

Tuberculosis

Tuberculosis (TB) is a bacterial infection caused by *Mycobacterium tuberculosis* and spread from person to person through the air. TB most commonly infects the lungs but may infect other body sites including bones, joints, kidneys, or brain.

Lifetime risk of developing illness ("active TB") from infection is about 10% (10 out of 100 people). The risk of clinical, active disease is greatest during the first one to two years after infection. The TB bacteria can remain dormant in the body (latent TB), and illness can develop at any point during the rest of a person's life (reactivation).

Persons who are immunosuppressed (weak immune systems, such as people with HIV infection, diabetes, cancers, drug and alcohol abuse, low body weight, or certain drug therapies) are at higher risk for developing active disease. Persons from areas of the world where TB is common are also at high risk for infection.

SPREADING TB

When a person with active TB infection in the lungs or larynx coughs, sneezes, laughs or sings, TB organisms are spread into the surrounding air and others may inhale these infectious particles. TB transmission can rarely occur from other body sites (eg, surgical wounds).

ACTIVE TB SYMPTOMS

Be alert to the symptoms of TB (with or without a positive skin test) which can include:

- Persistent cough, greater than three weeks
- Fevers
- Weight loss
- Night sweats
- Coughing up blood

If you have these symptoms, call your primary care provider to make arrangements to be seen promptly. When calling your provider's office, be sure to share your symptoms with the receptionist, so appropriate precautions can be taken to avoid transmission to other patients and staff.

TUBERCULIN SKIN TESTING (PPD)

For health care workers, a tuberculin skin test (PPD) is required at the time of employment and at least annually thereafter. PPD testing is also required following an unprotected respiratory exposure to a person with an active case of TB. PPD testing is recommended only for certain other high risk populations ("targeted testing"). Routine testing of large populations is no longer recommended. Mantoux PPD skin testing is more accurate than tine testing. It requires a reading done two to three days later by an experienced person.

A positive PPD (a certain size of induration or firmness around the injection site) indicates that TB infection has occurred, but it does not necessarily indicate illness. A medical history, chest x-ray, and other measures as needed may be performed to determine whether active, contagious TB disease is present in the lungs. People with active disease need treatment with several anti-TB drugs to cure the infection and prevent further transmission.

Many people with a positive PPD are entirely well and pose no risk of transmitting TB to others (latent infection). However, TB can reactivate to active illness at any time.

TREATMENT

For people with a positive TB skin test, asymptomatic (i.e., no symptoms), and a negative chest x-ray (latent TB), preventive therapy with isoniazid (INH) should be discussed with a primary care provider. Treatment of asymptomatic TB with INH can reduce the risk of developing active TB by 70% to 90%.

WORK & SCHOOL RESTRICTIONS

Anyone with TB symptoms may not report to work or school. They must be evaluated by their primary care provider or UHS as soon as possible. Anyone with active TB must be cleared by both UHS and the Monroe County Health Department before returning to work or school. People with a positive PPD, asymptomatic (i.e., no symptoms), and with no active disease on chest x-ray have no restrictions for work or school.

BCG VACCINATION

BCG is a vaccine for TB. This vaccine is not widely used in the United States, but it is often given to infants and small children in countries where TB is common. BCG vaccine does not always protect people from TB. Previous BCG vaccination is not a contraindication to TB skin testing. Persons vaccinated with BCG may or may not have a positive reaction to a TB skin test. If positive, the reaction may be due to BCG vaccine or to a real TB infection. There is no definitive way to distinguish between BCG reaction or true TB exposure. A person with a positive PPD test should be considered for treatment of latent TB.

RESPIRATORY PROTECTION FOR EMPLOYEES & STUDENTS

The Occupational Health and Safety Administration (OHSA) of the federal government requires health care workers to wear a respirator when potentially exposed to TB as recommended by the Centers for Disease Control and Prevention (CDC). Health care workers must be fit tested to ensure proper size and fit for adequate protection and trained about the use, care, and limitations. An N95 respirator or powered air-purifying respirator (PAPR) worn correctly helps to protect the health care worker from inhaling infectious TB particles in the air. Routine surgical masks are not adequate.

When to wear a respirator:

- Whenever there is contact with a person who has TB or is suspected of having TB.
- Whenever performing cough inducing procedures, such as sputum induction or bronchoscopy.

Care of the N95 (disposable) respirator:

- Check for air leaks around seal with each use.
- The respirator may be carried in your pocket for multiple uses during one shift.
- Ordinarily dispose of the mask at the end of your shift.
- Dispose of mask immediately if it is damaged, does not fit properly, or is soiled with blood or bodily fluids.

Care of the powered air-purifying respirator (PAPR):

- Before use, review the checklist on the battery pack.
- Hoods are to be kept by the individual. Wash the hood with warm soapy water.
- Dispose of hoods only when they are damaged or dirty.

QUESTIONS: Call the UHS Occupational Health RN (275-1164)

REFERENCES: OSHA Standard 29 CFR 1910.139
Core Curriculum on Tuberculosis: What the Clinician Should Know, Fourth Edition 2000, CDC, US Department of Health and Human Services. <http://www.cdc.gov/nchstp/tb/pubs/corecurr/default.htm>