Overview of Contact Investigation Guidelines

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Introduction to TB Nurse Case Management Online
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Overview of Contact Identification Guidelines

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Objective

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- Discuss Tuberculosis contact identificati guidelines and procedures and how to implement them.
- Links to document:

https://www.cdc.gov/mmwr/pdf/rr/rr54 pdf (.pdf)

https://www.cdc.gov/mmwr/preview/mr wrhtml/rr5415a1.htm (.htm)

Agenda

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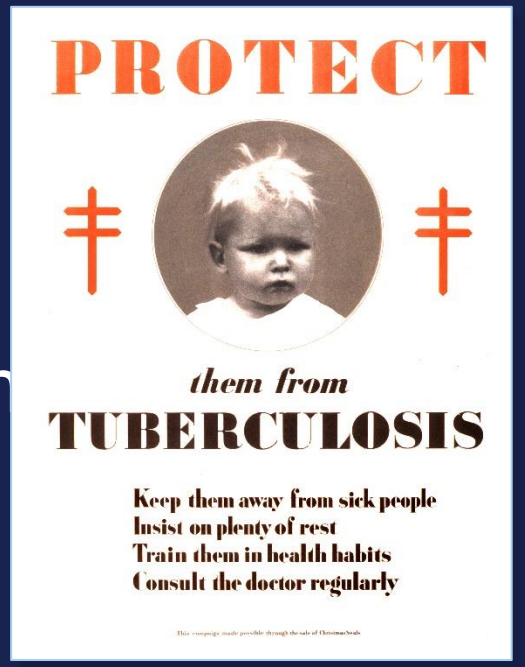
- Determine how and when to begin contact identification.
- Examine the initial interview of the patient.
- Review contact priorities and evaluation of each.
- Review treatment for contacts.



Agenda (cont.)

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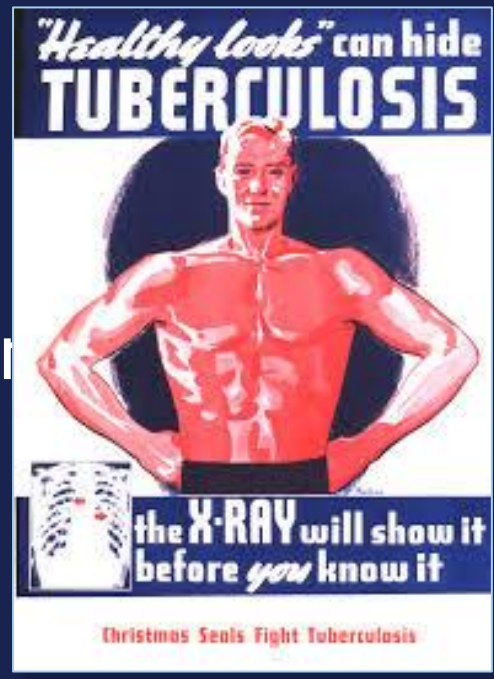
- Discuss data management and community communications.
- Discuss patient confidentiality and how maintain it.
- Examine special settings for contacts ar source patients.



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Why do we perform contact investigations?

Example #1

- 21 year old contact to a patient with TB disease. Tested QFT positive when initially evaluated and was non-adherent with all follow-up requests from the health department.
- One year later (22 years old), patient is diagnosed with active TB disease.
  - Patient has 1 y.o. child at home requiring window treatment.
  - Patient babysits a 3 y.o. child, also requiring window treatment.
  - Patient was enrolled in school at the time, requiring testing of school contacts.
  - Patient continues to have ongoing side effects to her medication regimen.

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Example #2

- 21 year old patient who was a contact to a patient with TB disease when she was a teenager. Patient was not fully evaluated for latent TB infection.
- This patient was recently diagnosed with bilateral cavitary TB disease.
  - Patient has extensive damage to her lungs, requiring her to be on isolation for 2+ months.
  - Patient's drug serum levels were low, requiring additional adjustments to her medication regimen and additional lab draws.
  - Patient recently had a baby (4 month old), who had lymphadenopathy and has been diagnosed as a clinical case of TB disease.

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Example #3

- 1 y.o. patient who was diagnosed with culture-confirmed meningeal TB.
- The patient's father stated that he was being treated for active TB disease in Mexico, but no contact investigation was performed.
  - Patient's 4 siblings were all TST positive with abnormal CXRs. Each was diagnosed with clinical TB and treated.
  - Patient has sustained extensive brain damage and will receive at least 18 months of treatment.
  - Much of patient's brain damage is irreversible and she will required constant in-home health care.

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Why do we perform contact investigations?

A hopeful start

"Contact investigations are complicated undertakings that typically require hundreds of interdependent decisions, the majority of which are made on the basis of incomplete data, and dozens of time consuming interventions." p. 1

Excerpt from Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis, 2005

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Methodology

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- Based upon on epidemiologic and other relevant scientific studies and establishe practices in conducting CIs.
- CI has not been researched by a controlled trial or study, but through expert opinion from years of common practices.
- These guidelines are not "one size fits all".

Decision to Initiate Contact Identification

General issues

- Competing Demands
  - Limited resources that may be allocated
  - Limited staff
- Prioritizing Cases
  - Which cases are the most and least likely to involve transmission of disease?
  - Which cases have the highest priority contacts?
  - Which cases are the highest profile?

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Decision to Initiate Contact Identification

TB transmission factors

- Only patients with **pulmonary, laryngeal** or **pleural TB** can transmit their infection (*with few exceptions*).
  - In some rare cases, extrapulmonary disease can cause transmission during medical procedures that release aerosols (autopsy, embalming, and irrigation of a draining abscess).
  - Extrapulmonary disease cases should not be given high priority unless accompanied by pulmonary, laryngeal or pleural disease.

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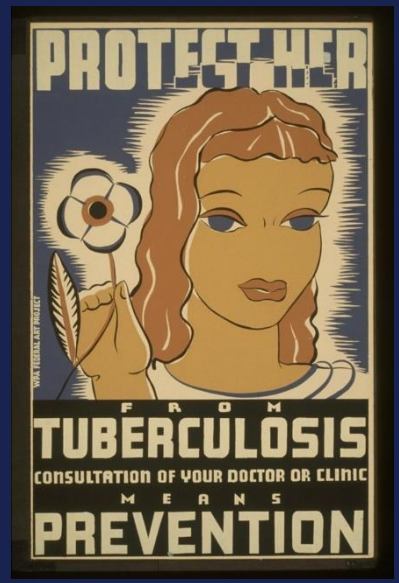
Decision to Initiate Contact Identification

TB transmission factors

- Priority should be given to those with pulmonary, laryngeal or pleural TB with:
  - Positive sputum cultures; infectiousness is highest when the smear results are also positive (AFB+).
  - Lung cavities are observed on a CXR.
  - Particularly if both conditions apply to patient.



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Decision to Initiate Contact Identification

TB transmission factors

- Anatomical site of disease
- Sputum bacteriology
- Radiographic findings
- Behaviors that increase aerosolization of respiratory secretions
- Age
- HIV status
- Administration of effective treatment

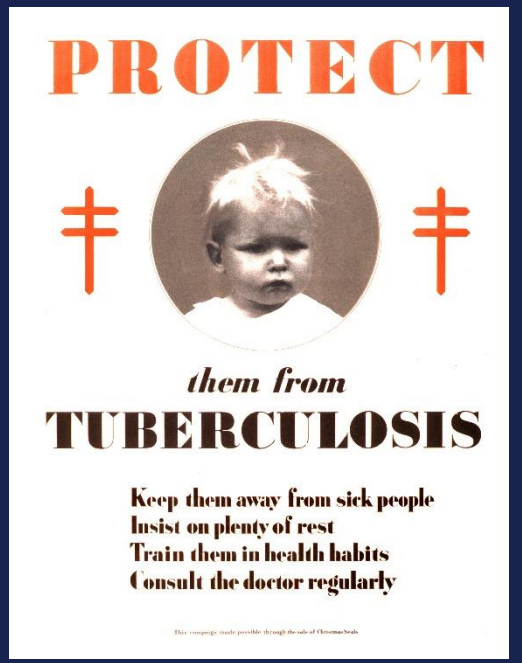

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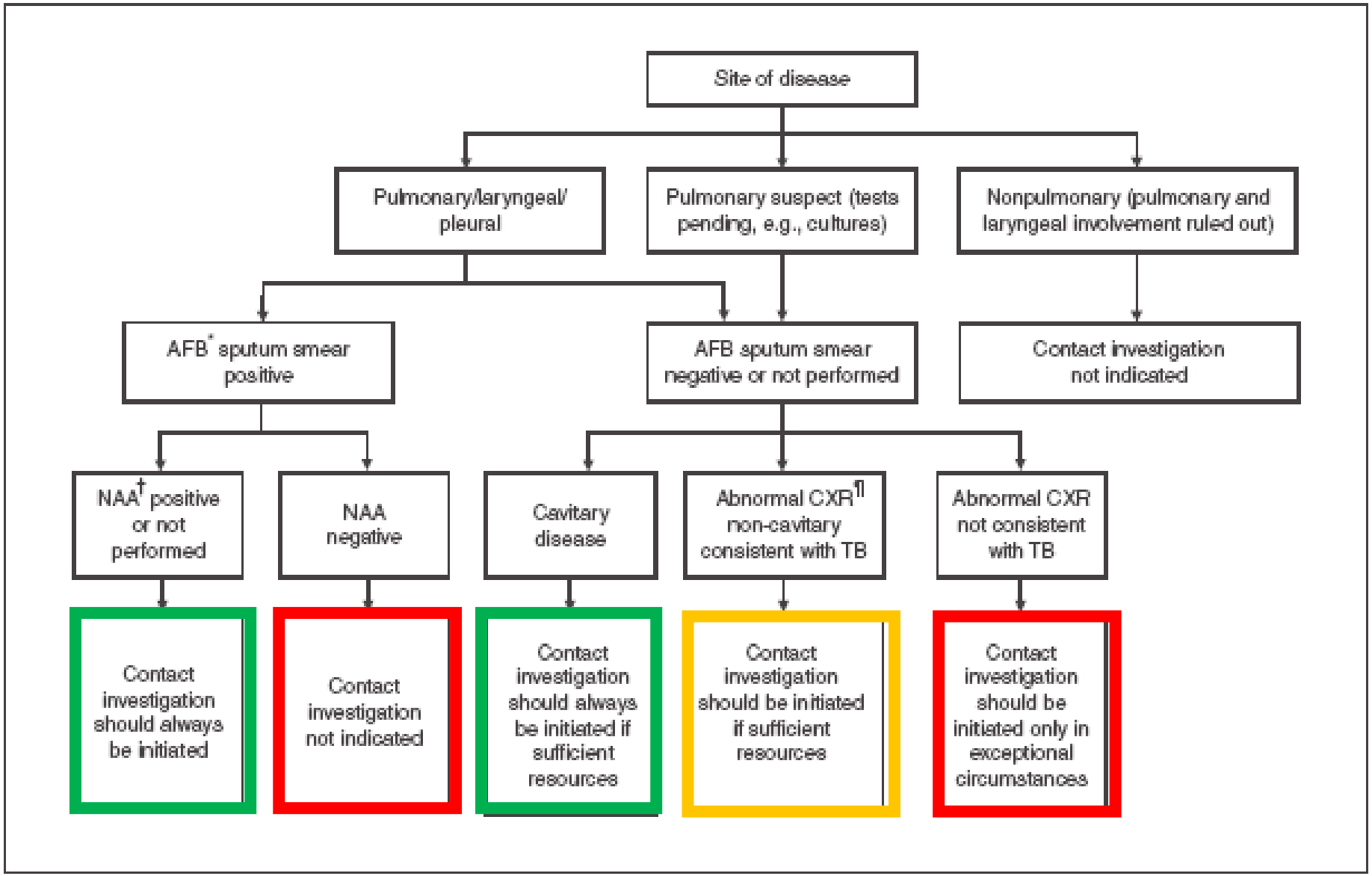
FIGURE 1. Decision to initiate a tuberculosis (TB) contact investigation



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

Interviewing patients

Patient interview

- Health department's responsibility to conduct CI.
  - Clearly state written policies and procedures.
  - Improves efficiency and uniformity.
- Establishing trust and consistent rapport with patients is critical.
  - Gain full information and cooperation during treatment.
- Interviews should be in primary language of the interviewee.

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Interviewing patients

Determining Infectious Period

- Infectious period
  - **3 months** before a TB diagnosis
  - 4 weeks before possible diagnosis if no symptoms, no positive sputum, no cavities
- In certain circumstances, an even earlier start date should be used.

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TABLE 2. Guidelines for estimating the beginning of the period of infectiousness of persons with tuberculosis (TB), by index case characteristic

	Characteristic		
TB symptoms	AFB* sputum smear positive	Cavitary chest radiograph	Recommended minimum beginning of likely period of infectiousness
Yes	No	No	3 months before symptom onset or first positive finding (e.g., abnormal chest radiograph) consistent with TB disease, whichever is longer
Yes	Yes	Yes	3 months before symptom onset or first positive finding consistent with TB disease, whichever is longer
No	No	No	4 weeks before date of suspected diagnosis
No	Yes	Yes	3 months before first positive finding consistent with TB

SOURCE: California Department of Health Services Tuberculosis Control Branch; California Tuberculosis Controllers Association. Contact investigation guidelines. Berkeley, CA: California Department of Health Services; 1998.
* Acid-fast bacilli.

Interviewing patients

Determining Infectious Period

- Stringent criteria should be applied when susceptible contacts are involved:
  - At least 3 consecutive negative sputum AFB smear results from sputum collected ≥ 8 hours apart (with one specimen collected during the early morning)

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Interviewing patients

Closing Infectious Period

- Infectious period is closed when:
  - Effective treatment for **≥2 weeks**
    - Sometimes after 5 days of treatment if AFB smears are all negative
  - Diminished symptoms
  - Mycobacteriologic response
    AFB smears are trending downward or are negative

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Interviewing patients

Things to remember

- Interview multiple times.
- Interview at patient's residence at least once. (Look for clues of other people.)
- Obtain medical records and information regarding the patient's illness.
- Conduct at least one interview (preferably the first) in person or with a proxy.
- Take the environment into consideration.
- Finding those exposed to TB is an ongoing process.

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Prioritization and Evaluation

Assigning priorities

- Most recently infected contacts cannot be distinguished right away.
- Create a line list and ensure that every person has a break-in-contact (BIC) date.
- Repeat testing done 8-10 weeks after the BIC will help to identify recent conversions that are most likely indicative of recent infection.

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Prioritization and Evaluation

How to categorize

- Likelihood of infection depends on:
  - Intensity
    - How many germs was the person exposed to?
  - Frequency
    - How often was the person around the patient?
  - Duration of exposure
    - How long was the person around the patient?
  - Risk factors
    - Does the person have any age or medical risk factors that would place him or her at a greater risk of infection or disease?

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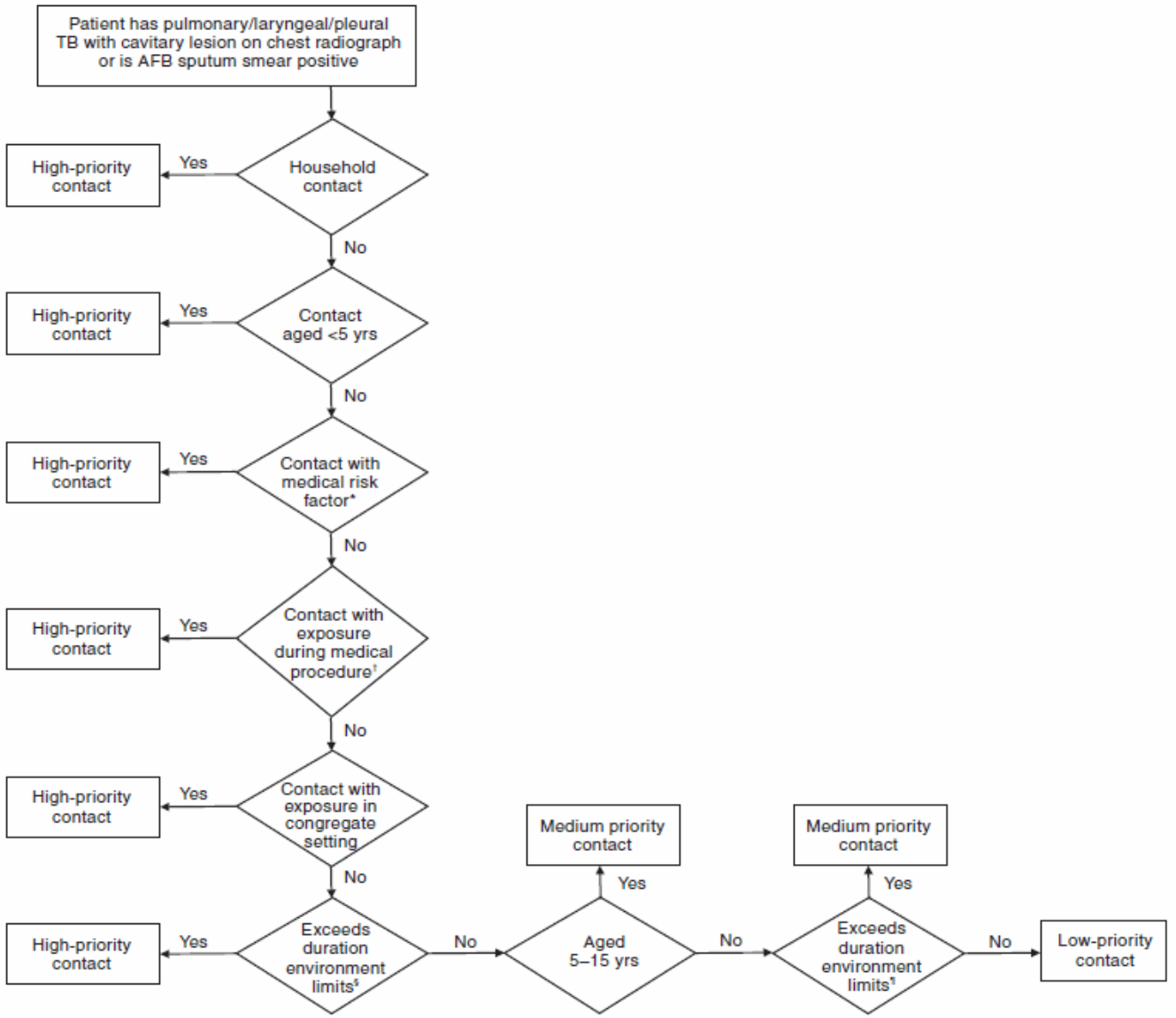
FIGURE 2. Prioritization of contacts exposed to persons with acid-fast bacilli (AFB) sputum smear-positive or cavitary tuberculosis (TB) cases



* Human immunodeficiency virus or other medical risk factor.
† Bronchoscopy, sputum induction, or autopsy.
§ Exposure exceeds duration/environment limits per unit time established by the health department for high-priority contacts.
¶ Exposure exceeds duration/environment limits per unit time established by the health department for medium-priority contacts.

Prioritization and Evaluation

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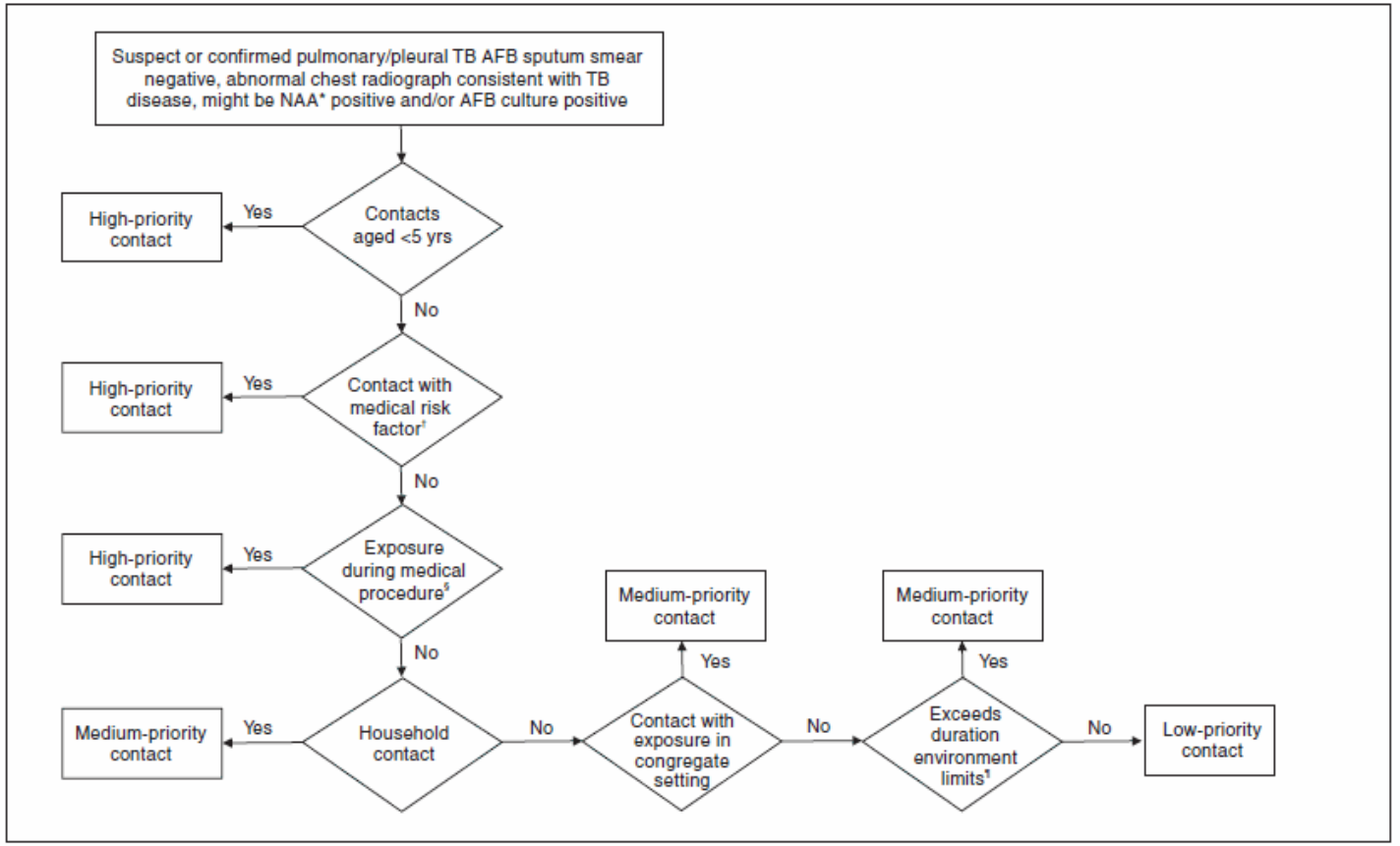
FIGURE 3. Priority assignments for contacts exposed to persons with acid-fast bacilli (AFB) sputum smear-negative tuberculosis (TB) cases



* Nucleic acid assay.
† Human immunodeficiency virus or other medical risk factor.
§ Bronchoscopy, sputum induction, or autopsy.
¶ Exposure exceeds duration/environment limits per unit time established by local TB control program for medium-priority contacts.

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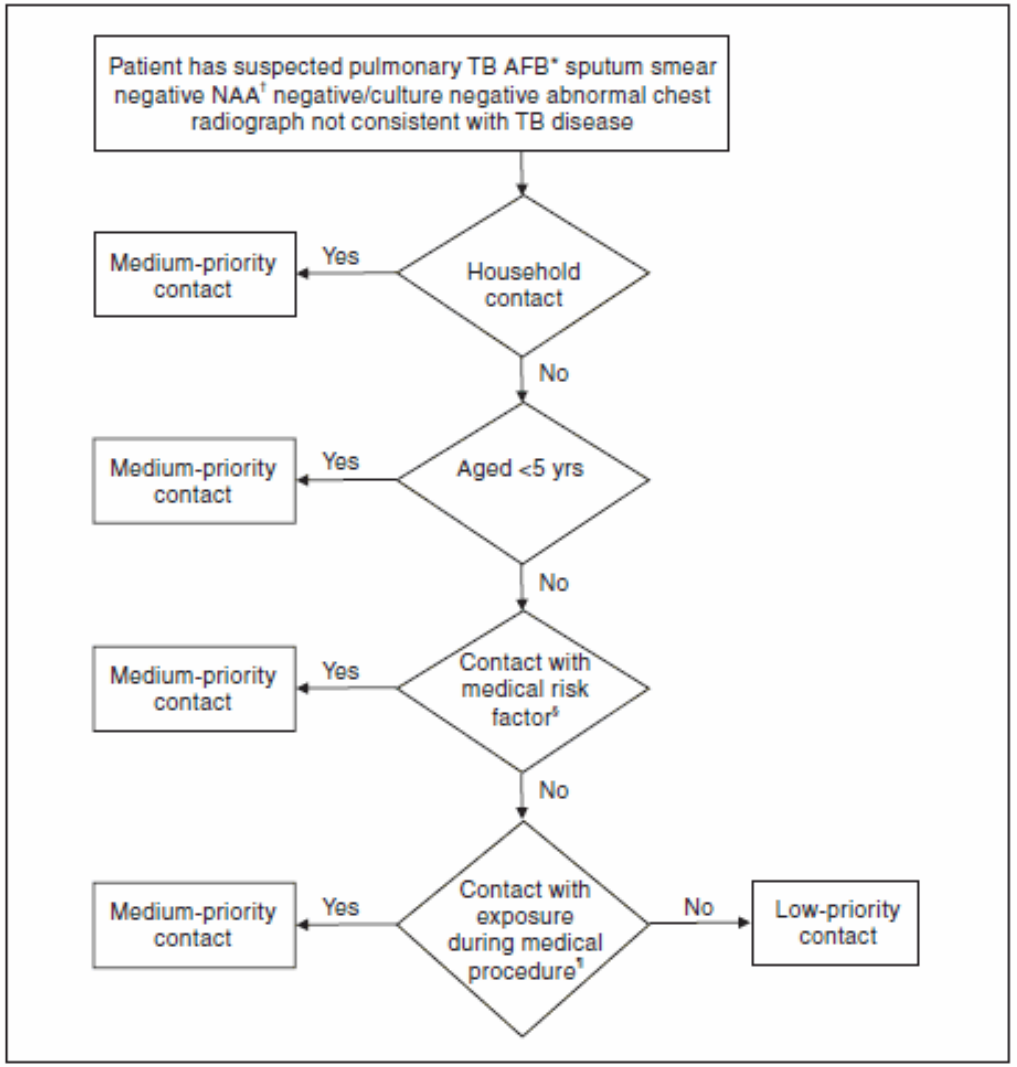
FIGURE 4. Prioritization of contacts exposed to persons with suspected tuberculosis (TB) cases with abnormal chest radiographs not consistent with TB disease



* Acid-fast bacilli.
† Nucleic acid assay.
§ Human immunodeficiency virus infection or other medical risk factor.
¶ Bronchoscopy, sputum induction, or autopsy.

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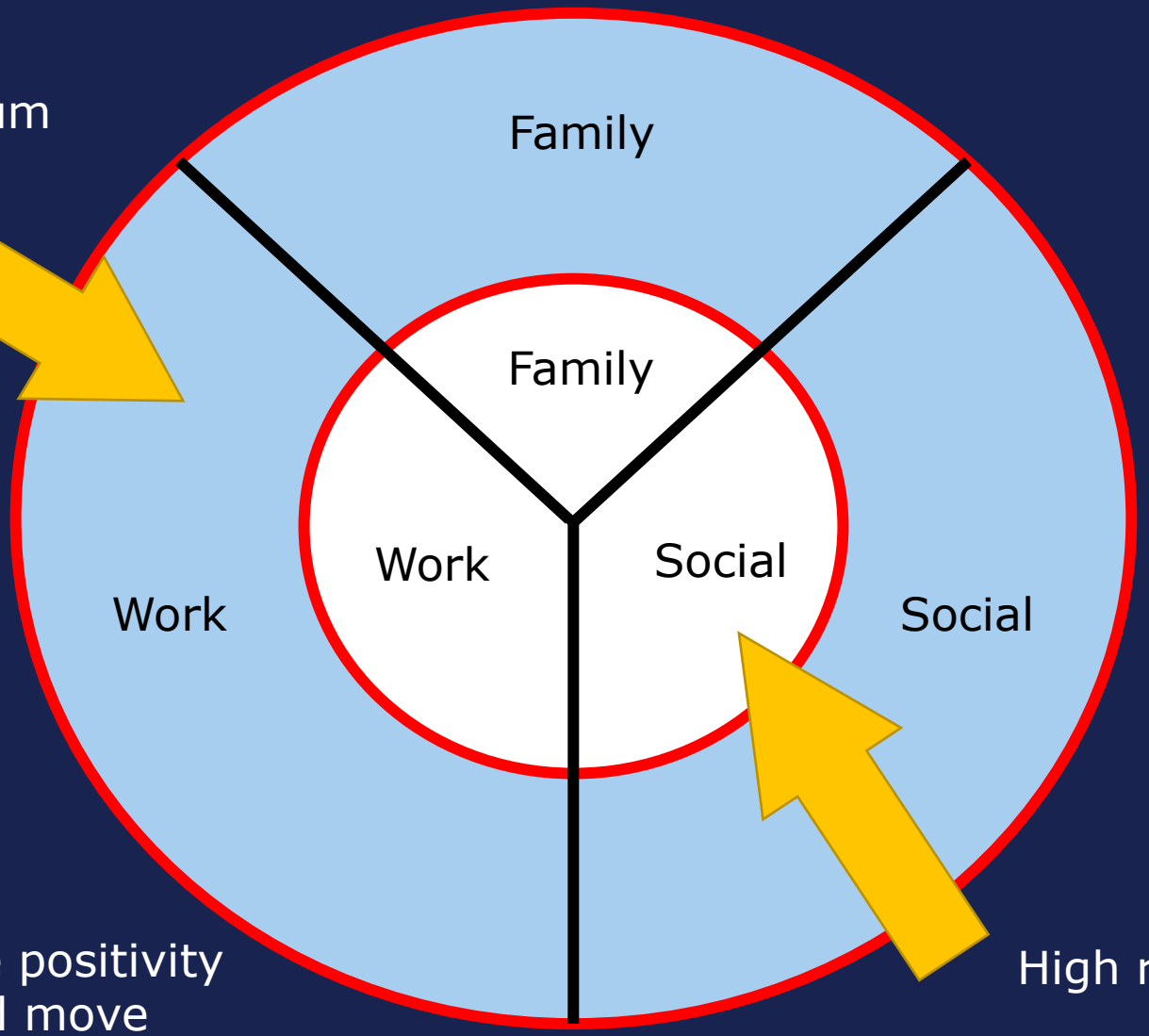
Low - medium risk



Calculate positivity rates and move outward accordingly

High risk

Prioritization and Evaluation

How to evaluate contacts

- Initial encounter with high- and medium- priority contacts who are most at risk should be made **within 3 working days.**
  - In Texas, the form is known as TB-340.
  - Gather contact's background health information.
  - Face-to-face assessment of the person's health.
  - Draw IGRA or administer TST at that time.

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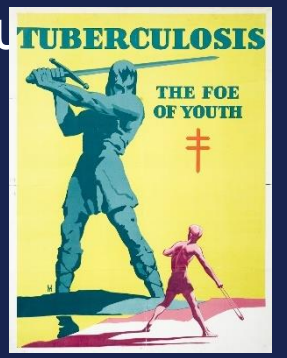
Prioritization and Evaluation

How to evaluate contacts

- The health department's evaluation for TB or LTBI should include:
  - Previous M.TB infection or disease and related treatment.
  - Contact's verbal report and documentation of previous TST results.
  - Current symptoms of TB illness
  - Risk factors or medical conditions making TB disease more likely
  - Mental health disorders
  - Type, duration, and intensity of TB exposu
  - Sociodemographic factors



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Prioritization and Evaluation

How to evaluate contacts

- Test for infection using IGRA or TST.
  - Stick with one test if it is valid; don’t do best 2 out of 3 results.
- For children less than 5 years of age or patients who are immunocompromised, perform a PA and lateral CXR.
- Evaluate for signs and symptoms of TB disease.
- Patient must be evaluated again 8-10 weeks after the BIC.

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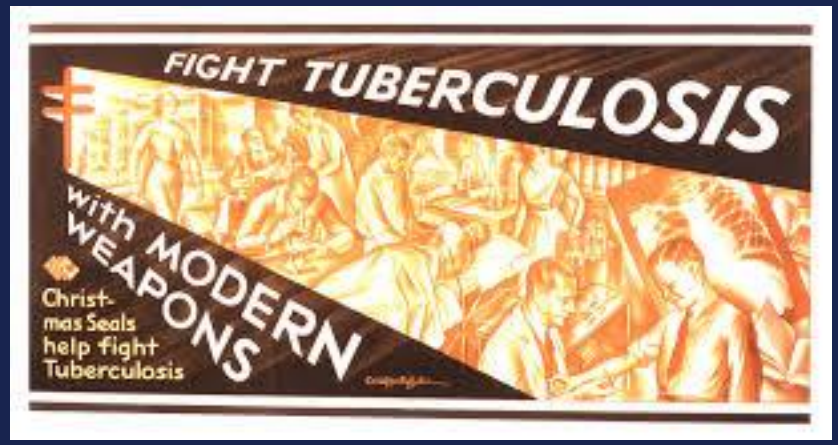
Prioritization and Evaluation

IGRAs



- IGRA
  - QuantiFERON
  - T-spot
- Pros
  - One visit
  - Objective
  - Rules out false positives
- Cons
  - Expensive
  - Indeterminates, indicator of disease vs. infection
  - Immunosuppressed patients

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Prioritization and Evaluation

TST

- TB screening programs routinely administer a **two-step test** at entry into the program:
  - Distinguishes a boosted reaction caused by TB infection that occurred many years before the skin test from a reaction caused by recent infection.
  - Used to avoid misclassification of future positive results as new infections.
  - **Should not be used for testing contacts**.
  - Contacts whose second TST result is positive after an initial negative result should be considered as recently infected.

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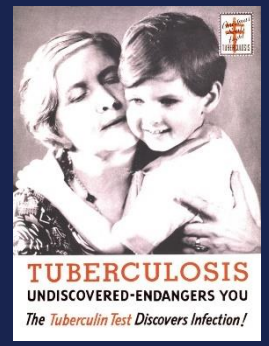
Prioritization and Evaluation

Further medical evaluation



- Recent Contacts whose skin test induration diameter is ≥ 5 mm or who report any symptoms consistent with TB disease:
  - Should undergo further examination and diagnostic testing for TB, starting typically with a chest radiograph.
  - Collection of specimens for mycobacteriologic testing is decided on a case-by-case basis and is not recommended for healthy contacts with normal chest radiographs.
  - All contacts who are classified as high priority due to risk factors or vulnerability should undergo further examination and diagnostic testing regardless of TST result or symptoms.

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Prioritization and Evaluation

Follow-up

- Documentation of a previous positive result should be obtained before omitting the skin test from the diagnostic evaluation.
- Do not make a decision whether or not to test based on a contact's verbal report.
- Provide window prophylaxis for high risk groups (< 5 y.o., HIV+, immunosuppressed)
- Determine if legal action is required for those who refuse testing for their children.

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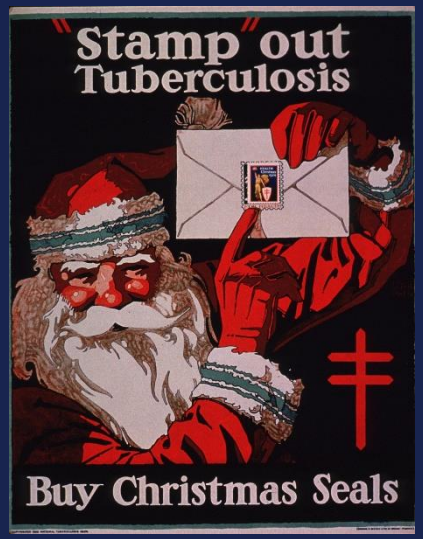
Treatment for TB infection

Options, reminders



- INH daily for 6-9 months
- RIF daily for 4 months
- INH/RIF for 3 months
- 3HP one weekly for
  12 weeks
- Points to remember
  - Ensure that the index case is susceptible to what you give the contact.
  - Take a good medical history to ensure that the TBI medications don’t interact with other medications.

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Data Management and Communications

Collecting Data

- Collect specific data needed for evaluation.
- Collect on standardized forms
- Use specified standardized data definitions and formats when possible.
- Have a plan for how you are going to collect, process, and analyze data from the beginning.

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Data Management and Communications

Communications (internal)

- Meet with your team about the scope of the contact investigation early.
- Don’t be afraid to ask for assistance.
- Get your communicable disease manager, TB manager, and regional medical director together to discuss options.
- Ensure that the internal messages and plan are consistent with all those involved.
- Create and use templates.

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Data Management and Communications

Communications (external)

- Meet with the correct people
  - These should be the major players in the execution of the contact testing
- Don’t underestimate the power of social media or small-town gossip
- Communicate a clear message with all interested parties
  - Local officials
  - Local medical offices
  - Those directly affected
  - Get ahead of the story as much as possible

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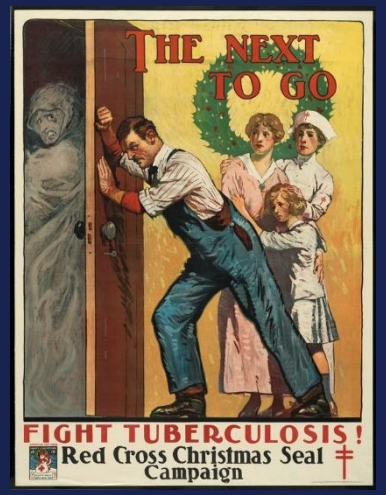
Confidentiality

- Develop policies for release of information based on HIPAA and consult with legal.
- Patient confidentiality requires training on policies and laws.
- Discuss patient beliefs about confidentiality.
- Explain measures that will be taken to protect confidentiality often.
- Prepare for protecting confidentiality at each visit (this can be problematic in some cases).
- Confidentiality applies to all private and medical information in addition to TB.

Special settings and source case investigations

Special settings

- Congregate or unusual settings for TB exposures
  - Correctional facilities
  - Workplaces
  - Hospitals and other healthcare settings
  - Schools
  - Shelters
  - Modes of Transportation
  - Drug and alcohol usage sites
  - Interjurisdictional investigations



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Special settings and source case investigations

Outbreaks

- Definition with regard to TB:
  - During a CI, 2 or more contacts having TB
  - Any 2 or more cases occurring less than 1 year of each other are linked and not caught in a CI.
- May indicate lapse in regular TB control.
- Call for assistance when needed.
- The public may use the term “outbreak”, but a TB outbreak rarely occurs.

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Special settings and source case investigations

Source case investigations

- Reverse contact identification
  - Goal is to actively search for someone who has TB disease.
  - Recommended for children under the age of 5 years old who develop TB disease.
  - Start close and work your way out.
  - Searching for unexplained TBI is generally not recommended and if done should be limited to LTBI in children younger than 2 years of age.

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Special considerations

- Cultural competency
  - Ability to understand cultural norms to bridge gaps in required
- Social Network analysis
  - Link people to places where transmission may occur.
  - Look for areas of shared air space.
- Patient distrust
  - Government intrusion to personal life
  - Private information being shared
  - Disbelief of diagnosis

Take away points

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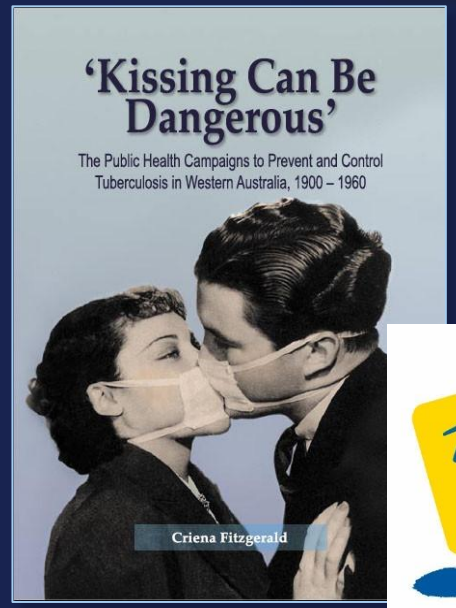
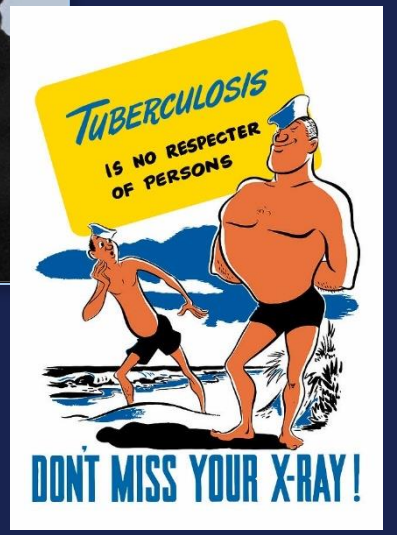
- Maintain control
- Communicate effectively
- Stay organized
- Be flexible
- Always improve





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Thank you

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