# TUBERCULOSIS TESTING

## DEFINITION
Tuberculosis is an infectious disease that is spread through the respiratory tract but can also infect the pelvis. Immunocompromised individuals are more susceptible to clinically apparent infection, but many more people may asymptptomatically carry the infection and be susceptible to its ravages later in life. As a result, routine TB skin testing with PPD (Mantoux) or other screening tests for TB are recommended for all of the patients in high risk groups listed in the Subjective section below.

## SUBJECTIVE
Must include one of the following for routine screening:
1. All prenatal patients who have not previously tested positive for TB.
2. Non pregnant patients who:
   a. Have symptoms of active TB infection, including chronic cough, hemoptysis, fatigue, general malaise, fever, night sweats, weight loss, hoarseness, chest pain.
   b. Are from high risk populations (such as people who are infected or at risk of acquiring HIV infection, contacts of people known or suspected to have TB, health care professionals working in high risk health care facilities, alcoholics and injection drug users).
   c. Have medical conditions that increase TB risk (diabetes, prolonged therapy with corticosteroids, immunosuppressive therapy, hematologic and reticuloendothelial disease, such as leukemia or Hodgkin’s disease, end stage renal disease).
   d. Have clinical conditions with substantial rapid weight loss or undernutrition.
   e. Are foreign born individuals from high prevalence countries including all of Asia, Africa, Latin American, Eastern Europe, and Pacific Islands.
   f. Live in conditions in the US where active disease is more prevalent, such as homeless shelters, migrant farm camps, prison or jails, and some long term nursing facilities.

May include: History of prior positive PPD test.

## OBJECTIVE
May include:
1. Normal exam.
2. Decreased breath sounds in apical areas.
3. Lymphadenopathy.

## LABORATORY
1. For those with prior positive skin test, no future skin testing is appropriate.
2. For those with indications for current testing, place Mantoux test, and read 48-72 hours after placement. A test is determined to be positive if there is:
   a. 5 mm induration or greater at site of test in patients who are:
      1) Immunocompromised (HIV infected patients, organ transplant patients, immunosuppressed patients (those receiving 15mg prednisone for ≥ 30 days or TNF-alpha antagonists).)
      2) Symptomatic (night cough, weight loss, fevers, etc.).
      3) Close contacts of a person with infectious TB (pulmonary or laryngeal).
      4) TB suspects.
      5) IV drug users even if known to be HIV negative.
      6) Chest x-ray (CXR) findings suggestive of previous TB who received no treatment or inadequate therapy.
   b. 10 mm induration or greater at site of test in patients who are:
      1) Recent immigrants (<5 years) from high prevalence countries.
      2) Injection drug users.
      3) Residents and employees of high risk congregate settings (nursing home, jails).
      4) Mycobacteriology laboratory personnel.
      5) Persons with chronic conditions that place them at high risk.
      6) Children younger then 4 years of age.
      7) Infants, children and adolescents exposed to adults in high-risk categories.
   c. Induration of 15 mm or more is considered positive in any person, including persons who have no risk factors.
### LABORATORY (Continued)

3. For those who are going to periodically tested over time (such as health care workers), two-step testing may be preferred for initial screening. For this, apply PPD test as described above. If it is negative, repeat the testing in 3 months.

4. In many sites, the PPD is being replaced by blood tests using interferon gamma release assays (IGRAs) to detect *M. tuberculosis*. This change is being made because these IGRAs are much more accurate and do not rely on the patient returning at the correct time for interpretation. However, they are also much more expensive, so their adoption is being decided on a site-by-site basis. They may also be more appropriate in high risk populations.

### ASSESSMENT

Positive PPD or positive IGRA.

### PLAN

1. Order CXR for non-pregnant patient who has one of the following:
   a. History of prior positive PPD with subsequent negative CXR more than 1 year ago.
   b. New positive PPD.
   c. Previously positive PPD that was not evaluated.
   d. Positive IGRA.
   e. Symptoms of TB.

2. For the pregnant patient who is asymptomatic, wait until after 12 weeks gestational age to do CXR.

3. For the pregnant patient who is symptomatic in the first semester, consult MD immediately for CXR recommendations.

4. If CXR is positive for tuberculosis or CXR is negative but the patient is symptomatic:
   1) Refer to local resources for sputum testing and probable treatment of tuberculosis.
   2) If pregnant, refer to High Risk Obstetrics Clinic. Consult with referral clinic about infection control issues. At a minimum, has patient wear a mask to minimize her infectiousness.
   3) Recommend HIV testing, if not already done.

5. If the patient has positive PPD for the first time, has a negative CXR and is asymptomatic, refer for treatment.
   a. Pregnant women in this situation should delay therapy until after delivery.

6. If other chest x-ray abnormalities are noted, refer to MD.

### PATIENT EDUCATION

1. Stress importance of timely follow-up and importance of completing all testing and medications, if indicated.

2. If patient is symptomatic or has evidence of active disease, have patient wear face mask at all times when in facility and advise use at all times when in contact with others.

3. Review modes of transmission with patient.

### REFER TO MD/ER

1. Patient with significant adverse outcome with PPD testing.

2. Pregnant women in first trimester who are symptomatic for CXR recommendations.

3. Other chest x-ray abnormalities.

### REFERENCES


