



TUBERCULOSIS CONTROL

GUIDELINES FOR PUBLIC HEALTH STAFF

TARGETTED TUBERCULOSIS TESTING

Health Officer provides consultation and case management for the following high-risk patients.

- A. Suspect active TB - Persons with symptoms compatible with tuberculosis disease (cough over 3 weeks, unexplained weight loss, night sweats, fever) **and** an abnormal chest x-ray or other evidence of TB disease (not positive PPD alone)
 - 1) Home isolation
 - 2) Home visit to obtain TB and medication history
 - 3) Direct observed therapy by Health Department staff
- B. Positive sputum for AFB
- C. Positive culture for TB
- D. Class B immigrants
- E. Atypical pneumonia in person with history of exposure to TB
- F. Person from high TB endemic area
 - 1) Philippines, Vietnam, Mexico, Korea, China, Thailand, East India
 - 2) Eastern Europe, Africa, refugee camps
- G. Former inmates in penitentiaries in areas with high rates of HIV & TB
- H. Persons over 50 yrs of age who may have lived with a person with active TB in past.
- II. In general, persons with positive TST, not symptomatic and in need of preventive medication for LTBI will be referred to their PMD or a health care provider in the community.
- III. Persons not at high risk for Tuberculosis and need TB screening for work or entry into drug treatment program will be referred to another clinic or seen as schedule permits.

SCREENING FOR TUBERCULOSIS

- I. Obtain TB history
 - A. Exposure to active TB, past or recent
 - B. Previous positive TST, or TB disease
 - C. Treatment - medication, duration
 - D. Signs and symptoms of TB
 - E. Perform TB testing
 - 1) Both TST and QFT-G, if
 - a. Concern about active disease
 - b. Immune compromised
 - c. Recent exposure < 3 months
 - 2) Either TST or QFT – patient chooses and pays for test
 - a. QFT-G – one blood draw, \$35.00
 - (i) foreign born,
 - (ii) past positive TST
 - (iii) history of BCG
 - (iv) unlikely to return for follow-up
 - b. TST – requires return for reading, if negative, would require 2 more visits for booster test
 - (i) US born,
 - (ii) no known exposure to TB,
 - (iii) not belonging to a group with high endemic TB
 - (iv) does not need booster TST
- II. Results
 - A. History of exposure to case with active TB, **and** foreign born **or** lived in a TB endemic area
 - 1) QFT positive, TST positive or negative - recommend standard treatment for LTBI
 - 2) QFT negative, TST positive - discuss potential false negative QFT or false positive TST, counsel per TB guidelines.

- 3) QFT and TST both negative - Not likely to be TB abnormality, no treatment recommended, dismiss.
- B. No known exposure to TB, but is foreign born or lived in a TB endemic area
- 1) QFT positive, TST positive or negative - recommend standard treatment for LTBI
 - 2) QFT negative, TST positive - discuss potential false negative QFT or false positive TST, counsel per TB guidelines.
 - 3) QFT and TST both negative - Not likely to be TB abnormality, no treatment recommended, dismiss.
- C. No known exposure to TB, US born, no other risk factors for TB exposure
- 1) If TST first
 - a. If TST negative, dismiss
 - b. If TST positive - do QFT
 - (i) If QFT is also positive - do CXR
 - ◆ Normal CXR - recommend standard treatment for LTBI
 - ◆ Abnormal CXR - rule out disease
 - 2) Proceed directly to QFT
 - a. If QFT negative - no further action needed, dismiss
 - b. If QFT is also positive - do CXR
 - (i) Normal CXR - recommend standard treatment for LTBI
 - (ii) Abnormal CXR - rule out disease
 - 3) Both TST and QFT negative – dismiss

IMMIGRATION EVALUATION

- I. All B immigrants presenting to the Health Department have history of abnormal chest XR.
- II. Evaluation includes: sputum collection X 3, CXR & review, TB history, QFT testing (\pm TST if available), HIV test

- A. Smear positive – treat as active TB
- B. Symptomatic - treat as suspect active TB

C. Smear negative

1) Abnormal CXR findings

- a) Consistent with TB - fibrosis, infiltrate, pleural thickening
 - (i) Documented treatment for active TB, either DOT or in hospital
 - No symptoms, QFT negative or positive - Counsel per TB guidelines
 - (ii) No documented history of treatment, or does not know
 - CXR consistent with TB, No symptoms, QFT negative, TST positive
 - ◆ Consider patient with LTBI
 - Standard treatment for LTBI, or
 - Counsel and dismiss.
 - No symptoms, QFT positive, regardless of TST result, doubt active disease
 - ◆ Treat with 2 drugs (INH/RIF) X 4 months
 - No symptoms, QFT positive, regardless of TST result, suspect active disease
 - ◆ Treat with 4 drugs (IRZE) X 2 months, repeat CXR,
 - If final culture is negative, and CXR does not show improvement, case is considered **adequately treated for LTBI**.
 - If final culture is negative, and CXR shows improvement, case is considered **culture negative active TB**; complete treatment with 2 more months of IRZE.
 - if final culture positive; case is **culture confirmed active TB**, when sensitivities are available, can discontinue PZA and Ethambutol, finish treatment course with INH and RIF x 4 more months.
 - b) Consistent with TB - calcified granuloma, no symptoms
 - (i) QFT negative, TST negative – counsel per TB guidelines and dismiss
 - (ii) QFT negative, TST positive - possible false positive TST, counsel and dismiss

- (iii) QFT positive, TST negative - recommend standard treatment for LTBI
- (iv) QFT positive, TST positive – recommend standard treatment for LTBI
- c) Abnormal CXR findings not consistent with TB, no symptoms
 - (i) **Foreign born** or lived in a TB endemic area, with or without history of exposure to case with active TB
 - QFT positive, TST positive or negative - recommend standard treatment for LTBI
 - QFT negative, TST positive - discuss potential false negative QFT or false positive TST, counsel per TB guidelines.
 - QFT and TST both negative - Not likely to be TB abnormality, no treatment recommended, dismiss.
 - (ii) **US born**, no known exposure to TB, no other risk factors for TB exposure, no symptoms
 - TST
 - ◆ If negative, refer patient to primary care provider for follow-up of abnormal chest xray
 - ◆ If TST positive, perform QFT
 - If QFT negative – discuss potential false negative QFT or false positive TST, counsel per TB guidelines, refer for evaluation of abnormal chest xray.
 - If QFT positive - recommend standard treatment for LTBI

PERSONS UNDERGOING PERIODIC SCREENING USING QFT-G

Health care , child care workers or others who need boosted TST, or routine yearly TST.

I. Obtain TB history

- A. Exposure to active TB – date, type of exposure
- B. Previous positive TST – date, result
- C. Treatment - medication, duration
- D. Signs and symptoms of TB – if present, work-up for active TB
- E. Draw QFT-G

II. Who to test

- A. All new hires
- B. All who had yearly TST in past
- C. All with previous positive TST
- D. Persons with known exposure to active TB > 8 weeks ago.

III. Results – assumes that person being tested **does not** have symptoms suspicious of active TB

- A. Anyone with symptoms should be followed as suspect active TB.
- B. Previous TST negative or unknown

1) QFT positive

a) Obtain TB history, chest xray, HIV test

- (i) Recent exposure > 8 weeks ago, HIV negative, CXR negative, no symptoms – recommend treatment for LTBI
- (ii) Recent exposure > 8 weeks ago, HIV positive, CXR negative – obtain sputum X 3, CD4 count
 - Smear negative, no symptoms – treat for LTBI

- Smear positive, minimal symptoms – treat as active TB
- (iii) Recent exposure > 8 weeks ago, HIV negative, CXR positive – get sputum X 3
 - Smear negative, no symptoms – treat for LTBI
 - Smear positive, regardless of symptoms – treat as active TB

2) QFT negative

- a) No known exposure - document in personnel file
- b) Known exposure – repeat QFT 8 weeks after last exposure
- c) If person used to have TST yearly, would now have QFT yearly.

3) QFT indeterminate - Redraw QFT after 2 – 4 weeks

C. Previous TST positive

1) Completed treatment for LTBI, documented

- a) Symptomatic - Obtain TB history, chest xray, HIV test, sputum x 3
- b) Not symptomatic
 - (i) QFT positive – counsel per TB guidelines
 - (ii) QFT negative – dismiss, return for yearly QFT
 - (iii) QFT indeterminate – repeat QFT after 2 – 4 weeks

2) No documentation or did not receive treatment for LTBI

- a) Symptomatic - Obtain TB history, chest xray, HIV test, sputum x 3
- b) Not symptomatic
 - (i) QFT positive - CXR
 - CXR negative, no symptoms – recommend treatment for LTBI
 - CXR positive – get sputum X 3
 - ◆ Smear negative, no symptoms – recommend treatment for LTBI

- ◆ Smear positive, regardless of symptoms – treat as active TB

(ii) QFT negative

- No known exposure - document in personnel file
- Known exposure – repeat QFT 8 weeks after last exposure
- Counsel per TB guidelines
- If person used to have TST yearly, would now have QFT yearly.

(iii) QFT indeterminate - Redraw QFT after 2 – 4 weeks

IV. QFT positive employees – future follow-up

A. Received adequate treatment for LTBI, documented

- 1) Follow up with yearly symptom check
 - a) If positive symptoms, obtain CXR
 - b) If CXR abnormal, obtain sputums and consider suspect active TB.

B. Recent exposure (within last 2 - 3 years) and declined treatment.

- 1) Strongly recommend treatment for LTBI
- 2) If continues to decline, recheck QFT yearly x 2 (QFT may revert to negative on it's own)
 - a) If remains positive,
 - (i) Encourage treatment for LTBI.
 - (ii) Follow up with yearly symptom check
 - If positive symptoms, obtain CXR
 - If CXR abnormal, obtain sputums and consider suspect active TB.
 - b) If reverts to negative, resume yearly QFT for follow-up.

HANDLING ACTIVE OR SUSPECT ACTIVE TB DISEASE

I. All patients suspected of active TB

A. History

- 1) Past history for TB, previous diagnosis or treatment, known exposure
- 2) Birth or residence > 6 months in country other than USA or Canada
- 3) Primary care Doctor
- 4) Other Medical history - medications

B. Diagnostics

- 1) Site of primary
- 2) Accurate weight – weight prior to weight loss
- 3) CXR, ± CT scan – cavitation?
- 4) Sputum x 3, even if bronchial wash or other specimen obtained
- 5) QFT-G, ± TST

C. Case Management

- 1) HIV result, if HIV positive, CD4 count
- 2) CBC with platelet count, Chem panel that includes AST, ALT, BUN, Creatinine
- 3) Isolation, infection control
- 4) Medications start date, dose given, DOT

D. Contact management

- 1) Household contacts
 - a) Children < 5 – consider window prophylaxis
- 2) Work, Other

II. After first 2 months of treatment

A. Patients with negative smears or cultures

- 1) Symptoms have improved or is minimal
- 2) Repeat Chest xray
 - a) CXR shows definite improvement
 - (i) Patient has culture negative active TB.
 - Continue with 4 drug therapy DOT either daily or biweekly for 2 more months
 - Repeat chest xray after completion of treatment
 - Counsel per TB guidelines
 - b) CXR is unchanged
 - (i) Patient has no documented previous treatment for TB
 - (ii) Consider options for treatment of old “burned out” TB
 - 2 more months of INH and Rifampin either daily on own or bi-weekly DOT
 - Counsel per TB guidelines
 - c) CXR shows increased abnormalities
 - (i) Consider inadequate TB treatment or drug resistance and repeat sputums.
 - (ii) Consider diagnosis other than TB, follow up with PMD or Pulmonologist.

B. Patients with positive cultures

- 1) Symptoms are improved and culture sensitivities available
 - a) Change medication regimen
 - (i) Consider daily vs bi-weekly therapy.
 - (ii) All treatment other than daily must be directly observed.

III. Patients with confirmed active TB

- A. Direct observed therapy by TCPHSS staff if not in hospital setting
 - 1) Minimum first 2 weeks
 - 2) When patients are in isolation
 - 3) DOT, intermittent therapy is preferred over self administered
- B. Sputum each month until smear negative
 - 1) Start one month after start of treatment, sputum x 3
 - 2) If sputum smear is heavily loaded, obtain next set of 3 sputums after another month
 - 3) Observed sputum collection is preferred if at all possible
 - 4) Once smears are less than 1-9/field or takes > 4 weeks to grow, obtain one sputum every other week until smear negative
- C. Obtain copies of CXR and CT scans
- D. **Patients are to remain in isolation** until
 - 1) If cavitory pulmonary TB - must be smear negative and have no symptoms, esp. cough
 - 2) If non-cavitory disease - Completed DOT treatment with 4 drugs x 2 weeks, No symptoms
 - 3) Extensive disease
 - a) Culture negative, or
 - b) Treated x > 4 weeks DOT and evidence of clinical improvement
 - (i) Decreased symptoms
 - (ii) CXR shows improvement
 - (iii) Smear positive cultures taking > 3 weeks to become positive

TREATMENT FOR ACTIVE DISEASE

- I. STANDARD ADULT DAILY DOSES TREATMENT is with 4 drugs **IRZE** by **DOT**
 - A. Isoniazid (**I**) 5 mg/kg/day (max 300 mg)
 - B. Rifampin (**R**) 10 mg/kg/day (max 600 mg)
 - C. Pyrazinamide (**Z**) 15 - 30 mg/kg/day (max 2 grams)
 - 1) Adult weighing < 50 kg 0.75 grams
 - 2) Adult weighing 50 kg 1.0 grams
 - 3) Adult weighing 70 kg 1.5 grams
 - D. Ethambutol (**E**) 15 - 25 mg/kg/day
 - 1) Adult weighing < 50 kg 0.8 grams
 - 2) Adult weighing 50 kg 1.2 grams
 - 3) Adult weighing 70 kg 1.6 grams
 - E. Vitamin B₆ 50 mg daily or one multivitamin/day
- II. DOT = directly observed therapy; anything other than daily needs to be by DOT.
- III. Daily = 5 days/week if by DOT; 7 days a week if self administered.
- IV. Induction and maintenance phase options:
 - A. IRZE daily x 2 weeks, bi-weekly x 6 weeks; followed by IR bi-weekly x 16 weeks (DOT)
 - B. IRZE daily x 8 weeks; followed by IR daily or bi-weekly X 16 weeks
 - C. IRZE 3 x / week x 24 weeks DOT (**if INH resistant TB**)
 - D. IRE daily x 4 - 8 weeks; followed by IR daily or bi-weekly x 28 - 32 weeks (**if can't use PZA, ie in pregnancy**)
 - E. IRZE daily or bi-weekly x 16 weeks (**culture negative active TB**)
 - F. IR daily or bi-weekly for 16 weeks (**"burned out TB", no documentation of treatment, CXR consistent with old TB, no symptoms**)

TREATMENT FOR LATENT TB INFECTION (LTBI)

I. STANDARD (adult 70 kg) CHOICES

- A. Isoniazid 300 mg once daily x 9 mos (270 doses in 12 months)
- B. Rifampin 600 mg once daily x 4 mos (120 doses in 6 months)

II. OTHER OPTIONS

- A. If being treated for suspect active TB and end up with negative culture and no changes in symptoms or CXR, the following regimen can be considered adequate for treatment of LTBI. INH 300 mg, RIF 600 mg, PZA 1.0 - 1.5 grams, Ethambutol 1.2 -1.6 grams daily (Monday to Friday) x 2 months - must have been directly observed (DOT)
- B. INH 900 mg 2 - 3 x per week x 9 mos - must be DOPT
- C. RIF 600 mg 5x per week x 6 months (total 120 doses)

COUNSEL PER TB GUIDELINES MEANS

I. TB is caused by a slow growing germ.

II. TB infection

- A. Some, but not all, people who are exposed become infected.
- B. TB infection is not contagious.
- C. Detecting TB infection is difficult. There may be false positives and false negatives.

III. Some with infection can develop disease, depends on

- A. previous preventive treatment,
- B. individual health status,
- C. age,
- D. immune status and
- E. medical conditions.

IV. Disease is treatable, rarely can reactivate.

- A. TB disease is contagious if it is in lungs or throat.
- B. Signs and symptoms of TB disease are: loss of appetite, fever, night sweats, cough > 3 weeks, coughing up blood, weight loss, feeling tired.

V. If you suspect you might have TB disease (active TB), contact your local health department for an evaluation.