Contact Investigation Evaluation and Management

Contact Investigation

- Is a TB control strategy used to identify, find and assess TB contacts and provide them with appropriate treatment for Latent TB Infection (LTBI) or TB Disease if needed

- TB contacts: persons who have been exposed to a case of infectious TB disease

Objectives

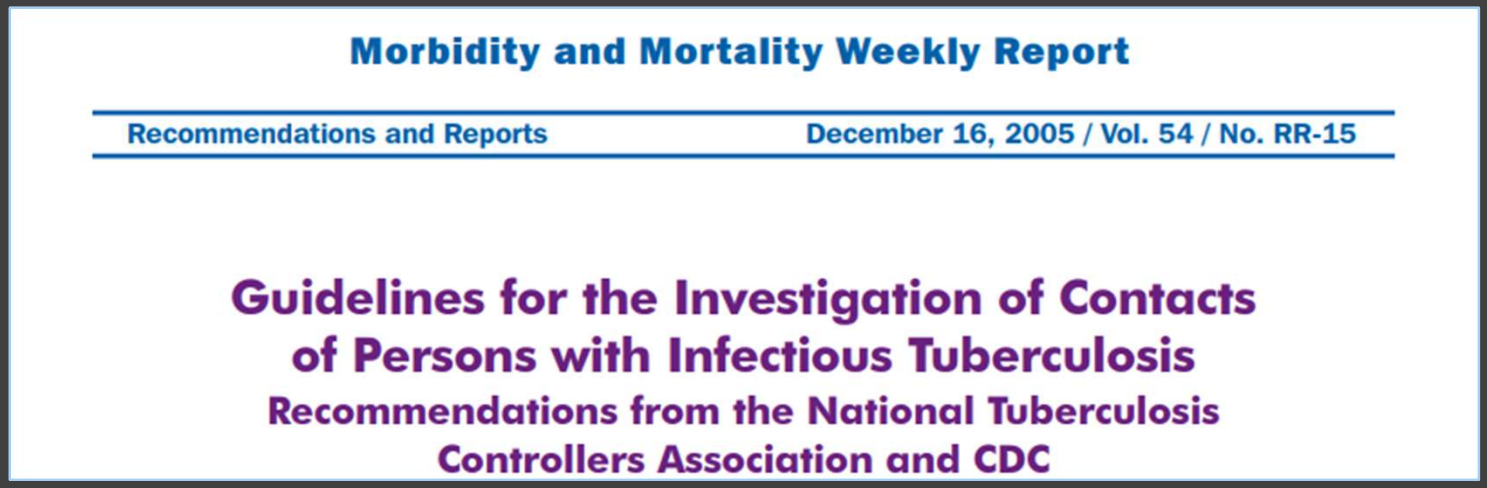
- Outline the goals of a TB contact investigation (CI)
- Provide a brief overview of the role and history of TB CI guidelines
- Explain current TB CI guidelines and the impact on existing CI procedures

Goals of a TB Contact Investigation

- Promptly identify individuals who were exposed to an infectious case
- Screen contacts
- Evaluate contacts
- Promptly start treatment for TB infection (TBI)
- Ensure a complete, standard course of treatment
- Stop transmission
- Determine whether a TB outbreak has occurred.

History

- 1976 ATS – brief guidelines for investigation, diagnostic evaluation, and medical treatment of TB contacts
- MMWR December 16, 2005



Morbidity and Mortality Weekly Report

Recommendations and Reports — December 16, 2005 / Vol. 54 / No. RR-15

Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis

Recommendations from the National Tuberculosis Controllers Association and CDC

- TB Guidelines

Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis: Recommendations from the National Tuberculosis Controllers Association and CDC
MMWR 2005; 54 (No. RR-15, 1-37)

Structure

13 sections

- Guidelines are not "one size fits all"

  Consideration must be taken into account for all specific situations.

1. Decision to initiate a contact investigation (CI)
2. Investigating the index patient and sites of transmission
3. Assigning priorities to contacts
4. Diagnostic and public health evaluation of contacts
5. Medical treatment for contacts with LTBI
6. When to expand
7. Communicating through the media
8. Data management and evaluation
9. Confidentiality and consent in CI
10. Staffing and training
11. CI in special circumstances
12. Source-case investigation

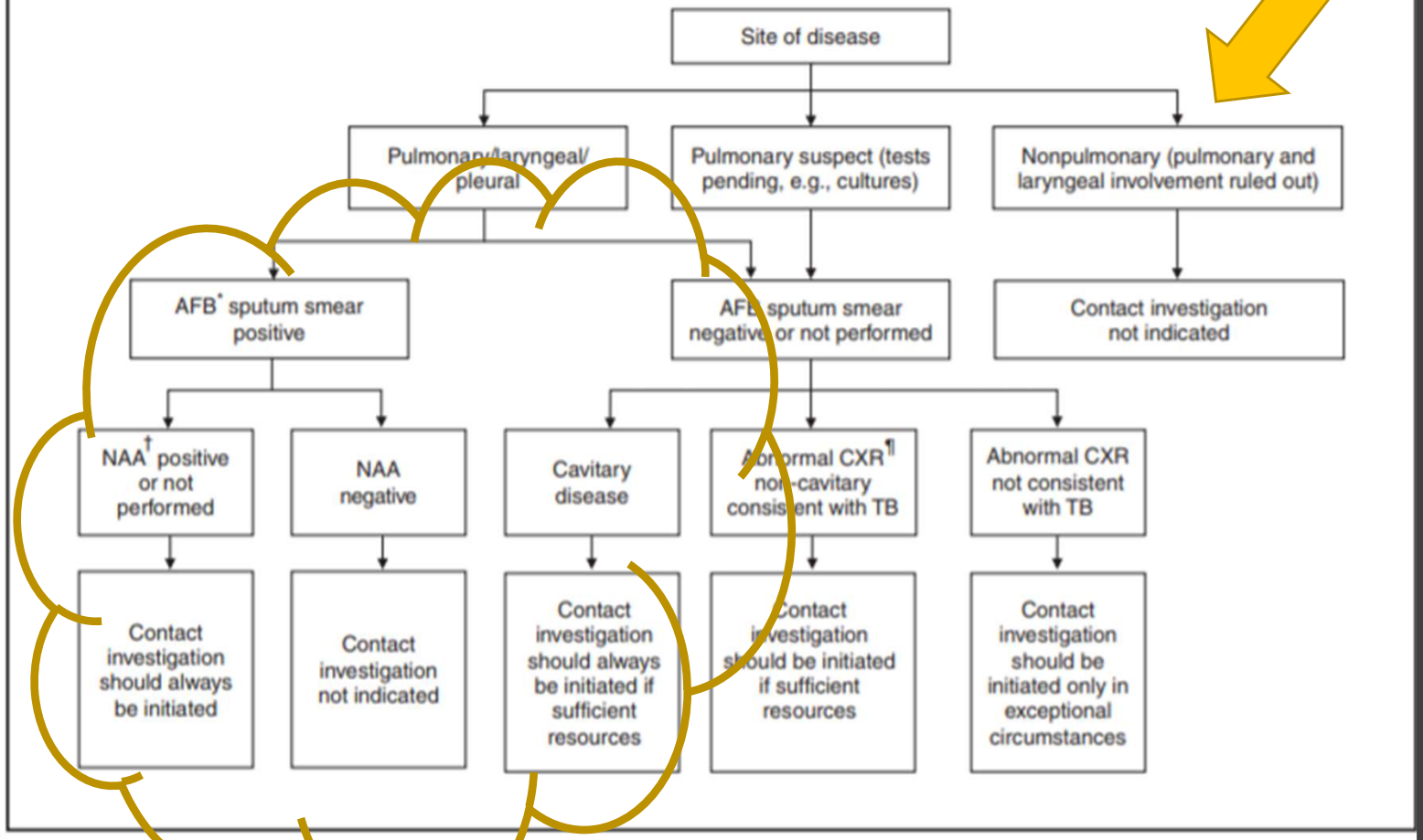
Decision to Initiate a CI

Section 1

- Depends on the presence of factors used to predict the likelihood of transmission
  - ✓ Site of Disease
  - ✓ Sputum Bacteriology
  - ✓ CXR findings
  - ✓ Patient behaviors that increase aerosolizing
  - ✓ Age
  - ✓ HIV status
  - ✓ Effective treatment
- Other patient information

Initiating a TB CI

FIGURE 1. Decision to initiate a tuberculosis (TB) contact investigation



* Acid-fast bacilli
† Nucleic acid assay.
§ According to CDC guidelines.
¶ Chest radiograph.

Investigating the Index Patient

Section 2

- 4 Steps
  1. Pre interview phase
  2. Determine the infectious period
  3. Interview the patient
  4. Develop a specific investigational plan

Investigating the Index Patient

Section 2: Pre Interview Phase

Comprehensive information regarding the patient is the foundation of a CI

- Disease characteristics
- Onset date of illness
- Current medical factors
- Hx of exposure/disease
- Demographic information

Investigating the Index patient

Section 2: Determining the Infectious Period

It is the time frame in which potential exposure to others may have occurred while the index patient was infectious

Practical estimate

- Dates symptoms noticed
- Bacteriology results
- Extent of disease (cavitary vs. noncavitary)

➢ 3 months prior to diagnosis, or onset of s/s

➢ End of infectious period

- Contacts no longer exposed to patient or **all** three of the following
  - Index pt. receiving effective treatment for at least 2 weeks
  - The index pt. has diminished symptoms
  - Decrease in grade of sputum smears positivity

Investigating the Index Patient

Section 2: Interviewing the Patient

3 days

- Establish rapport
- Information exchange
  - Sites of transmission
  - Contact identification
  - Determine contact prioritization
- Closure
- Follow up interviews

Investigating the Index Patient

Section 2: Develop an Investigational Plan

- Review and organize obtained information
- Assign priorities to contacts

Assigning Priority to Contacts

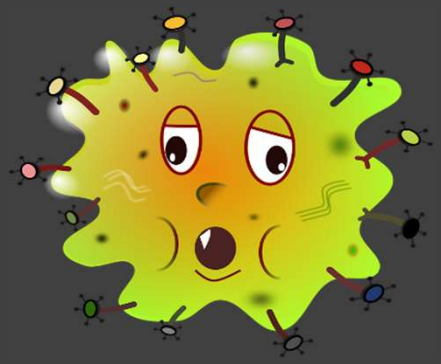
Section 3

- Contact priority is determined by the likelihood of infection and the potential hazards to the individual if infected
  - Factors:
    - Characteristics of the **index** patient
    - Characteristics of the **contacts**
      - Age – infants, <5, post pubertal
      - Immune status – HIV, steroids, antirejection meds, TNF-a antagonists
      - Other medical conditions
      - Exposure

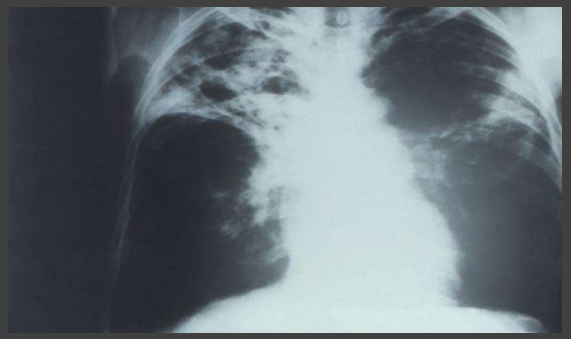
Clinical Evaluation of Contacts

Section 4

- Approximately 20%-30% of contacts have TB infection, and 1% have TB disease.



- Half will acquire disease in the first year after exposure



Clinical Evaluation of Contacts

Section 4: Clinical Evaluation

- 7 days

  - Face to Face
  - Previous results
  - Symptoms review
  - Medical and social history
  - TB exposure type, duration and intensity

Clinical Evaluation of Contacts

Section 4: Testing

- HIV
- TST or IGRA- ≥2y/o
  - 7 working days – High
  - 14 working days – Medium
- Post exposure
  - 8-10 weeks

Clinical Evaluation of Contacts

Section 4: Medical Evaluation

- ≥ 5mm or
- S/S

Specific Groups

- ✓ Children <5 years old
  - High priority
  - Full diagnostic medical evaluation
  - Window prophylaxis
- ✓ Immunocompromised (HIV)
  - Similar care
  - BUT….
- ✓ Previous + or hx of TB disease
  - Documentation

Remember: ***any contact that is to be treated for TBI, a CXR should be done to r/o TB disease before starting treatment.***

Medical Treatment for Contacts with TB Infection

Section 5

- Window-Period Prophylaxis
  - Children <5y/o
  - HIV
  - Immunosuppressive therapy
    - Organ transplant
    - Biologicals

- Exposure to DR- TB
  - INH mono resistance
  - Rifampin mono resistance
  - INH/Rifampin resistance = MDR
    - **GET A CONSULT**

Medical Treatment for Contacts with TBI

Section 5: Adherence to Treatment

- National TB Program Objectives and Performance Targets for 2020
  - 81 %
- DOT
  - Priorities
    - Active TB Disease
    - < 5 years old
    - HIV infected or substantially immunosuppressed contacts
    - Converters (Negative @ 1st Round then Positive @ 2nd Round)
    - contacts less likely to complete therapy due to social or behavioral impediments (drug abuse, mental illness, etc.)
- Evaluate Monthly

When to Expand a TB CI

Section 6

- Infection rate is high
  - Texas 20%, CDC 10% or twice # expected
- Evidence of secondary transmission
- Positive test for any child < 5 years of age
- Change in contacts TST or IGRA results
- Infection among casual or low-priority contacts
- Are program objectives being met

https://www.dshs.texas.gov/idcu/disease/tb/forms/#TB-460

Communicating through Media

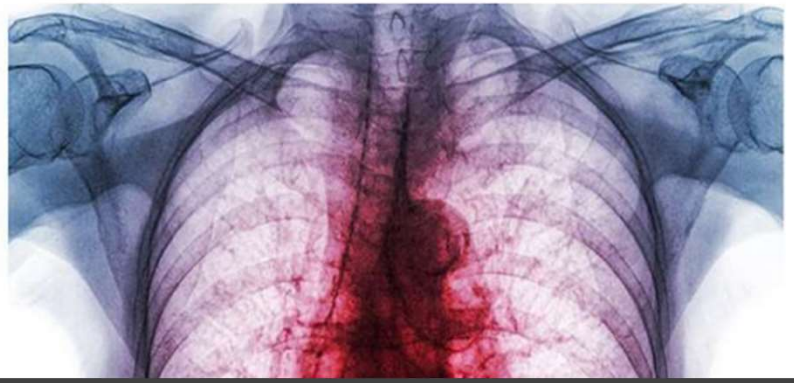
Section 7

2 Cases Of Tuberculosis Confirmed At Dallas High School

INFECTIOUS DISEASE · **Published** August 24, 2017 · **Last Update** September 25, 2017

Man in Texas found dead in alleyway died of tuberculosis, state officials say

By Madeline Farber | Fox News



Communicating through Media

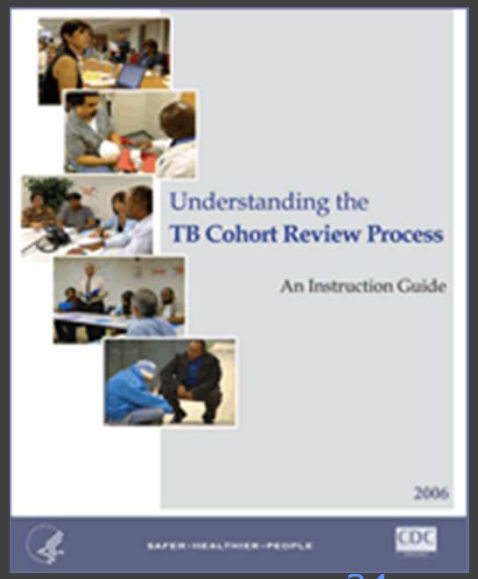
Section 7

- Formal policy
- Clear and Consistent
- Confidentiality
- Collaboration
- List of communication objectives

Data Management and Evaluation

Section 8

- Management of care and follow-up for index patients and contacts
- Epidemiologic analysis of an investigation
- Program evaluation using performance indicators
  - Cohort Review



Confidentiality and Consent

Section 9

- Policies and training
  - Protecting
  - Training
- Informed consent
  - Allay mistrust
- Site investigation
  - Pre plan with patient
- Other medical conditions

Staffing and Training

Section 10

- Should be conducted by a TRAINED staff member

- Seek Training Opportunities
  - CDC Modules
  - Webinars

Module 8: Contact Investigations for Tuberculosis [PDF – 22 MB] Also available in Spanish

https://www.heartlandntbc.org/training/
https://www.cdc.gov/tb/education/default.htm

TB CI in Special Circumstances

Section 11

Which TB Cases Require a Contact Investigation?

- Patients with Confirmed TB Disease
- Patients with TB symptoms and being evaluated pending confirmation of active TB disease

- Generally patients with noninfectious forms of TB Disease do not require a contact investigation. Ex: extrapulmonary TB disease, and cases involving children
- A source case investigation should be initiated for children

Source Case Investigation

Section 12

Contact Investigation

Case .....Contacts

Source-case Investigation

Case .....Contact

Source Case Investigation

Section 12

- Child under age of 5 with TB disease
- TBI on a child < 2 y/o
- Healthcare settings where serial TB testing indicates recent M. tuberculosis infection in a healthcare worker
- Correctional facilities (e.g., jails, prisons where TB testing indicates an increase in M. tuberculosis infection among staff or inmates

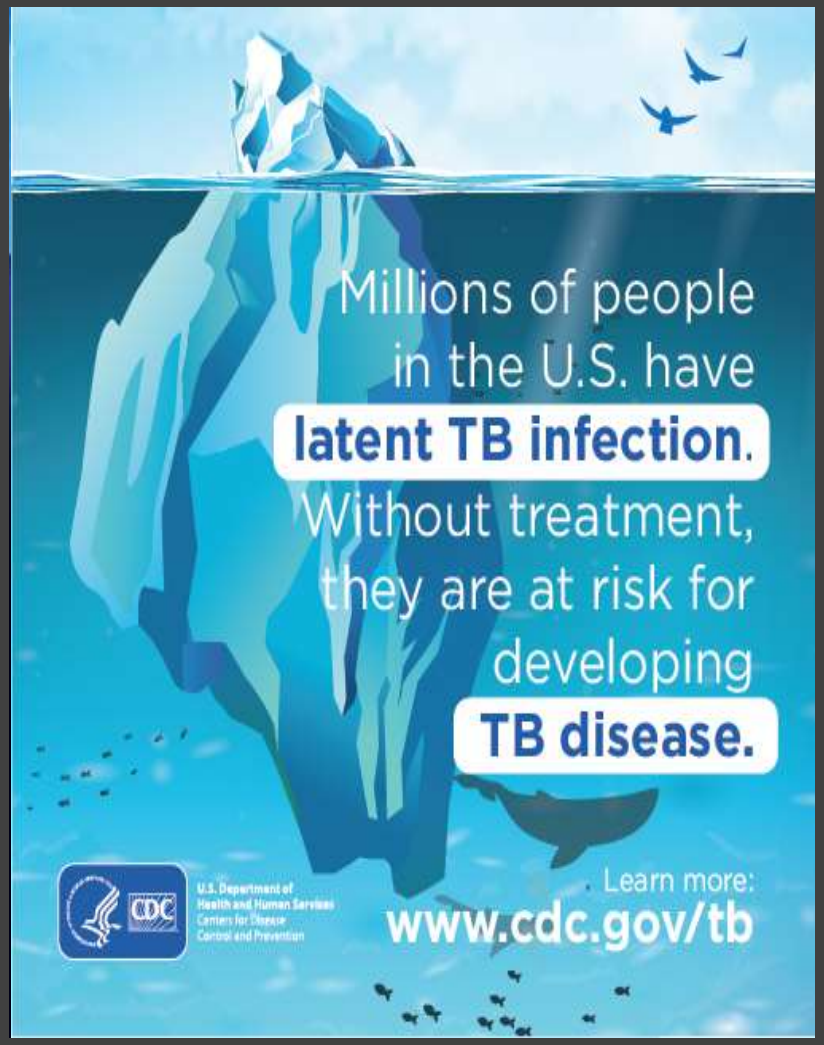
Recommended when infectious case investigation objectives are all being met including treatment completion of contacts

Other Topics

Section 13

Cultural Competence

Language



An incident is just the tip of the iceberg, a sign of a much larger problem below the surface

Don Brown

Thank you

Contact Investigation Case Study

PRESENTED BY NORMA SANTOS

PRESENTATION PREPARED BY TB NURSE CONSULTANT
ERICA MENDOZA

TB EPIDEMIOLOGIST

TB AND HANSEN'S DISEASE BRANCH

Objectives

- Discuss factors associated with prioritizing contacts identified in an investigation

Background

- A local health department notified the TB and Hansen's Disease Branch of a concerning investigation involving a 15 year old patient with probable TB disease.
- The patient had a family history of TB. Complicated family dynamics contributed to the patient being lost to f/u when he was previously identified as a contact.
- Household contacts screened positive during first round testing.
  - Patient's mother was symptomatic.

To Expand or Not to Expand?

- The patient was a student at a large local high school.

Patient Characteristics

Diagnostic	Result
Symptoms?	Cough, hemoptysis, loss of appetite, weight loss, night sweats
TST?	Positive
NAAT?	Positive for MTB complex
Smears?	Sputum smear positive >10/field
CXR?	Abnormal with cavitation
Culture?	Positive for MTB

Contact Characteristics

- Congregate setting
- Crowded classrooms with 30 students per class on average
- Small, poorly ventilated rooms
- Not all classes assigned seats
- A/B days with 70 minute classes
- 2 semesters in infectious period
- Most classes in one wing

Investigation Results

Contact Category	Contacts Screened	Contacts Infected with TB	Contacts with TB Disease	Infected Contacts on Treatment	Disease on Treatment
Household	28	6	3	3	3
Social	4	0	0	0	0
High School - Students	219	21	0	18	0
High School - Staff	11	2	0	0	0
Total	**262**	**29**	**3**	**21**	**3**

Household/Social Contact infection rate = 19%
School Contact infection rate = 10%
Overall infection rate = 11%

Limitations

- Medical risk factors of contacts not determined
- Investigation occurred in a high TB incidence area

Thank you

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