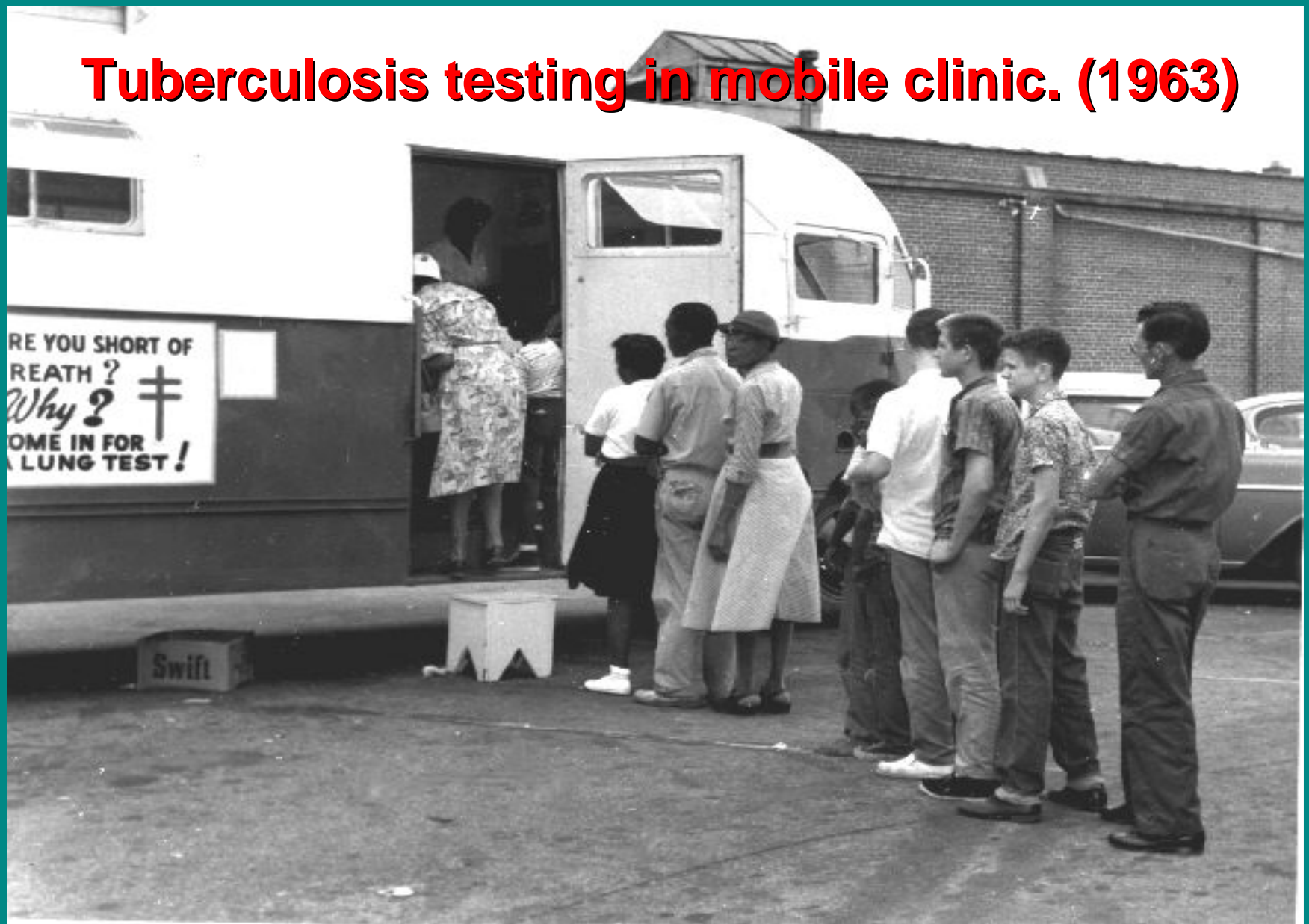


TB Skin Test Overview



Tuberculosis testing in mobile clinic. (1963)



Target Groups for TB Skin Testing

Persons at higher risk for exposure to or infection with TB

- Close contacts to TB case
- Foreign born from areas of high prevalence of TB
- Those living in congregated settings
 - Long term care, correctional facilities, shelters, etc.
- HCWs who serve high risk clients
- Medically underserved populations
- High-risk racial or ethnic minority populations
- Children exposed to adults in high-risk categories
- Persons who inject illicit drugs

Target Groups for TB Skin Testing

Persons at higher risk for TB disease once infected

- HIV or at risk for HIV
- Persons recently infected with *M. tb*
- Persons with certain medical conditions
- Persons who inject illicit drugs
- Persons with a history of inadequately treated TB

All testing activities should be accompanied by a plan for follow-up care.

Tuberculin Skin Testing

- Purpose-find persons with LTBI/TB disease who would benefit from tx
- *M. tb* infection produces delayed type of hypersensitivity reaction to PPD
 - Reaction begins 5-6 hrs after injection and peaks at 48-72 hrs
- Protein extract of tubercle bacilli killed by heating
- Not a vaccine

TB Skin Testing

- Detects individuals infected with mycobacterium
- The ID TST is the most commonly used method
 - QuantiFERON-TB test: whole blood test
 - Multiple puncture test (ie tine) no longer recommended
- TST is a diagnostic aid-screening tool

Application of the TB Skin Test

- Health screening questions
 - Previous + TST reactions?
 - Recent live virus vaccine?
 - Recent viral infection?
 - Recent steroid therapy?
 - Immune compromised?
 - Vaccinated with BCG?

Application of the TB Skin Test

- History of previous + reaction to TB skin test
 - Do not administer another TB skin test
 - Clarify that individual understands what a + reaction is
- TB skin testing with immunizations
 - Either administer TB skin test on same day as live-virus vaccines OR
 - 4-6 weeks after administration of the live-virus vaccine
 - Wait at least one month after smallpox vaccination

Application of the TB Skin Test

- Immunocompromised
 - Reactivity to TST may be depressed or suppressed
- BCG is not a contraindication to TB skin testing
- TB skin testing during pregnancy
 - Not a vaccine
 - Safe to administer for targeted TST

Storage of PPD

- Store PPD in refrigerator at 2-8° C (35-46° F) when not in use
- Protect from light
- Discard 30 days after opening vial

Administering the Tuberculin Skin Test

- Inject intradermally 0.1 ml of 5 TU PPD tuberculin (bevel up)
- Produce wheal 6 mm to 10 mm in diameter
- Do not recap, bend, or break needles or remove needles from syringes
- Follow standard precautions for infection control
- Have emergency kit available for reactions

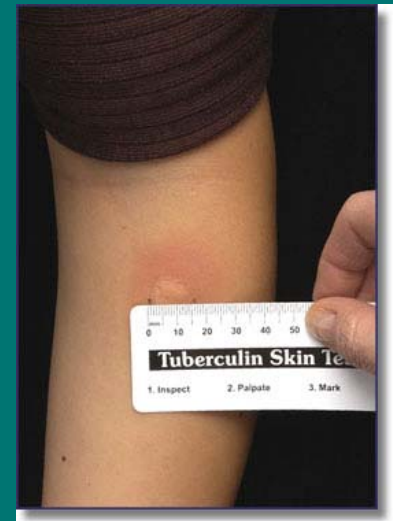


Reading the Tuberculin Skin Test



TB Skin Test Readings

- Read the test 48-72 hours after the application
- Measure the widest diameter of induration (transverse)
- Measure the induration up to 1 week after the skin test
- Negative TB skin test results read after 72 hours should be repeated
- Document date skin test read, induration in mm and read by whom



Classifying the Tuberculin Reaction

- ≥ 5 mm is classified as positive in
 - HIV-positive persons
 - Recent contacts of TB case
 - Persons with fibrotic changes on chest radiograph consistent with old healed TB
 - Patients with organ transplants and other immunosuppressed patients

Classifying the Tuberculin Reaction

- ≥ 10 mm is classified as positive in
 - Recent arrivals from high-prevalence countries
 - Injection drug users
 - Residents and employees of high-risk congregate settings
 - Mycobacteriology laboratory personnel
 - Persons with clinical conditions that place them at high risk
 - Children < 4 yrs, or children and adolescents exposed to adults in high-risk categories

Classifying the Tuberculin Reaction

- ≥ 15 mm is classified as positive in
 - Persons with no risk factors identified
- Targeted skin testing programs should only be conducted among high-risk groups

TB Skin Tests in Children

- For infants and children use same strength test and dosage
- More likely to get false negative results in infants
- Positive TB skin tests in children indicate recent transmission of TB in community
- Refer all children with + reaction for medical follow-up

Anergy Testing

- No longer recommended
- No consistent standardization
- Responses not consistent
- Evaluation of status should be based on 'whole picture' and not based on one test

The Booster Effect

- Delayed type hypersensitivity may wane with age
- Initial skin test may be negative
- This test may 'boost' reactivity
- Subsequent tests may be '+'
- Individual may be mistakenly classified as a new infection
- Remember-you can't booster someone who is not infected

Two Step TB Testing

- Distinguishes between boosted reactions and new infections
- Recommended for persons who will be retested periodically and who have not had a TB skin test for over one year
 - First test '+' : Person infected
 - First test '-' : Do second test in 1-3 weeks
 - Second test '+' : Old infection
 - Second test '-' : Uninfected

Health Care Workers *M. tb* Screening

- Neg or no history of skin tests
 - New hire: 2 step (unless tested within past year)
 - Current: Annual skin test
- Past positive
 - New hire: TB questionnaire
 - Current: Annual questionnaire
- High risk screened every 3 or 6 months
 - Outlined in MI OSHA TB document from 7-11-05
- *Any changes require evaluation*

False Negative TB Skin Tests

- Failure to react to skin test even though person is infected with mycobacterium
- Technical errors (remember the 5 'rights')
 - Incorrect method of administration
 - Too little antigen
 - Subcutaneous injection
 - Incorrect interpretation

False Negative TB Skin Tests

- Cutaneous anergy
 - HIV Infection
 - Severe or Febrile Illness
 - Hodgkin's Disease
 - Sarcoidosis
 - Corticosteroids
 - Immunosuppressive Drugs
- Recent TB infection
- Very young age (< 6 months old)
- Recent live-virus vaccination (including smallpox)
- Overwhelming TB disease
- Some viral illnesses (e.g., measles and chickenpox)

False Positive Tests

- A positive reaction in an individual who is not infected with *Mycobacterium tuberculosis*
 - Infected with a mycobacteria other than tuberculosis
 - Vaccination with BCG
 - Incorrect interpretation
 - Administration of incorrect antigen

Questions?

Scenarios

