



Tuberculosis Guidelines

Guideline History

Date Approved	11/00, 11/02, 11/04
Date Revised	11/06
Date Reviewed	11/00,11/02/11/04,10/06
Next Review Date	11/08

TUBERCULOSIS SCREENING

(1) Symptoms Suggestive of TB include

Fever
Night Sweats
Productive Cough
Weight Loss

Hemoptysis
Chills
Anorexia
Fatigue

Determine High Risk Status

- Persons infected with or at risk of HIV infection
- Close contacts of persons with known or suspected TB disease
- Persons with medical conditions known to increase risk of developing TB disease (2)
- Foreign-born persons, including children, recently arrived (within 5 yrs)
From countries that have a high TB incidence or prevalence
- Persons who inject illicit drugs
- Residents and employees of high risk facilities
- Health care workers who serve high-risk groups

(2) Conditions known to increase risk of developing TB disease:

Diabetes Immunosuppression Silicosis
Abnormal CXR-fibrotic lesions
Post Partum (high-risk individuals)
Severe Renal, Hematological, Intestinal Disorders
Carcinomas of oropharynx or upper GI
10% below ideal body weigh
Recent converter: (-) to (+) skin test within 2 years

Screen for infection

No

Clinical assessment reveals patient exhibits symptoms (1)

Yes

Screen for disease

Order Tuberculin skin testing
USE MANTOUX ONLY – TUBERSOL ONLY

- Tuberculin skin test
- CXR and/or sputum culture
- Chemotherapy (4 drug)
- if positive or consider other causes
- Refer to local health dept. for contact investigation (positive)

Negative, and continued exposure to infectious TB, and/or (1 of the following):

- History of BCG
- Previous TB infection
- Age > 55 years

Positive induration defined as:

- **5mm; high risk:** HIV, abnormal CXR, recent contacts with infected persons
- **-10mm:** medically underserved, drug users, long term care residents, persons with conditions that increase TB risk*, infants, children < 4 years old
- **-15mm:** all other persons

Chest X-ray
Consider Preventive Therapy/
LFT

Yes

No

Consider Repeat in 1-3 weeks

Repeat as indicated

Negative

Positive

Uninfected, repeat as indicated

Most likely Booster effect

Tuberculosis Screening & Treatment of Latent Tuberculosis Infection

Reporting

The following information is regarding changes to the regulations for disease control and reporting in Virginia. (Regulation 12 VAC 5-90-225).

1. All physicians must report persons suspected of having, or diagnosed with tuberculosis to the health department serving the city where the practice is located. Information must include a documented treatment plan.
2. Reporting may be done by completing a Confidential Morbidity and Mortality Report Form, or by telephone. Active tuberculosis is among 29 diseases deemed “rapidly reportable”, and information must be conveyed to the health department within 24 hours.
3. Failure to comply is a Class 1 misdemeanor.

Screening

The purpose of tuberculosis screening by skin testing is to identify persons at high risk for developing TB who would benefit by treatment of LTBI if detected. Testing should therefore be targeted to those who have had recent infection, and those with clinical conditions that are associated with an increased risk for progression to active TB. High priority candidates for screening are:

- Close contacts of persons with infectious TB disease
- Persons with symptoms of TB (cough, weight loss, night sweats)
- HIV/AIDS or risk factors for HIV
- History of untreated TB
- Medical risks for TB disease once infected (ESRD, diabetes, malignancy, malnutrition)
- Injection drug users
- Foreign-born from high prevalence countries and in US less than five years
- Residents and employees of nursing homes and prisons
- Health care workers
- Medically underserved populations

Before beginning treatment of LTBI, active TB should be ruled out by history, physical examination, chest radiography, and, when indicated, by bacteriologic studies.

High Priority Patients for Treatment of LTBI:

A positive skin test (0.1 cc of 5TU PPD) is defined by an induration of:	<ul style="list-style-type: none"> • 5 mm for HIV infected persons, those with fibrotic lesions on CXR, and contacts of infectious TB • 10 mm for members of high-risk groups based on demographics, medical illness, or occupation • 15 mm for persons with no risk factors
Regardless of age	<ul style="list-style-type: none"> • Close contacts of infectious TB cases • Persons with HIV infection • Recent skin test conversion (within two years) • Persons with healed, untreated TB on chest x-ray • Intravenous drug users • Persons with medical risk factors for TB
Under 35 years of age	<ul style="list-style-type: none"> • Foreign-born persons from high prevalence countries • Low income, high-risk minority populations • Residents and staff of long-term care and correctional institutions

**Tuberculosis Screening
&
Treatment of Latent Tuberculosis Infection**

Treatment

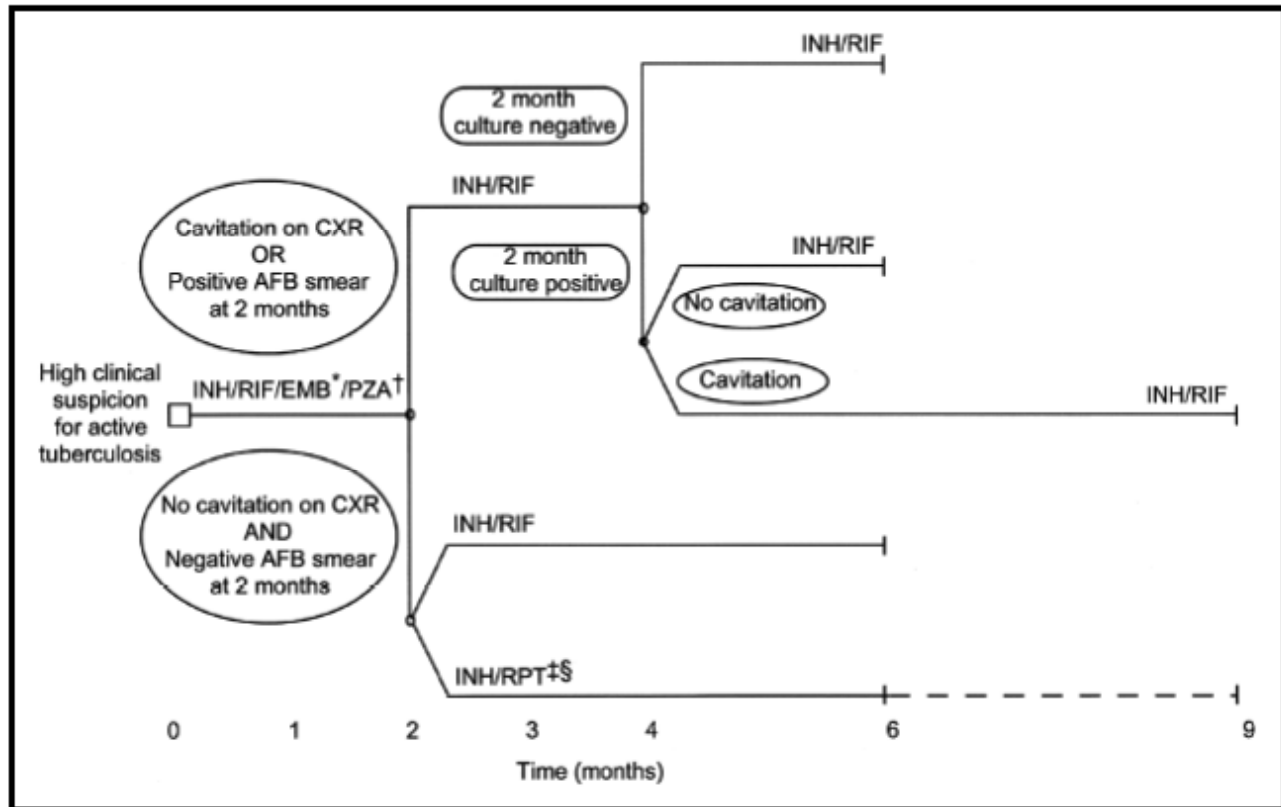
DOT for Everyone!

	Treatment	Clinical and Laboratory Monitoring:
Adults:	<ul style="list-style-type: none"> ➤ INH (300 mg. daily or 900 mg. twice weekly) for 9 months is the preferred regimen. ➤ Directly observed therapy (DOT) is advised when twice weekly therapy is used. ➤ For pregnant, HIV-negative women, especially those at high risk for progression to TB disease, the same INH regimen is appropriate. ➤ For women at lower risk for progression, therapy may be delayed until after delivery. ➤ This regimen is also appropriate for HIV infected patients, and those with fibrotic lesions on chest x-ray consistent with previous TB. 	<ul style="list-style-type: none"> ➤ Routine baseline and follow-up laboratory monitoring can be eliminated in most patients with LTBI, except those with HIV infection, pregnant (or recently postpartum) women, and persons with liver disease or regular alcohol use. ➤ Emphasis should be placed on clinical monitoring for signs and symptoms of possible adverse effects, with prompt evaluation and changes in treatment as indicated.
Children & Adolescents:	<ul style="list-style-type: none"> ➤ The INH regimen for adults is also appropriate for children. ➤ The INH dose for children is 10 mg./kg. daily (maximum 300 mg.) or 20 mg./kg. twice weekly (maximum 900 mg). 	

*The best way to prevent active disease is to treat latent disease
-and-
The best way to prevent new cases of disease is to treat active disease.*

George Grayson, M.D. 2006

Treatment Algorithm for Tuberculosis



Patients in whom tuberculosis is proved or strongly suspected should have treatment initiated with isoniazid, rifampin, pyrazinamide, and ethambutol for the initial 2 months. A repeat smear and culture should be performed when 2 months of treatment has been completed. If cavities were seen on the initial chest radiograph or the acid-fast smear is positive at completion of 2 months of treatment, the continuation phase of treatment should consist of isoniazid and rifampin daily or twice weekly for 4 months to complete a total of 6 months of treatment. If cavitation was present on the initial chest radiograph and the culture at the time of completion of 2 months of therapy is positive, the continuation phase should be lengthened to 7 months (total of 9 months of treatment). If the patient has HIV infection and the CD4⁺ cell count is <100/ μ l, the continuation phase should consist of daily or three times weekly isoniazid and rifampin. In HIV-uninfected patients having no cavitation on chest radiograph and negative acid-fast smears at completion of 2 months of treatment, the continuation phase may consist of either once weekly isoniazid and rifapentine, or daily or twice weekly isoniazid and rifampin, to complete a total of 6 months (bottom). Patients receiving isoniazid and rifapentine, and whose 2-month cultures are positive, should have treatment extended by an additional 3 months (total of 9 months).

* EMB may be discontinued when results of drug susceptibility testing indicate no drug resistance.

[†] PZA may be discontinued after it has been taken for 2 months (56 doses).

[‡] RPT should not be used in HIV-infected patients with tuberculosis or in patients with extrapulmonary tuberculosis.

[§] Therapy should be extended to 9 months if 2-month culture is positive.

CXR = chest radiograph; EMB = ethambutol; INH = isoniazid; PZA = pyrazinamide; RIF = rifampin; RPT = rifapentine.

Name: _____ Birth date: _____ Date: _____

Pre-test Screen*If yes, postpone application of PPD or consult with physician.*

Has patient had an acute viral infection, MMR or OPV within the past 6 wks?

 Yes No Unknown

Has the patient received BCG? (NOTE: does not contraindicate PPD application)

 Yes No Unknown

Is the patient unable to return at 48-72 hrs?

 Yes No Unknown

Does the patient have a prior hx of positive PPD?

 Yes No Unknown**Application of PPD***Apply 0.1cc (5 Todd Units) intradermally to anterior surface of forearm. If no wheal achieved, re-apply 5 cm distally.*Manufacturer: Connaught Tubersol

Lot No. _____

Applied 0.1cc (5TU) intradermally to: L forearm R forearm

Admin by: _____

Date administered: _____

Results*Read at 48-72 hrs after initial application.*

Diameter of Induration _____ (mm):

Diameter of Erythema _____ (mm):

Documented by: _____

Date read: per telephone report**INTERPRETATION:***Consider only diameter of induration.*

Positive at 5 mm if patient meets Highest Risk Criteria*

Positive at 10 mm if patient meets High Risk Criteria*

Positive at 15 mm for all other patients.

Otherwise consider NEGATIVE

 Negative Positive Indeterminate**PLAN***Consider repeat in 1-3 wks if negative and: pt >55 yr old OR health care worker OR if last PPD >5 yrs ago* Repeat prn Repeat in 1 wk for booster effect Obtain CXR_____
Physician signature Date

*See ATB-PPD Risk Assessment Form

Tuberculosis PPD Assessment Form

CRITERIA FOR HIGHEST RISK *(If yes, consider HIGHEST RISK)*

Has patient had recent close contact with active TB patient?

Yes No Unknown

Does patient have known HIV infection?

Yes No Unknown

Does patient have fibrotic chest X-ray?

Yes No Unknown

CRITERIA FOR HIGH RISK *(If yes, consider HIGH RISK)*

Is patient a child < 4 yrs old?

Yes No Unknown

Does patient use IV drugs (not HIV pos)?

Yes No Unknown

Does patient have alcoholism, diabetes, chronic renal failure, organ transplant, chronic steroid therapy, chemotherapy, lymphoma, leukemia, carcinoma of the head/neck, weight loss 10% below IBW, silicosis, partial gastrectomy, or small bowel bypass?

Yes No Unknown

Is patient a member of a residential care facility, prison or homeless?

Yes No Unknown

Is patient a recent immigrant from a country with high rate of TB?

Yes No Unknown

Based on SHM Guideline. REF: U.S. Preventive Services Task Force, Guidelines from Guide to Clinical Preventive Services, Second Edition 1996

REFERENCES

Tuberculosis

- Bloch, Alan B., (1995). Screening for Tuberculosis and Tuberculosis Infection in High-Risk Populations. CDC (2006). Screening for Tuberculosis Infection. Original Release Date: 1996. *United States Preventive Services Task Force*. Retrieved from <http://www.ahrq.gov/clinic/uspstfix.htm>.
- Grayson, G. 2006. Personal Communication.
- Recommendations of the Advisory Council for the Elimination of Tuberculosis. *MMWR*, 44 (RR-11);18-34.
- Radiographic Evaluation of Patients with TB Infection, Confirmed or Suspected TB Disease*: Virginia Department of Health Division of Tuberculosis Control, Policy TB999-002.
- “Screening for Tuberculosis in Infants and Children”, Commission on Infectious Disease (1994), *Journal of Pediatrics*, 131.
- Screening for Tuberculosis Infection Core Curriculum on the National TB Training Initiative*, Chapter 4. Virginia Tuberculosis Elimination Manual.
- Targeted Tuberculin Therapy and Treatment of Latent Tuberculosis Infection*. American Thoracic Society Statement. *American Journal of Respiratory and Critical Care Medicine*. 161:5221-5247.
- TB Infection/Disease Diagnosis and Management*. Virginia Department of Health, Division of TB Control Publication. January, 2000.
- Treatment Algorithm for Active Tuberculosis*. *MMWR* June 20, 2003. vol. 52. No. RR-11.