Community pharmacy-based tuberculosis skin testing

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Disclosure Statement

• The planners and presenter of this presentation have disclosed no conflict of interest, including no relevant financial relationships with any commercial interests
At the conclusion of this presentation, you will be able to:

• Identify patients for whom tuberculosis skin testing would be appropriate by recognizing risk factors for TB
• Recognize ‘red flags’ for active TB or other lung disease that warrant a referral to another healthcare practitioner
• Competently place a TB skin test
• Accurately interpret a TB skin test reading
• Identify factors in a TB skin test reading and patient presentation that warrant referral to another healthcare practitioner
• Delineate components of encounter documentation when patients present for TB skin tests that ensure compliance with public health guidance and facilitate interprofessional collaboration
Plan for the day

- Case-based—person walks in, how to assess risk, possibility of presence of active TB, place and read the test, reporting requirements
CASE

• JoAnn is a 37-year-old cis female with history of recent travel to Italy. She would like a TB skin test.
  – Is JoAnn at risk for TB?
  – Does JoAnn need to be referred today?
  – Should she be tested today?
• Screening: What do we need to know about our patient?
Populations at high risk for TB

• Close contacts of person with or suspected to have active TB
• From areas where TB is common
• People who visit TB-prevalent countries
• Residents and employees of high-risk congregate settings
• Health care workers who serve high-risk clients
• Children and adolescents exposed to adults at increased risk for infection or disease
JoAnn is from your town and works as a librarian in the public library. She hasn’t been exposed to anyone with suspected TB.

**CASE**
LTBI
- TST usually positive
- Chest radiograph normal
- No symptoms or physical findings suggestive of TB
- If done, respiratory specimens are smear and culture negative

TB
- TST usually positive
- Chest radiograph usually abnormal
- Symptoms may include: fever, cough, night sweats, weight loss, fatigue, hemoptysis, decreased appetite
- Respiratory specimens usually culture positive (smear positive in about 50% of patients)
Increased risk: Progression from LTBI to TB

- History of prior, untreated TB or fibrotic lesions on chest radiograph
- Children ≤ 5 years with a positive TST
- Underweight or malnourished
- Substance abusers
- Those receiving TNF-α antagonists for treatment of rheumatoid arthritis or Crohn’s disease
- HIV
- Others
  - Silicosis
  - Diabetes mellitus
  - Chronic renal failure or on hemodialysis
  - Solid organ transplantation (e.g., heart, kidney)
  - Carcinoma of head or neck
  - Gastrectomy or jejunoilial bypass
JoAnn presents with no symptoms and no previous diagnosis of LTBI. Her entire PMH consists of

Should we test her? Can we test her?
ID guidance

• Targeted testing programs should be conducted only among groups at high risk, and testing should be discouraged for groups at low risk.

• High-risk groups: persons with increased risk for developing TB and those who have clinical conditions that are associated with an increased risk for progress of latent TB infection (LTBI) to TB disease.
Mantoux Tuberculin Skin Test (TST)

TB TEST PLACEMENT
Administering the TST

• Inject 0.1 ml of tuberculin solution
  – Intradermal
  – Inside of lower arm
  – 27-guage needle
• Produce a wheal 6 to 10 mm in diameter
CASE

• JoAnn’s test is placed successfully on her left arm
  – Counseling
  – Return appointment
Reading the TST

• Measure reaction in 48 to 72 hours*
• Measure induration, not erythema
• Record reaction in millimeters
  – Interpretation (negative or positive comes next)
  – Should be done by trained healthcare professional
TST Interpretation

≥ 5 mm induration is interpreted as positive in...
≥ 10 mm induration is interpreted as positive in...
≥ 15 mm induration is interpreted as positive in....
CASE

• JoAnn returns 64 hours after her test was placed and has a negative reading.

• What may interfere with her reading’s accuracy?
False-Negative TST Reactions

- Recent TB Infection (<10 weeks post-exposure)
- Absence of normal reaction because of weakened immune system
- Young age (< 6 months)
- Live virus vaccination
- Overwhelming TB Disease
- TST administration technique (small wheal, too shallow/deep)
False-Positive TST Reactions

• Non-tuberculous mycobacteria

• BCG vaccination
  – Likelihood of false-positive wanes over time
  – Still review risk factor—maintain high suspicion and refer if present
Boosting

- Some people with LTBI may have a negative skin test reaction when tested years after infection because of a waning response.
- An initial skin test may stimulate (boost) the ability to react to tuberculin.
- Positive reactions to subsequent tests may be misinterpreted as new infections rather than “boosted” reactions.
Two-Step Testing - 1

• A strategy to determine the difference between boosted reactions and reactions due to recent infection.
  – If 1st test positive, consider infected; if negative, give 2nd test 1–3 weeks later
  – If 2nd test positive, consider infected; if negative, consider uninfected

• Use two-step tests for initial baseline skin testing of adults who will be retested periodically (e.g., health care workers).
REPORTING REQUIREMENTS
Burden of Reporting

• Lies with clinician PLACING the test
• Actions in response to positive skin test may vary
  – PCP first in most cases, might be employee clinic, might be public health
  – Confused? Contact local public health office
  – Not an option to do nothing
Resources

• For assistance planning targeted testing, contact the Idaho TB Program at 208-334-5939.

• Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection
  *MMWR* 2000; 49 (No. RR-6)
  [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm)

• CDC TB Website [http://www.cdc.gov/tb](http://www.cdc.gov/tb)

• CDC’s Morbidity and Mortality Weekly Report


• U.S. Preventive Services Task Force

• Latent Tuberculosis Infection: A Guide for Primary Health Care Providers