Contact Investigation Tools

World TB Day Polycom
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# Contact Investigation Timeline

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial interview to initiate CI</td>
<td>1-3 business days</td>
</tr>
<tr>
<td>High priority contact to smear +</td>
<td>Contacted w/in 7 business days</td>
</tr>
<tr>
<td></td>
<td>Evaluated w/in 5 business days of contact</td>
</tr>
<tr>
<td>High priority contact to smear -</td>
<td>Contacted w/in 7 business days</td>
</tr>
<tr>
<td></td>
<td>Evaluated w/in 10 business days of contact</td>
</tr>
<tr>
<td>Re-interview of client</td>
<td>W/in a week and ongoing throughout CI</td>
</tr>
<tr>
<td>Initial electronic submission of 502 form</td>
<td>W/in 4 weeks of initiating CI</td>
</tr>
<tr>
<td>Final 502 submission</td>
<td>After CI complete and contacts treated</td>
</tr>
<tr>
<td>Summary of congregate setting</td>
<td>After CI complete and contacts treated</td>
</tr>
</tbody>
</table>

**Contact Investigation Documentation Instructions**
Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis

Nursing Directives/Guidelines
Tuberculosis Contact Investigation

SUMMARY: The investigation of persons exposed to infectious tuberculosis (TB) clients and treatment of those found to be infected are important components of TB control and elimination strategies within the United States.

BRIEF BACKGROUND: Contact investigations are complicated undertakings that require hundreds of interdependent decisions, the majority of which are made on the basis of incomplete data and dozens of time-consuming interventions. These actions may include those related to decisions to initiate a contact investigation, assign priorities to contacts, the evaluation and treatment of contacts, expansion of investigations, and communication through the public media. Factors such as the extent of disease in the index client, the duration of exposure, proximity of the individuals, and air circulation during the exposure all influence the likelihood of transmission to any given contact. Other medical factors including immunosuppression in the contact can also influence the likelihood of infection or disease following an exposure.

It is beyond the scope of this document to cover all situations that may arise during an investigation of any one individual or community. Additional considerations may come into play for certain populations. All nurses involved in contact investigations should have immediate access to guidelines, policies and procedures published by the Centers for Disease Control and Prevention (CDC) and the Virginia Department of Health (VDH), Division of Disease Prevention, TB Control and Prevention program (DDP-TB).

PROCEDURE/DIRECTIVE:
Contact Investigation, Management and Follow-up of Contacts
- Contact investigation is the responsibility of the local health department. Services related to the investigation and evaluation of contacts are provided free of charge. Refer to the current VDH Eligibility Guidelines.
- A contact investigation should be initiated if the index client has smear positive, confirmed or suspected pulmonary, laryngeal or pleural TB.
- For a contact investigation of a smear negative case, identification of high-priority contacts should be undertaken, and evaluation of these contacts should be initiated.
Determining the Need for a Contact Investigation and Prioritizing Response

Determining the Need for a Contact Investigation and Prioritizing Public Health Response

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

The investigation of those exposed to infectious cases of active tuberculosis (TB) disease is an important strategy in the control and elimination of TB in the United States. Whenever a new TB case or suspect is identified, public health action should be taken to determine the need for a contact investigation as well as to prioritize the identification and evaluation of persons exposed.

This document is a guideline and a tool to assist public health staff in prioritizing response based on characteristics of the index case, the vulnerability of those exposed and the potential sites where transmission may have occurred. It cannot cover all possibilities that might be encountered in each investigation. Greater effort should be expended in completing the evaluation and the initiation of LTBI treatment of higher risk contacts before pursuing further efforts to evaluate and treat medium risk contact.

A decision to expand an investigation to lower priority contacts is based on the results of testing those at high or medium priority.

Using Table 1, locate the row that best describes the case characteristics of the client for whom a contact investigation is being considered.

<table>
<thead>
<tr>
<th>Pulmonary, pleural or laryngeal</th>
<th>High Priority</th>
<th>Medium Priority</th>
<th>Low Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any of the following scenarios:</td>
<td>Household contacts</td>
<td>Anyone under 5 years</td>
<td>Anyone 5-15 yrs who does not meet one of the high priority criteria</td>
</tr>
<tr>
<td>AFB smear positive</td>
<td>Contacts with Medical Risk Factors</td>
<td>Contacts exposed during medical procedure: Bronchoscopy, sputum induction or autopsy</td>
<td>Contacts exposed during medical procedure: Bronchoscopy, sputum induction or autopsy</td>
</tr>
<tr>
<td>Carriage lesion or CXR or CT regardless of smear status</td>
<td>Contacts with Medical Risk Factors</td>
<td>Contacts exposed during medical procedure: Bronchoscopy, sputum induction or autopsy</td>
<td>Contacts exposed during medical procedure: Bronchoscopy, sputum induction or autopsy</td>
</tr>
</tbody>
</table>

Table 2 provides guidance for time limits in various size settings to determine if a contact should be included in the investigation based on cumulative exposure time.

1. For some exposed persons, the cumulative length of environmental exposure determines an individual's need for evaluation even if no other risk factor is present.
2. These are approximate time frames. A review of environmental factors such as room size, ventilation, and number of persons in the space is used to determine the priority for contacts in all investigations.
3. Analyze the results of the initial round of testing after all identified high priority contacts have been evaluated or evaluation attempts have been exhausted AND treatment has been initiated or initiation attempts have been exhausted. If results indicate a higher than expected positivity rate, expand the investigation to medium priority contacts. Resources must be available to adequately evaluate and offer treatment to any additional lower priority contacts.
4. Contact TB Control for technical assistance related to any contact investigation (804) 864-7906.
Guidelines for Estimating the Start of the Infectious Period when Initiating TB Contact Investigations (CI)

These recommendations assume that: (a) a decision to initiate a CI was made; (b) a thorough initial client interview was performed; (c) at least one sputum sample was observed or induced; (d) sputum samples are high quality.

Additional epidemiologic or clinical factors may affect the start of the infectious period and should be considered on a case-by-case basis (e.g., delayed diagnosis, treatment w/floroquinolones, etc.) Contact TB Control for consultation.

### Index Case Characteristics

<table>
<thead>
<tr>
<th>TB Sx</th>
<th>Sputum Smear</th>
<th>Cavitary</th>
<th>Estimated Start of Infectious Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>3 months before symptom onset or first positive finding (e.g., abnormal CXR consistent with TB disease), whichever is longer</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>3 months before symptom onset or first positive finding consistent with TB disease, whichever is longer</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>4 weeks before date of suspected diagnosis</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>3 months before first positive finding consistent with TB</td>
</tr>
</tbody>
</table>

a. Yes Yes No VDH recommends following #1 above  
b. Yes No Yes VDH recommends following #1 above  
c. No Yes No VDH recommends following #4 above  
d. No No Yes VDH recommends following #4 above  

Adapted from the Contact Investigation Guidelines, MMWR, 2005: 54 (No. RR-15): Table 2, p. 7
Effect of Index Patient Characteristics and Behaviors

### Characteristics That Increase Infectiousness
- Pulmonary, laryngeal or pleural TB
- AFB + sputum smear
- Cavitation on chest radiograph
- Adolescents or adult patient
- No or ineffective treatment of TB Disease

### Behaviors That Increase Infectiousness
- Coughing
- Sneezing
- Singing
- Laughing
- Close social network

### Additional Points
1. Pleural & laryngeal disease sites are grouped with respiratory disease.
2. Sputum cultures can yield M.tbc even when no lung abnormalities are apparent on a radiograph.
3. The significance for infectiousness of results from respiratory specimens other than expectorated sputum is undetermined. Experts recommend that these specimens be regarded as equivalent to sputum for determining infectiousness only if sputum cannot be obtained.
4. Patients with lung cavities typically are more infectious than patients with non-cavitary pulmonary disease.
5. Cough frequency and severity are not predictive of contagiousness.
6. Transmission from children aged <10 years is unusual. When transmission occurs, it is generally associated with the presence of pulmonary forms of disease typically seen in adults.
7. HIV infection has no effect on potential infectiousness. Each case must be evaluated individually.
8. When drug resistance is NOT present, TB patients rapidly become less contagious after starting effective treatment. However, the exact rate of decrease cannot be predicted.
9. Environmental conditions such as the size of the space and ventilation as well as the length of exposure must be considered when determining potential transmission.

### Criteria for determining when a patient with pulmonary TB becomes non-infectious during treatment
- Patient has negligible likelihood of multidrug-resistant TB (no known exposure to multi-drug resistant TB, no history of prior episode of TB with poor compliance during treatment and not from a country with a high incidence of resistance)
- Patient has received standard multidrug anti-TB therapy for 2-3 weeks. (For patients with sputum acid-fast smear results that are negative the threshold for treatment is 5-7 days).
- Patient has demonstrated complete adherence to treatment (e.g. is receiving directly observed therapy).
- Patient has demonstrated evidence of clinical improvement (e.g. reduction in the frequency of cough or reduction of the grade of the sputum AFB smear result).
- All close contacts of patients have been identified, evaluated, advised and, if indicated, started on treatment for latent TB infection. This criterion is critical especially for children aged <4 years and persons of any age with immune-compromising health conditions (e.g. HIV infection).
- While in hospital for any reason, patients with pulmonary TB should remain in airborne infection isolation until they 1) are receiving standard multidrug anti-TB therapy; 2) have demonstrated clinical improvement, and 3) have three consecutive AFB-negative smear results of sputum specimens collected 8-24 hours apart, with at least one being on an early morning specimen.
- Hospitalized patients returning to a congregate setting (e.g. a homeless shelter, detention facility or nursing home) should have three consecutive sputum AFB-negative smear results collected >8 hours apart before being considered noninfectious.

*Adapted from Controlling Tuberculosis in the United States, MMWR 2005, 54(RR-12), page 5