Contact Investigation Overview

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June 6, 2024

Comprehensive TB Nurse Case Management
June 5 – June 6, 2024
San Antonio, Texas

Chelsea Hargrave, BS, CHES, has the following disclosures to make:

- No conflict of interests
- No relevant financial relationships with any commercial companies pertaining to this educational activity

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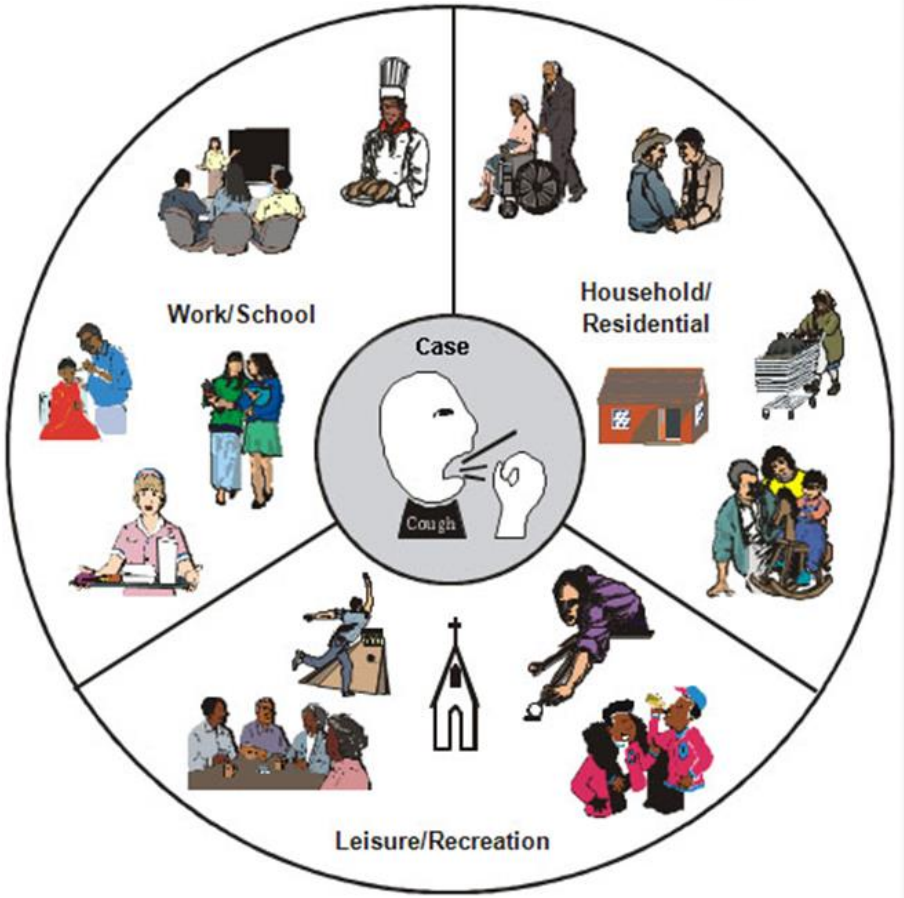
Objective

- Discuss the CDC guidelines on existing contact investigation procedures
- Describe initiation of a contact investigation
- Identify the components of a TB contact investigation

What is a Contact Investigation?

A systematic process to:

- Identify persons (contacts) exposed to someone with infectious TB disease
  - Household members
  - Friends
  - Co-workers
  - Others (cellmates, shelter residents, etc.)
- Assess contacts for infection with *M. tuberculosis* and TB disease
- Provide appropriate treatment for contacts with LTBI or TB disease



Importance of Contact Investigation

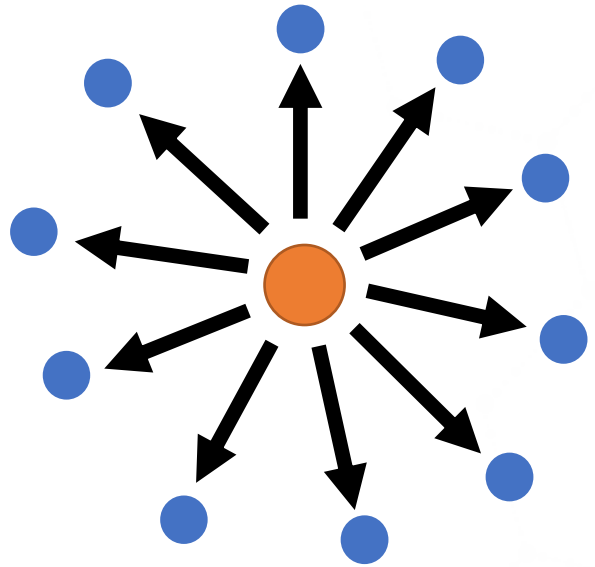
Contact investigations allow TB programs to:

- Stop transmission
- Identify the source case
- Identify contacts
- Prevent future cases of TB disease
- Evaluate and treat recently exposed persons

*On average, 10 contacts are identified for each case

-20% to 30% of household contacts have LTBI

-1% of contacts have TB disease



Conducting Contact Investigations is one of the highest priorities within TB programs in the United States

- Only second to the detection and treatment of TB disease

Keep in mind…

A full CI is required for all persons that have been confirmed to have infectious forms of TB disease

- Generally, TB of lungs, airway, or larynx

State and local health departments have legal responsibility to

- Investigate active TB reported in their jurisdiction
- Evaluate effectiveness of TB investigations

Investigations and Interviews

- **Index case:** the initial TB case that prompts a contact investigation (identified).
- **Source case:** a person with TB disease who is responsible for transmitting M. tuberculosis to another person or persons (unidentified).
- **Source case investigation:** a method used to identify a source case; usually done when a young child is found to have TB disease
- **Pre-interview phase:** reviewing existing information about the TB case before the first interview; typically, this is the first step in the systematic approach to contact investigation
- **Proxy interview:** an interview with persons (proxies) who are familiar with the TB case's practices, habits, and behaviors

Systematic Approach to TB Contact Investigations

Guidelines Content

- Decision to Initiate Contact Investigation
- Investigating the Index Patient and Sites of Transmission
- Assigning Priorities to Contacts
- Diagnostic & Public Health Evaluation of Contacts
- Treatment for Contacts
- When to Expand a Contact Investigation
- Communicating through Media
- Data Management & Evaluation of Contact Investigations
- Confidentiality & Consent for Contact Investigation
- Staffing & Training for Contact Investigations
- Contact Investigations in Special Circumstances
- Source – Case Investigation

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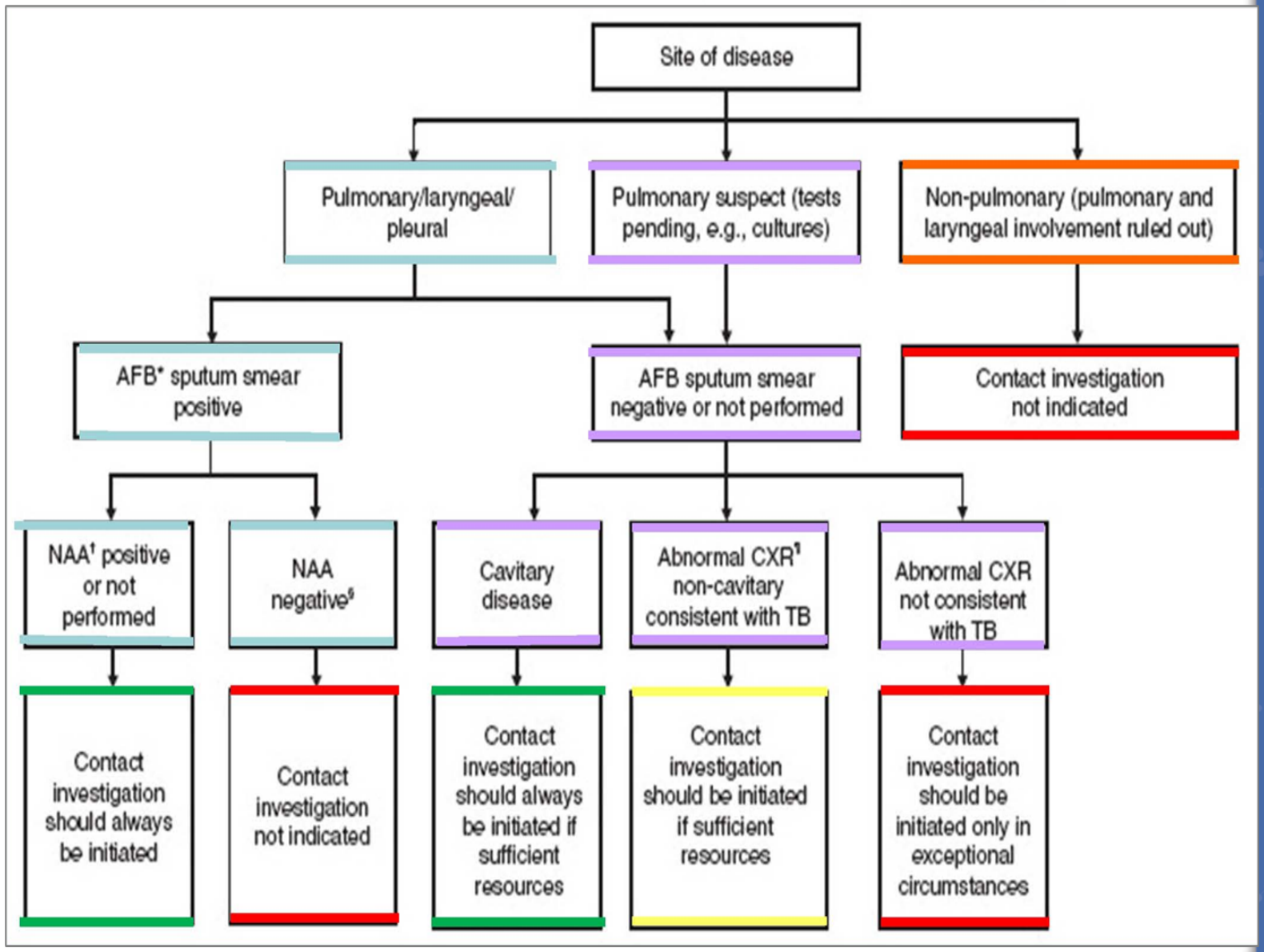
Decision to Initiate Contact Investigation

- Site
- Radiographic findings
- Infectiousness
- PCR/Gene expert



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Before interviewing the patient… Pre-interview phase

It is important to know as much about your index case prior to the first interview. Being knowledgeable in the following could create opportunities to develop rapport and break down barriers that can lead to a successful CI:

- Personal details and demographics
- Substance abuse, mental illness, or other issues
- Social, or behavioral risk factors increasing the risk of TB
- Known contact names, particularly children or persons with weakened immune systems
- History of jail or homelessness
- History of immigration or travel
- TB medical history (site, infectiousness, symptoms, regimen, CXR results, smear results, etc.)

Investigating the Index Patient and Sites of Transmission

An **in-person interview** should be done within one day for symptomatic patients & three days for others

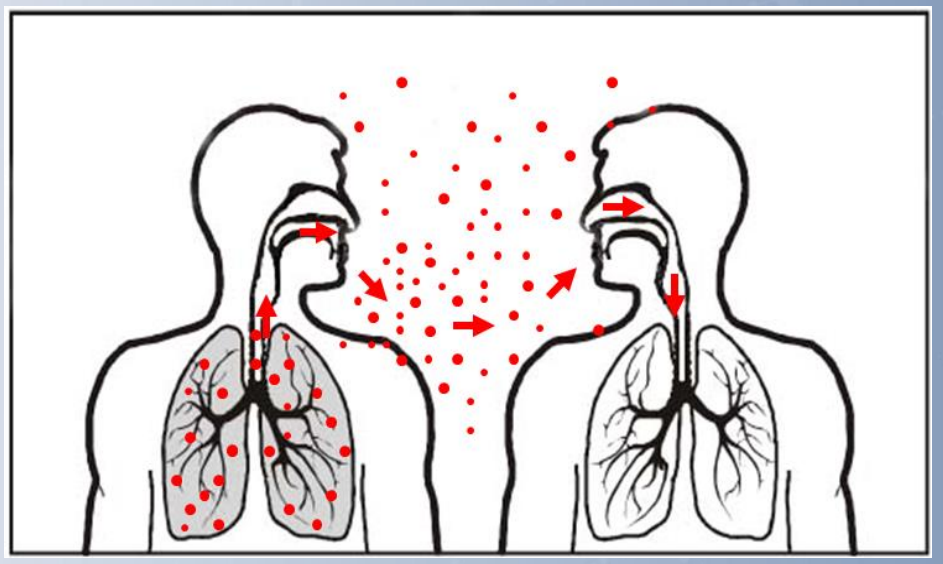
Determine infectious period (recommended 3 months before earliest indication of disease)

Follow-up - second interview for additional information after patient has had time to absorb and analyze situation (1 to 2 weeks later)

- Residence of index case should be visited within three days of initial interview.
- All potential transmission sites should be visited and environment evaluated.
- Information learned in interview and site visits lead to investigation plan.
- Investigation plan will be a work-in-progress and should be reassessed continually.
- It becomes part of the permanent record.

The Infectious Period

- The time in which a person with TB is **most likely** to transmit the *M. tuberculosis* bacteria



- Infectious period is key for CI
  - Identifies contacts most likely to be exposed
  - Important for accurate identification in a congregate setting
  - Will identify when and what contacts will need a repeat TST or IGRA (initial negative test ; 8-10 weeks following most recent exposure

Estimating the Start of the Infectious Period

Characteristic of Case			Likely Period of Infectiousness
TB symptoms	AFB sputum smear positive	Cavitary chest x-ray	
Yes	No	No	3 months before symptom onset or first finding consistent with TB disease, whichever is longer
Yes	Yes	Yes	3 months before symptom onset or first finding consistent with TB disease, whichever is longer
No	No	No	1 month (4 weeks) before date of suspected diagnosis
No	Yes	Yes	3 months before finding consistent with TB disease

https://www.dshs.texas.gov/sites/default/files/IDCU/disease/tb/forms/PDFS/TB-425.pdf

TEXAS Health and Human Services | Texas Department of State Health Services

TUBERCULOSIS INFECTIOUS PERIOD CALCULATION SHEET

This calculation sheet is designed to estimate the time a client with suspected or confirmed tuberculosis (TB) disease is capable of transmitting TB to others. Identifying the infectious period establishes a point in time to focus contact investigation efforts including evaluating exposed persons at risk of progressing to TB infection or disease.

Patient's name: _____ **Date of birth:** _____

Completed by: _____ **Title:** _____

Phone #: _____ **Date completed:** _____

Table 1. Estimating the Date of Symptom Onset

Symptom	Yes	No	Duration	Onset Date
Cough				
Cough with blood				
Weight loss				
Night sweats				
Chest pain				
Loss of appetite				
Fever				
Chills				
Other (i.e., shortness of breath & fatigue)				

Table 2. Estimating the Beginning of the Infectious Period

A. Criteria			B. Estimated Start of Infectious Period *Select any of the following based on criteria met by client in Column A*	C. Infectious Period Start Date *Select earliest date of symptom onset listed in Table 1*
TB Symptoms	Acid Fast Bacilli (AFB) Sputum Smear Positive	Cavitary CXR		
Yes ___	Yes ___	Yes ___	Three (3) months before symptom onset or first positive finding consistent with TB disease (e.g. abnormal chest radiograph) whichever is longer.	
Yes ___	Yes ___	No ___		
Yes ___	No ___	No ___		
No ___	Yes ___	Yes ___	Three (3) months before first positive finding consistent with TB	
No ___	No ___	No ___	Four (4) weeks before date of suspected diagnosis	

Source: Adapted from MMWR. 2005; 54 (No. RR-15)

TB- 425 for Infectious Period

Conducting Interviews: Settings

Initial case interview should be conducted:

- In-person
- At a hospital, TB clinic, in the home, or any convenient location that allows for privacy
- Using appropriate infection prevention measures (e.g., respirators, masks,) and ventilation
- In primary language
- With cultural sensitivity

Conducting Interviews: Questions

Ask about the following during their infectious period:

- Places WHERE they spent time
- Persons with WHOM they spent time
- Participation in activities and events (*WHAT* and *WHEN*)

Texas Department of State Health Services
Contact Investigation Worksheet

Name: _____ DOB: ___/___/___ SSN: ___/___/____
Patient's Home Phone: ( ) _____ - _____ Other Phone : ( ) _____ - _____
Bacteriology results: AFB smear _____ Culture _____ Disease site: _____
Drug Start Date: ___/___/___ DOT Start Date: ___/___/____
If asymptomatic, date of 1st (+) bacteriology ___/___/___
or date of 1st chest x-ray suggestive of TB disease: ___/___/___
Circle all symptoms that apply: Date of 1st symptoms: ___/___/____
Fever Chills Night Sweats Wt. loss>10% Cough Productive Cough Other: _____
Estimated start date for infectious period _____

Case or Suspect Interview
Place of Initial Interview _____ Date of Interview: ___/___/____
Interviewed by: _____
Interpretation by: _____ Source of Interpreter _____
Place of Additional Interview _____ Date of Interview: ___/___/____
Interviewed by: _____ Interpretation by: _____
Date of Home Visit: ___/___/___ Interviewed by: _____
Interpretation by: _____ Source of Interpreter _____

Congregate Setting Administrator Interview
Date of Site Visit: ___/___/___ Place of Site Visit _____
Person Interviewed _____ Interviewed by: _____ Interpretation by: _____

I. HOME AND FAMILY

Complete this section for each address where the client has lived during the 6 months prior to starting TB medication. Begin with current address and work your way backwards.

Physical Address:	Apt #	City	Zip
Mailing Address:			
Length of time at current address	Date Moved In		
Other addresses in last 5 years	Date Moved In	Date Moved Out	

Page 1 of 8
12-12062 Contact Investigation Worksheet (Rev. 1/2008)

12-12062	TB Public Health Follow-Up Worksheet	1/2008

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Prioritizing Contacts

- Once contact information is obtained, priority for immediate assessment should be assigned to individual contacts based on the following:

- Have symptoms of TB disease
- Risk for development of TB disease
- Had repeated or extended exposure to the person with active TB
- Were exposed to the index case in an environment where transmission was likely, such as a small, crowded, or poorly ventilated room or vehicle
- Were exposed to TB undergoing medical procedures that can release substantial numbers of *M. tuberculosis* into the air (e.g., bronchoscopy)

High Priority Contacts

- High priority contacts are most likely to be infected
- Factors contributing to high priority status
  - Immunosuppressed
    - HIV; disease occurs more frequently and more rapidly than with any other factor
    - Corticosteroids - >15 mg daily for >4 weeks
    - Multiple cancer chemotherapy agents
    - Anti-rejection drugs for organ transplants
    - Tumor necrosis factor alpha antagonists
    - Children under 5
      - TB disease is more likely to occur once infected
      - Incubation or latency period is briefer

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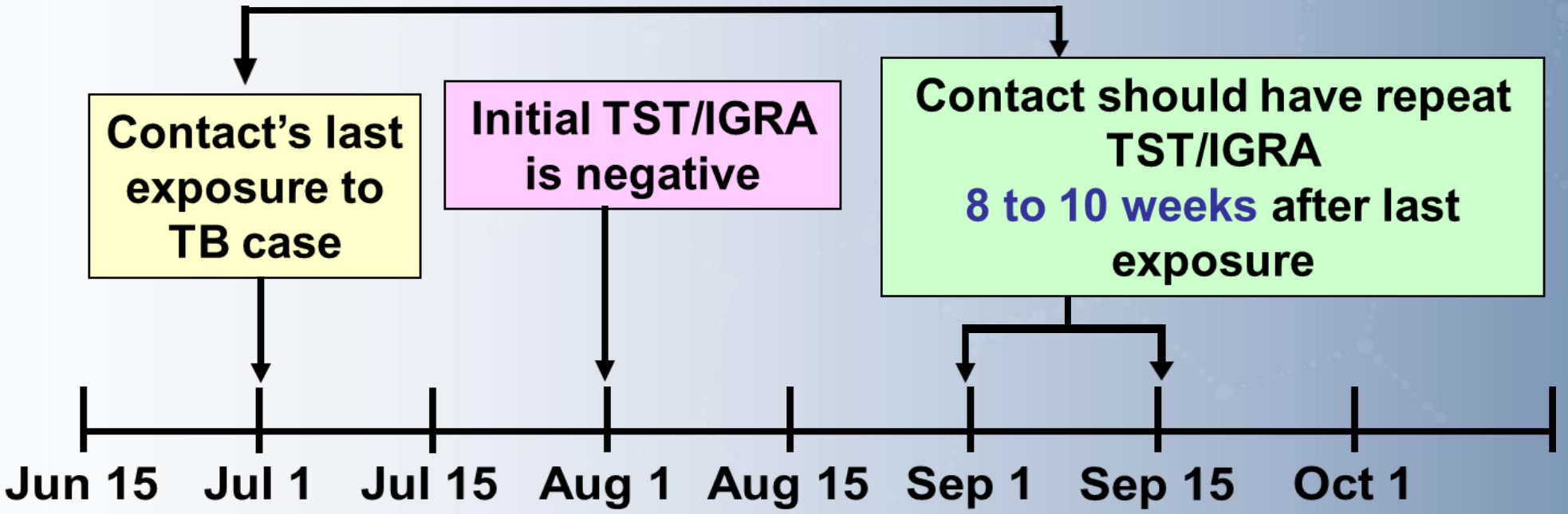
Contact Assessment

- Contacts should receive a TST or IGRA unless a previous, documented positive result exists
- A TST induration of 5 mm or larger is positive
- A contact with a
  - Positive TST or IGRA should be medically examined for TB disease
  - Negative TST or IGRA should be re-tested 8 to 10 weeks after date of last exposure

Window Period

- The window period is the time span between the contact's last exposure and when a TST or IGRA can reliably detect infection
- It takes 2 to 10 weeks after TB infection for the body to mount an immune response that is detectable by a TST
- Therefore, it is recommended to repeat a TST or IGRA for contacts 8 to 10 weeks after date of last exposure to a TB case



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When Should a Contact Investigation be Expanded?

Sometimes a CI has to be expanded if there is evidence of recent transmission:

- Unexpectedly high TB disease or LTBI rates among priority contacts
- Large number of contacts with change in infection status from negative to positive
- TB disease in any contacts who had been assigned low priority or TB disease in those previously not identified as contacts
- Infection in any contacts younger than 5 years of age

Expanding a Contact Investigation

- Decision to expand CI should be based on the investigation data
  - Results should be reviewed weekly
- Decision should be made by supervisory staff
- In the absence of recent transmission, the investigation should not be expanded to lower-priority groups

TEXAS Health and Human Services | Texas Department of State Health Services

TB Contact Investigation Expansion Analysis Check-List

This check-list is designed to evaluate testing results once highest-priority contacts have been evaluated for evidence of recent TB transmission. Factors indicating recent transmission warrant an expansion of the contact investigation.

Index Patient: _____ DOB: _____
(LAST NAME) (FIRST NAME)

Contact Investigator: _____
(LAST NAME) (FIRST NAME)

Factors Indicating Transmission	YES	NO	Details
1. Rate of Infection in contacts is equal or more than 20% in initial testing.			The rate of infection is: _____% *Infection rate formula* *# of new positives* x 100 *Total # of contacts newly tested (per exposure environment)*
2. Positive test for any child < 5 years of age.			Number of children < 5 years of age with a positive test: ____
3. Test-result conversion of any contact from negative to positive from initial to second round testing.			Number of contacts converted from negative to positive: ____
4. Infection among casual or low-priority contacts.			Number of casual or low-priority contacts infected: ____
5. Evidence of secondary transmission among any contacts.			Name of contact who developed TB disease: _____

Contact Investigator initials are required next to all applicable terms (A, B1 or B2, C):

A ➢_____Program objectives and requirements for contacts have been met.[1]
B1 ➢_____Above factors (1-5) indicate no transmission
→ NO EXPANSION

OR

B2 ➢_____At least one of the above factors (1-5) indicate recent transmission
→ EXPAND INVESTIGATION on ____/____/____
Number of contacts evaluated after expansion: _____

C ➢_____Contact investigation has been stopped on ____/____/____.

Contact Investigator Signature: _____ Date: ____/____/____
Supervisor Approval Signature: _____ Date: ____/____/____

TB-460	TB Public Health Follow-Up Expansion Analysis Check-List	11/2007

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Working with the Media

Possible Situations for News Coverage

- Certain CIs have potential for sensational news coverage
- Examples include CIs that
  - Involve numerous contacts (especially children)
  - Occur in public settings
  - Occur in workplaces
  - Are associated with TB fatalities
  - Are associated with drug-resistant TB

Reasons for Participating in News Media Coverage (1)

- Educates the public about TB
- Reminds the public of the continued presence of TB and the importance of public health efforts
- Provides another method to alert exposed contacts for the need to seek a medical evaluation
- Relieves public fears regarding TB

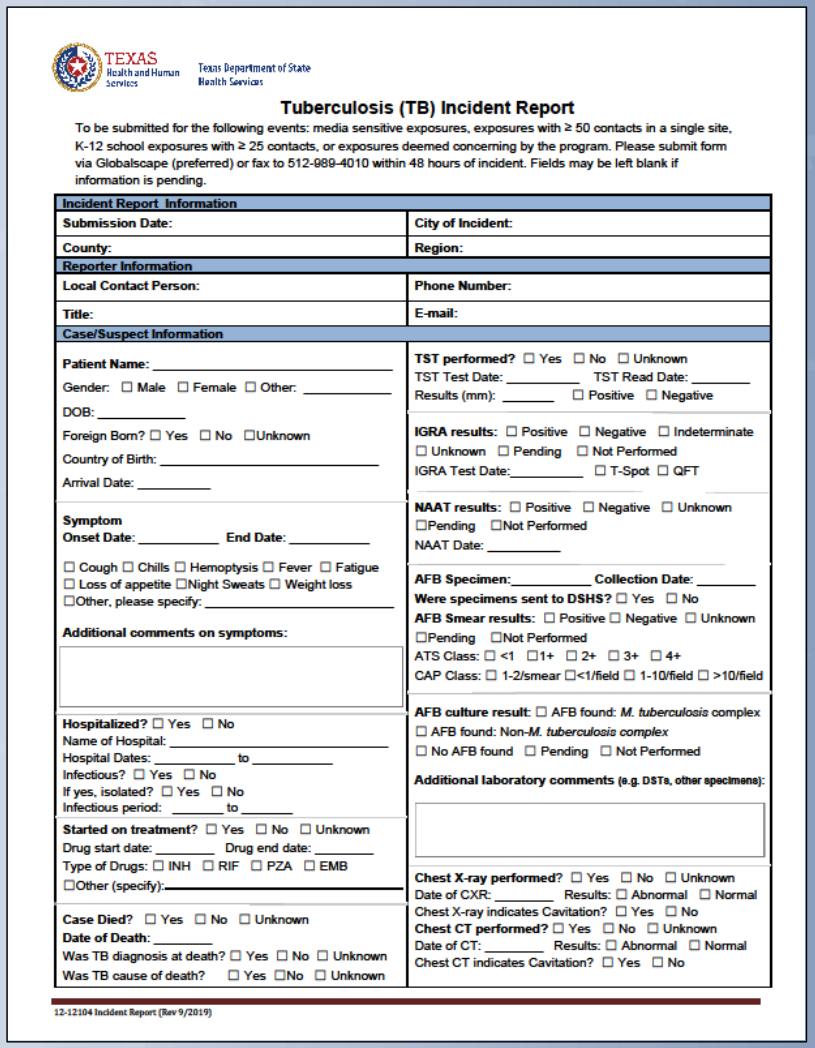
Reasons for Participating in News Media Coverage (2)

- Illustrates health department leadership in communicable disease control
- Guides public inquiries to the health department
- Validates the need for public resources to be directed to disease control

Strategy for News Coverage

- Prepare media messages
- Develop communication objectives
- Issue news release in advance of any other media coverage
- Collaborate with partners outside the health department

https://www.dshs.texas.gov/sites/default/files/IDCU/disease/tb/forms/PDFS/12-12104.pdf



TEXAS Health and Human Services — Texas Department of State Health Services

Tuberculosis (TB) Incident Report

To be submitted for the following events: media sensitive exposures, exposures with ≥ 50 contacts in a single site, K-12 school exposures with ≥ 25 contacts, or exposures deemed concerning by the program. Please submit form via Globalscape (preferred) or fax to 512-989-4010 within 48 hours of incident. Fields may be left blank if information is pending.

Incident Report Information

Submission Date: | City of Incident:
County: | Region:

Reporter Information

Local Contact Person: | Phone Number:
Title: | E-mail:

Case/Suspect Information

Patient Name: _____
Gender: ☐ Male ☐ Female ☐ Other: _____
DOB: _____
Foreign Born? ☐ Yes ☐ No ☐Unknown
Country of Birth: _____
Arrival Date: _____

Symptom Onset Date: _____ End Date: _____
☐ Cough ☐ Chills ☐ Hemoptysis ☐ Fever ☐ Fatigue
☐ Loss of appetite ☐Night Sweats ☐ Weight loss
☐Other, please specify: _____
Additional comments on symptoms:

Hospitalized? ☐ Yes ☐ No
Name of Hospital: _____
Hospital Dates: _____ to _____
Infectious? ☐ Yes ☐ No
If yes, isolated? ☐ Yes ☐ No
Infectious period: _____ to _____

Started on treatment? ☐ Yes ☐ No ☐ Unknown
Drug start date: _____ Drug end date: _____
Type of Drugs: ☐ INH ☐ RIF ☐ PZA ☐ EMB
☐Other (specify): _____

Case Died? ☐ Yes ☐ No ☐ Unknown
Date of Death: _____
Was TB diagnosis at death? ☐ Yes ☐ No ☐ Unknown
Was TB cause of death? ☐ Yes ☐No ☐ Unknown

TST performed? ☐ Yes ☐ No ☐ Unknown
TST Test Date: _____ TST Read Date: _____
Results (mm): _____ ☐ Positive ☐ Negative

IGRA results: ☐ Positive ☐ Negative ☐ Indeterminate
☐ Unknown ☐ Pending ☐ Not Performed
IGRA Test Date: _____ ☐ T-Spot ☐ QFT

NAAT results: ☐ Positive ☐ Negative ☐ Unknown
☐Pending ☐Not Performed
NAAT Date: _____

AFB Specimen: _____ Collection Date: _____
Were specimens sent to DSHS? ☐ Yes ☐ No
AFB Smear results: ☐ Positive ☐ Negative ☐ Unknown
☐Pending ☐Not Performed
ATS Class: ☐ <1 ☐1+ ☐ 2+ ☐ 3+ ☐ 4+
CAP Class: ☐ 1-2/smear ☐<1/field ☐ 1-10/field ☐ >10/field

AFB culture result: ☐ AFB found: *M. tuberculosis* complex
☐ AFB found: Non-*M. tuberculosis* complex
☐ No AFB found ☐ Pending ☐ Not Performed
Additional laboratory comments (e.g. DSTs, other specimens):

Chest X-ray performed? ☐ Yes ☐ No ☐ Unknown
Date of CXR: _____ Results: ☐ Abnormal ☐ Normal
Chest X-ray indicates Cavitation? ☐ Yes ☐ No
Chest CT performed? ☐ Yes ☐ No ☐ Unknown
Date of CT: _____ Results: ☐ Abnormal ☐ Normal
Chest CT indicates Cavitation? ☐ Yes ☐ No

12-12104 Incident Report (Rev 9/2019)

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