

# Information for Healthcare Providers

## *Data and Statistics*

The surveillance slide sets were developed as accompaniments to the annual Reported Tuberculosis in the United States publications.

[https://www.ok.gov/health/Disease\\_Prevention\\_Preparedness/Acute\\_Disease\\_Service/Disease\\_Information/Tuberculosis.html](https://www.ok.gov/health/Disease_Prevention_Preparedness/Acute_Disease_Service/Disease_Information/Tuberculosis.html)

## *Risk Factors*

Some people develop [TB disease](#) soon after becoming infected (within weeks) before their immune system can fight the TB bacteria. Other people may get sick years later, when their immune system becomes weak for another reason.

Overall, about 5 to 10% of infected persons who do not receive treatment for latent TB infection will develop TB disease at some time in their lives. For persons whose immune systems are weak, especially those with HIV infection, the risk of developing TB disease is much higher than for persons with normal immune systems.

Generally, persons at high risk for developing TB disease fall into two categories:

- Persons who have been recently infected with TB bacteria
- Persons with medical conditions that weaken the immune system

Treatment of latent TB infection (LTBI) is essential to controlling and eliminating TB in the United States. Treatment of LTBI substantially reduces the risk that TB infection will progress to disease. Certain groups are at very [high risk](#) of developing TB disease once infected, and every effort should be made to begin appropriate treatment and to ensure those persons complete the entire course of treatment for LTBI.

## *Diagnosis of TB Disease*

Persons suspected of having TB disease should be referred for a medical evaluation, which should include a

- Medical history,
  - Physical examination,
  - Test for TB infection (TB skin test or special blood test),
  - Chest radiograph (X-ray), and
  - Appropriate bacteriologic or histologic examinations (tests to see if TB bacteria are in the sputum).
- [Diagnosis of TB](#) (Fact sheet)

## *Who Can Receive a TB skin test (TST)?*

Most persons can receive a TST. TST is contraindicated only for persons who have had a severe reaction (e.g., necrosis, blistering, anaphylactic shock, or ulcerations) to a previous TST. 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.

## *How is the TST administered?*

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

## *How is the TST Read?*

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 should be measured in millimeters of induration (palpable, raised, hardened area or swelling). **The reader should not measure erythema (redness)**. The diameter of the indurated area should be measured across the forearm (perpendicular to the long axis).

## *How Are TST Reactions Interpreted?*

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 <b>induration of 5 or more millimeters</b> is considered positive in</p> <ul style="list-style-type: none"> <li>-HIV-infected persons</li> <li>-A recent contact of a person with TB disease</li> <li>-Persons with fibrotic changes on chest radiograph consistent with prior TB</li> <li>-Patients with organ transplants</li> <li>-Persons who are immunosuppressed for other reasons (e.g., taking the equivalent of &gt;15 mg/day of prednisone for 1 month or longer, taking TNF-<math>\alpha</math> antagonists)</li> </ul>	<p>An <b>induration of 10 or more millimeters</b> is considered positive in</p> <ul style="list-style-type: none"> <li>-Recent immigrants (&lt; 5 years) from high-prevalence countries</li> <li>-Injection drug users</li> <li>-Residents and employees of high-risk congregate settings</li> <li>-Mycobacteriology laboratory personnel</li> <li>-Persons with clinical conditions that place them at high risk</li> <li>-Children &lt; 4 years of age</li> <li>- Infants, children, and adolescents exposed to adults in high-risk categories</li> </ul>	<p>An <b>induration of 15 or more millimeters</b> is considered positive in any person, including persons with no known risk factors for TB. However, targeted skin testing programs should only be conducted</p>
--	---	---

## Testing for TB in BCG-Vaccinated Persons

[BCG](#), or bacille Calmette-Guérin, is a vaccine for TB disease. Many persons born outside of the United States have been BCG-vaccinated. BCG vaccination may cause a positive reaction to the TB skin test, which may complicate decisions about prescribing treatment. Despite this potential for BCG to interfere with test results, the TB skin test is not contraindicated for persons who have been vaccinated with BCG. The presence or size of a TB skin test reaction in these persons does not predict whether BCG will provide any protection against TB disease. Furthermore, the size of a TB skin test reaction in a BCG-vaccinated person is not a factor in determining whether the reaction is caused by [latent TB infection](#) (LTBI) or the prior BCG vaccination.

The special blood tests (interferon-gamma release assays [IGRAs]), unlike the TST, are not affected by prior BCG vaccination and are less likely to give a false-positive result. <http://www.tspot.com/>

## QuantIFERON<sup>®</sup>-TB Gold and T-Spot<sup>®</sup> Testing

They are a whole-blood test(s) for use as an aid in diagnosing *Mycobacterium tuberculosis* infection, including latent tuberculosis infection (LTBI) and tuberculosis (TB) disease. These tests were approved by the U.S. Food and Drug Administration (FDA) in 2005.

## Multi-drug resistant TB

Multidrug-resistant TB (MDR TB) is TB that is resistant to at least two of the best anti-TB drugs, isoniazid and rifampicin. These drugs are considered first-line drugs and are used to treat all persons with TB disease.

## *Reporting Requirements*

Any patient suspected of having active tuberculosis (AFB Isolation) is to be reported to the ADS by secure web-based PHIDDO report, electronic data transmission, telephone (405-271-4060 or 800-234-5963), or by fax (405-271-6680 or 800-898-6734) within one business day of diagnosis or positive test.

## [Oklahoma Disease Reporting](#)

## *Resources*

### **Treatment Guidelines**

- [CDC TB Guidelines](#)
- [MMWR Treatment of Tuberculosis](#)
- [Treatment for Latent TB Infection](#)
- [Treatment for Active TB Disease](#)
- [American Thoracic Society](#)
- [Management of Active Tuberculosis](#) (American Academy of Family Physicians)
- [Updated Guidelines for the Use of Nucleic Acid Amplification Tests in the Diagnosis of Tuberculosis](#)

### **Fact Sheets**

- [Treatment Fact Sheets](#)
- [QuantiFERON®-TB Gold Test](#)
- [TB and HIV Coinfection](#)
- [Multi-drug resistant TB \(MDR TB\)](#)
- [Tuberculin Skin Testing \(TST\)](#)

### **Educational Resources**

- [Health Care Providers and TB Program Materials by Topic](#)
- [Heartland National TB Center](#)
- [Southeastern National Tuberculosis Center](#)

### **CDC Podcasts**

#### [Mantoux Tuberculin Skin Test](#)

Learn how to evaluate people for latent TB infection with the Mantoux tuberculin skin test. This podcast includes sections on administering and reading the Mantoux tuberculin skin test, the standard method for detecting latent TB infection since the 1930s.

#### [Multidrug-Resistant Tuberculosis](#)

In this podcast, Dr. Oeltmann discusses multidrug-resistant tuberculosis. An outbreak occurred in Thailand, which led to 45 cases in the U.S. This serious illness can take up to 2 years to treat. MDR TB is a real threat and a serious condition.