

SYMPTOMS

PULMONARY TB

Consider a diagnosis of active pulmonary TB for patients with any of the following symptoms, if other causes have been ruled out and the patient's chest x-ray is abnormal (lateral and PA chest x-ray views should be done for children < 13 years of age).

- Cough lasting three weeks or more; often a productive cough
- Hemoptysis
- Unexplained and significant night sweats, fatigue, weight loss
- Persistent fever

EXTRAPULMONARY TB

Consider a diagnosis of active extrapulmonary TB for patients with an apparent infection with negative (non-acid fast bacilli) bacterial cultures that does not respond to conventional antibiotic treatment. The symptoms of extrapulmonary TB depend on the body site affected.

There is an increased likelihood of tuberculosis in persons with a history of travel to or immigration from a "TB endemic zone" (Mexico, Central and South America, Asia, Africa, Pacific Islands, Middle East and Eastern Europe).

CONDITIONS ASSOCIATED WITH PROGRESSION TO ACTIVE TB

Patients with latent TB infection and one or more of the following conditions are at risk for developing active TB:

- Immunosuppression (HIV +, organ transplant, immunosuppressive medications; including anti-tumor necrosis factor-alpha agents)
- Diabetes
- End-stage renal disease
- Substance abuse (especially IV drug use)
- Recent contact to a case of infectious pulmonary or laryngeal TB
- Recent TST conversion. See **Screening Tools** section for a definition
- Silicosis
- Pulmonary fibrotic lesions seen on chest x-ray consistent with prior, healed TB
- Homeless
- Hematologic or reticuloendothelial diseases (e.g., leukemia and Hodgkins' disease)
- Malnutrition and clinical situations associated with rapid weight loss (e.g., cancers of the head and neck, intestinal bypass or gastrectomy, and chronic malabsorption).
- Low body weight (more than ten percent below ideal body weight),

DIAGNOSTIC TOOLS

RADIOGRAPHY

Use chest x-rays to help diagnose or rule out pulmonary TB.

- Adults → PA view
- Children, < 13 y.o. → PA **and** lateral view

(The lateral view helps identify intrathoracic lymphadenopathy--a common abnormality that can indicate active TB in children.)



BACTERIOLOGY

Order an acid-fast bacilli (AFB) smear and culture for specimens taken from the body site that is suspected to have TB. The most commonly collected specimen is sputum or thick mucus that comes from the lungs. When possible, collect at least three sputum specimens before initiating treatment for active TB.

SPUTUM COLLECTION:

- Instruct patient to spontaneously expectorate one sputum specimen per day for three days. It is best to collect the specimens in the morning before eating. Ask patient to rinse his mouth with water, breathe deeply, and cough up sputum from the bottom of his lungs into the specimen container. Specimens should be delivered promptly to the lab or refrigerated. If patient is unable to expectorate sputum, order sputum induction for three specimens.

GASTRIC ASPIRATE:

- Sampling of gastric contents to find mucus that has been swept up by the respiratory tract and swallowed during the night. Order for infants and young children that cannot expectorate sputum. May require an inpatient setting. See website below for instructions: [www.nationaltbcenter.edu/pediatric tb](http://www.nationaltbcenter.edu/pediatric_tb)

SCREENING TOOLS

TB SKIN TEST (TST)

The TST detects TB infection in immunocompetent patients. It can be used to complete the clinical picture for active TB, but it cannot be used to rule out active TB. Previous BCG vaccination should be ignored when interpreting a TST result.

POSITIVE TST

1) $\geq 5\text{mm}$ of induration for all persons with the following conditions:

- Known or suspected HIV infection
- Recent contact to an active case of pulmonary or laryngeal TB
- Chest x-ray that shows fibrotic changes consistent with TB
- Chronic immunosuppression

2) $\geq 10\text{mm}$ of induration for all persons except for those with the conditions outlined above.

TST CONVERSION

An increase of at least 10mm of induration from $<$ than 10mm to $\geq 10\text{ mm}$ of induration within 24 months from a documented negative TST.

***Note:** 2 step testing (two TSTs 1 to 3 weeks apart) should be used for persons entering a health care setting as a resident or a worker if they have not received a TST in the last year.

To see how a TST should be applied and read, select "TB control FAQ" at www.nationaltbcenter.edu/resources.

QUANTIFERON-TB-GOLD (QFT-G)

QFT is an in-vitro laboratory diagnostic test recently approved by the FDA for detecting TB infection. It is a blood test that is less influenced than the TST by non-tuberculous mycobacteria and BCG. For its use, see the MMWR article, "Recommendations and Reports published by the CDC," 12-16-05 at <http://www.cdc.gov/mmwr/>. See also the "California TB Controllers Association's Position Statement" on QFT- G, published 5-18-07, available at www.ctca.org. Contact the Santa Cruz County TB Program Coordinators for more information on ordering a QFT-G test.

