millimeters of induration (palpable, raised, hardened area or swelling). The redness of the area is not a factor.

Skin test interpretation depends on two factors:

- Measurement in millimeters of the induration
- Person's risk of being infected with TB and of progression to disease if infected

Classification of the Tuberculin Skin Test Reaction

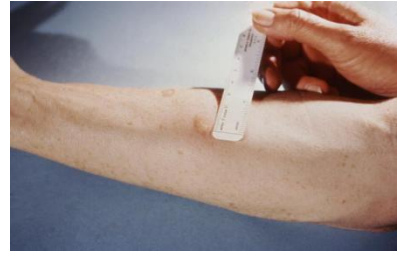
<p>An induration of 5 or more millimeters is considered positive in</p> <ul style="list-style-type: none"> • HIV-infected persons • A recent contact of a person with TB disease • Persons with fibrotic changes on chest radiograph consistent with prior TB • Patients with organ transplants • Persons who are immunosuppressed for other reasons 	<p>An induration of 10 or more millimeters is considered positive in</p> <ul style="list-style-type: none"> • Recent immigrants (< 5 years) from high-prevalence countries • Injection drug users • Residents and employees of high-risk congregate settings • Persons with clinical conditions that place them at high risk • Children < 4 years of age • Infants, children, and adolescents exposed to adults in high-risk categories 	<p>An induration of 15 or more millimeters is considered positive in</p> <ul style="list-style-type: none"> • Any person, including persons with no known risk factors for TB. However, targeted skin testing programs should only be conducted among high-risk groups.
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Some persons may react to the TB skin test even though they are not infected with *M. tuberculosis*. The causes of these false-positive reactions may include, but are not limited to, the following:

- Infection with non-tuberculosis mycobacteria
- Previous BCG vaccination
- Incorrect test administration
- Incorrect interpretation of reaction
- Incorrect bottle of antigen used

Some persons may not react to a TB skin test even though they are infected with *M. tuberculosis*. The reasons for these false-negative reactions may include, but are not limited to, the following:

- Cutaneous anergy (anergy is the inability to react to skin tests because of a weakened immune system)
- Recent TB infection (within 8-10 weeks of exposure)
- Very old TB infection (many years)
- Very young age (less than 6 months old)
- Recent live-virus vaccination (e.g., measles and smallpox)
- Overwhelming TB disease
- Some viral illnesses (e.g., measles and chicken pox)
- Incorrect administration of the test
- Incorrect interpretation of reaction



Most persons can receive a TB skin test. Testing is contraindicated only for persons who have had a severe reaction (e.g., necrosis, blistering, anaphylactic shock, or ulcerations) to a previous TB testing. It is not contraindicated for any other persons, including infants, children, pregnant women, persons who are HIV infected, or persons who have been vaccinated with BCG.

In general, there is no risk associated with repeated TB skin tests. If a person does not return within 48-72 hours for a tuberculin skin test reading, a second test can be placed as soon as possible. There is no contraindication to repeating a TB skin test unless a previous test was associated with a severe reaction.

In some persons who are infected with *M. tuberculosis*, the ability to react to tuberculin may wane over time. When given a TB skin test years after infection, these persons may have a false-negative reaction. However, the TB skin test may stimulate the immune system, causing a positive or boosted reaction to subsequent tests. Giving a second test after an initial negative test reaction is called two-step testing.

Two-step testing is useful for the initial skin testing of adults who are going to be retested periodically, such as health care workers or nursing home residents. This two-step approach can reduce the likelihood that a boosted reaction to a subsequent TB skin test will be misinterpreted as a recent infection.

Vaccination with live viruses may interfere with TB skin test reactions. For persons scheduled to receive a TB skin test, testing should be done as follows:

- Either on the same day as vaccination with live-virus vaccine or 4-6 weeks after the administration of the live-virus vaccine

