



Tuberculosis

What you need to know

*James Zoretic M.D., M.P.H.
Regions 2 and 3 Director*



What is Tuberculosis?

- Tuberculosis, (TB) is a communicable disease caused by the *Mycobacterium tuberculosis* bacillus
- Slow growing germ
- Spread by the respiratory route
- Persons with contagious TB expel TB germs
 - usually by coughing but possibly by sneezing, talking or singing

Transmission of Tuberculosis

Transmission of TB

- TB germs are in tiny airborne particles called droplet nuclei
- If these are inhaled by another person, transmission may occur
- Bacilli reach the alveoli of the lung and are ingested by macrophages
- When macrophages die, TB germ may be reingested or spread
- Immune system usually responds and control spread of TB germ

Transmission of TB

- **More likely with more exposure**
- **More likely if more TB bacilli breathed in**
 - from cavitory and smear positive case
- **More likely with increased time spent**
 - or closer proximity
 - or being in a more enclosed area with less ventilation

Transmission of TB

You cannot get TB from

- Clothes
- Drinking glass
- Eating utensils
- Handshake
- Toilet
- Other surfaces

Symptoms of Active or Suspect case of TB

- **Persistent cough**
- **Fever, chills, night sweats**
- **Bloody sputum**
- **Chest pain**
- **Loss of appetite**
- **Weight loss**
- **Fatigue**

Active or Suspect Case of TB

- Usually pulmonary (80%)
- Most common extrapulmonary sites
 - Pleural
 - Lymphatic
 - Bone and joint

Latent TB Infection vs Active or Suspect Disease

Latent TB Infection vs Active or Suspect TB disease

Latent TB Infection

- No signs & symptoms
- May or may not have a history of exposure to TB

Active or Suspect TB Disease

- Signs & symptoms
- May or may not have a history of exposure to TB

Latent TB Infection vs Active or Suspect TB disease

Latent TB Infection

- Positive TB Skin or Blood test
- Normal Chest x-ray
- Not contagious
- One drug treatment

Active or Suspect TB disease

- Positive TB Skin or Blood test
- Abnormal Chest x-ray
- Can be contagious
- Four drug treatment

Latent TB infection

- Latent TB infection (LTBI)
- Latent TB have no signs and symptoms
- Patients with Latent TB are not contagious
- Patients w/ Latent TB do not spread TB to others

Latent TB infection

- About 5 to 10% of infected persons who do not receive treatment for latent TB infection will develop TB disease
- Generally, persons at high risk for developing TB disease fall into two categories

Persons who recently infected with TB bacteria

Persons with medical conditions that weaken the immune system

Testing for Tuberculosis



Testing for TB

- Two kinds of tests used to detect TB infection
- TB skin test (TST) and TB blood tests
- Positive TB skin test or TB blood test only tells that a person has been infected
- It does not tell whether the person has latent TB infection (LTBI) or has progressed to TB disease

Who needs a TB skin or Blood Test?



- Close contacts to active or suspect TB case
- Persons whose occupation is in a high risk setting (health care or correctional facility)
- All close contacts to active or suspect TB case who test **negative** on their first skin test must be retested 8-10 weeks later

Testing for TB

- **Blood test – IGRA**
- **Interferon – Gamma Release Assay**
- **QFT – Quantiferon TB Gold**
- **T- SPOT**

Testing for TB

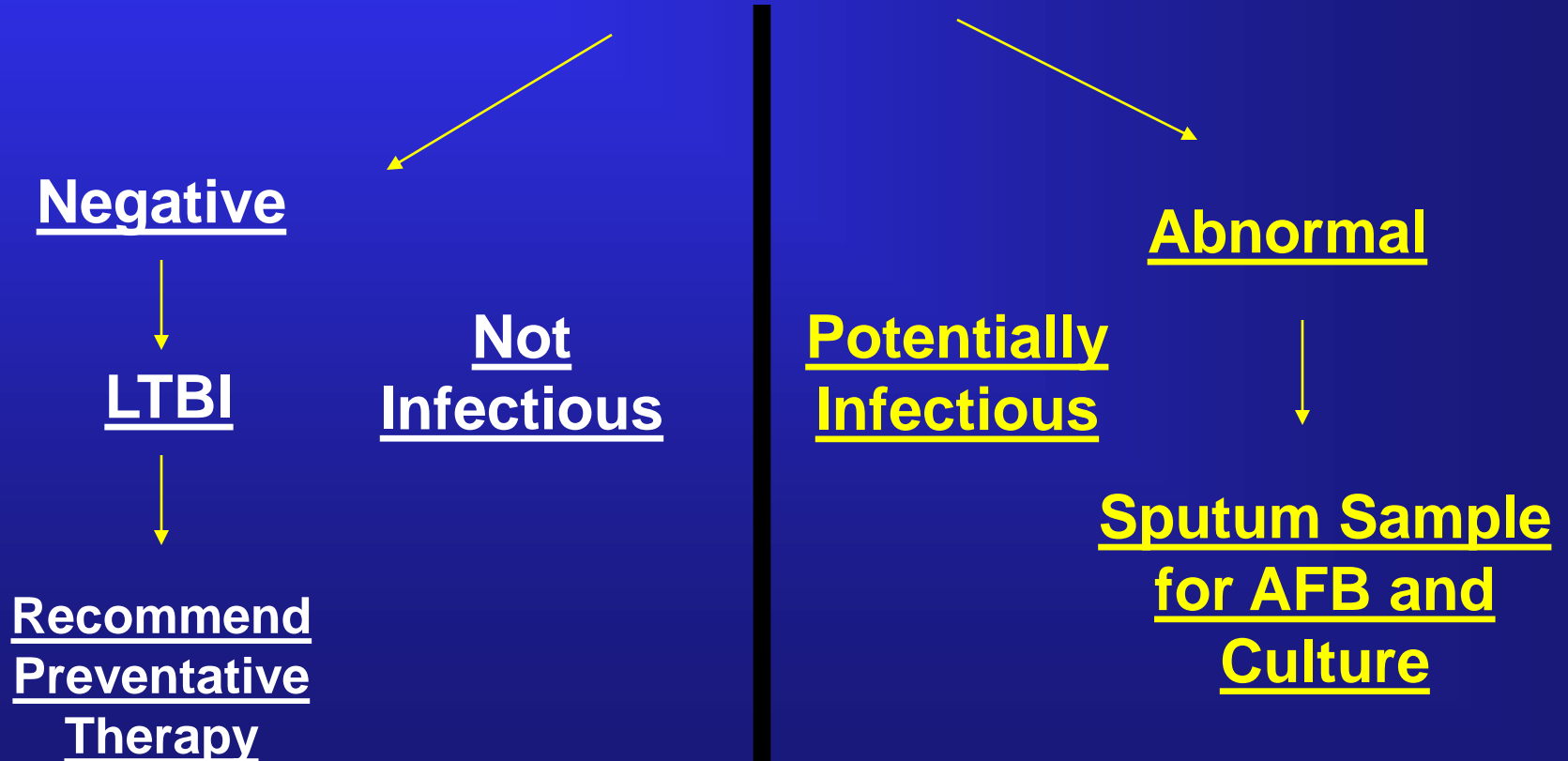
- **Other tests, such as a chest x-ray and a sample of sputum, are needed to see whether the person has TB disease**
- **If close contacts to active TB cases test negative on first TST or Blood test, they will need a repeat TST or Blood test in 8-10 weeks**

What Does a “Positive Skin Test” Mean?

- You were exposed to *Mycobacterium*, which includes *Mycobacterium tuberculosis*
- You had an immune response
- Once positive, always positive....get a Chest X-ray, not another skin test

Positive skin or Positive Blood Test

Chest X-Ray



Testing for TB

- **Sputum Testing**
 - **AFB – Acid Fast Bacillus**
 - **Graded as**
 - **Negative**
 - **<1**
 - **1+**
 - **2+**
 - **3+**

Testing for TB

- Culture – Positive
- *Mycobacterium tuberculosis*
- **Gold Standard for confirmation of TB**

Public health investigation



Active TB & Suspect Case Workup

- Open case record
- Obtain Medical History
- Obtain Close contact information
- Obtain sputums for Acid Fast Bacilli
- Obtain sputums for cultures

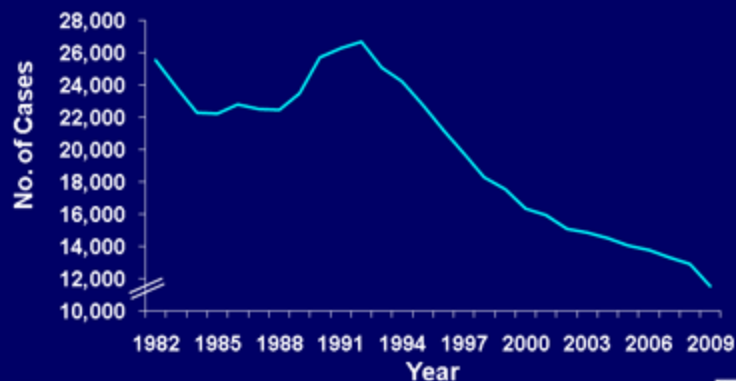
Active TB & Suspect Case Workup

- **Exclusion from work/school for 12 or more days**
- **Isolation at home**
- **Case will sign Order to Implement**
- **Started on 4 drug therapy**
- **TB testing of close contacts**

Concentric testing

- **Priority for testing are close contacts of Active TB and suspect cases**
- **Most positive tests will be within Active TB group**
- **Most effective means of conducting the investigation**

Reported TB Cases* United States, 1982–2009



*Updated as of July 1, 2010.



Reported TB Cases, United States, 1982–2009. The resurgence of TB in the mid-1980s was marked by several years of increasing case counts until its peak in 1992. Case counts began decreasing again in 1993, and 2009 marked the seventeenth year of decline in the total number of TB cases reported in the United States since the peak of the resurgence.

Take home messages

- Close contacts need to be tested
- Latent TB Infection and Active and Suspect TB disease are treatable
- Latent TB has one drug treatment
- Active TB cases and suspects must comply with treatment
- **Talk to your physician**
- **Short-term Hotline 817-264-4949**

Thank you

