

TB GUIDELINES FOR HEALTH CARE STAFF

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TUBERCULOSIS CONSULTATION AT THE HEALTH DEPARTMENT

- I. Health Department provides consultation, case management, and treatment for high-risk patients suspected to have active, contagious TB disease.
 - A. Symptoms compatible with tuberculosis disease (cough over 3 weeks, unexplained weight loss, night sweats, fever), and Abnormal Chest x-ray, Positive sputum AFB, or Positive culture for TB
 - B. Class B immigrants or refugees
 - C. Atypical pneumonia in person with
 - 1) History of exposure to TB or Foreign born
 - 2) Medical conditions: Poorly controlled Diabetes, Immune compromised, End stage renal disease, or Treated with TNF – α blocker.
- II. Health Department provides consultation on interpretation of TB screening tests (TST or QFT) and makes recommendations for treatment of latent TB infection.
 - A. Contact to active TB
 - B. Class B immigrants or refugees with no symptoms and normal chest x-rays
 - C. Person from high TB endemic area - Philippines, Vietnam, Mexico, Korea, China, Thailand, East India, Eastern Europe, Africa
 - D. Former inmates in penitentiaries in areas with high rates of HIV & TB
 - E. Persons over 50 yrs of age who may have lived with a person with active TB in past.
- III. Persons not at high risk for Tuberculosis and need testing for work or entry into drug treatment program should be referred to the Capital Medical Center Occupational Health Clinic or their PMD.

SCREENING FOR TUBERCULOSIS – Purpose of screening is to identify persons who would benefit from taking therapy for latent TB infection.

- 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 – Neither TST or QFT is a gold standard. They can both be used as a screening test for latent TB. QFT does not read false positive in patients with BCG vaccine.
 - 1) Quantiferon Gold In Tube (QFT-GIT) – one blood draw, \$35.00 (QFT result does not have a boosting effect, not necessary to draw baseline.)
 - a. foreign born,
 - b. past positive TST
 - c. history of BCG
 - d. unlikely to return for follow-up
 - 2) Tuberculin Skin Test (TST) – requires return for reading, if negative, would require 2 more visits for booster test (Two TST's that are both negative, done two weeks apart establishes a negative baseline for future serial TST screening.)
 - a. US born,
 - b. no known exposure to TB,
 - c. not belonging to a group with high endemic TB
 - d. does not need booster TST
- II. Results
 - A. History of exposure to case with active TB, foreign born or lived in a TB endemic area
 - 1) QFT positive or TST positive - recommend standard treatment for LTBI
 - 2) QFT negative and 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, Is foreign born or lived in a TB endemic area
 - 1) QFT positive or TST positive - 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 was done first
 - a. If TST negative, dismiss
 - b. If TST is suspected as false positive - do QFT (2 months later)
 - (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
 - 3) Both TST and QFT negative – dismiss

DISCORDANT RESULTS

- TST and QFT results do not always agree. Neither is better than the other except in case of patient who has a history of BCG vaccine, QFT will not be positive for patients who have received BCG vaccine.
- Discordant QFT results occur sometimes. With serial testing, some patients revert back and forth. Usually any result with the TB Antigen minus nil of > 0.35 is considered positive. In cases of discordant results, use a higher level of TB antigen minus nil of > 0.70 as positive. This will eliminate most of the discordant results.
- Patients tested with TST, then immediately followed by a QFT blood draw can occasionally read false positive. If a QFT is needed after a TST is done, it is best to wait at least 2 months.

TUBERCULOSIS TESTING FOR IMMIGRANTS OR IMMIGRATION

- I. All B immigrants presenting to the Health Department.
- II. Evaluation includes: TB history, review CXR, collect sputum X 3, QFT testing, HIV (if not done)

QFT is preferred method for TB testing for immigrants and refugees as they are more likely to have had BCG vaccine. If a QFT is done, TST is not needed. If a prior TST was done and positive and you suspect BCG as cause of positive TST, then retesting with QFT is indicated.

- 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 - Counsel per TB guidelines
 - (ii) History of treatment, undocumented
 - No symptoms, QFT negative – Counsel per TB guidelines
 - No symptoms, QFT positive, regardless of TST result
 - ◆ Treat with 4 drugs X 2 months, culture final negative
 - No improvement in CXR - consider past 2 mo treatment with 4 drugs as adequate Rx for LTBI
 - CXR shows improvement, treat for 2 more months of 4 drugs for culture negative active pulmonary TB (CNAPT)
 - ◆ Treat with 4 drugs X 2 months, culture final positive
 - Case is culture confirmed active TB, if sensitivities are available, can discontinue Ethambutol immediately, discontinue PZA after 2 months and finish treatment course with INH and RIF x 4 more months.
 - (iii) Never been treated or don't know
 - CXR consistent with TB, no symptoms, QFT positive
 - ◆ Treat with 4 drugs X 2 months, when final culture is negative
 - No improvement in CXR - consider past 2 mo treatment with 4 drugs as adequate Rx for LTBI
 - CXR shows improvement, treat for 2 more months of 4 drugs for culture negative active pulmonary TB (CNAPT)
 - ◆ Treatment with 4 drugs X 2 months, when final culture is positive
 - Case is culture confirmed active TB, if sensitivities are available, can discontinue PZA and Ethambutol, finish treatment course with INH and RIF x 4 more months.
 - CXR consistent with TB, TST positive, QFT (if done) negative
 - ◆ Consider patient with LTBI
 - Standard treatment for LTBI, or
 - Counsel and dismiss
 - b) Consistent with TB - calcified granulomas, no symptoms
 - (i) QFT negative, TST negative – counsel per TB guidelines and dismiss
 - (ii) QFT negative, TST positive - recommend standard treatment for LTBI
 - (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) History of exposure to case with active TB, foreign born or lived in a TB endemic area
 - QFT positive - recommend standard treatment for LTBI
 - 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) No known exposure to TB, foreign born or lived in a TB endemic area
 - QFT positive - recommend standard treatment for LTBI
 - 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.
- (iii) No known exposure to TB, US born, no other risk factors for TB exposure
 - Proceed directly to QFT
 - ◆ If QFT negative - no further action needed, dismiss
 - ◆ Both TST and QFT negative - dismiss
 - If TST first
 - ◆ If TST positive - do QFT
 - ◆ If QFT is also positive - do CXR
 - Normal CXR - recommend standard treatment for LTBI
 - Abnormal CXR - rule out disease

PERSONS UNDERGOING PERIODIC SCREENING USING QFT-GIT

Health care workers or others who used to need two-step baseline TST and routine yearly TST can have a QFT-GIT yearly instead. If yearly screening is to be done by TST, then baseline two-step TST should be performed.

- 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-GIT
- 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
 - 1) QFT positive
 - a) Obtain TB history, chest x-ray, 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 x-ray, 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 x-ray, 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

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 disease
- 2) Accurate weight – weight prior to weight loss
- 3) CXR, ± CT scan – cavitation?
- 4) Sputum x 3 – to determine risk of contagion, even if bronchial wash or other specimen already obtained
- 5) QFT- GIT, ± TST – A person suspected of having active disease can have negative QFT or TST. Negative test does not rule out disease!

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, Directly observed therapy (DOT)

D. Contact management

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

II. Patients with confirmed active TB

A. Direct observed therapy by TCPHSS staff (or local pharmacist) if not in hospital setting

- 1) Minimum first 2 weeks
- 2) While 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, weight stable or gaining
 - (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) Should not use in pregnant women
 - 2) Adult weighing < 50 kg 0.75 grams
 - 3) Adult weighing 50 kg 1.0 grams
 - 4) Adult weighing 70 kg 1.5 grams
 - D. Ethambutol (**E**) 15 - 25 mg/kg/day
 - 1) Can be discontinued if pansensitive is known before 2 months of treatment.
 - 2) Should not be used in children when cannot test for color blindness.
 - 3) Adult weighing < 50 kg 0.8 grams
 - 4) Adult weighing 50 kg 1.2 grams
 - 5) 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**)
- E. IRZE daily or bi-weekly x 16 weeks (**culture negative active TB**)

TREATMENT FOR LATENT TB INFECTION (LTBI)

- I. STANDARD (adult 70 kg) CHOICES
 - A. Isoniazid 300 mg once daily x 9 mos (270 doses over at most 12 months)
 - B. Rifampin 600 mg once daily x 4 mos (120 doses over at most 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 INFORMING PATIENT THAT:

- 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, even if treated.
 - 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), tell your Doctor immediately or contact your local health department for an evaluation.