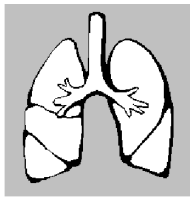


**CTCA GUIDELINES**  
**Source Case Investigation Guidelines**  
**Table of Contents**

<b>Goal of Source Case Investigation</b>	<b>2</b>
<b>Objectives for Source Case Investigation</b>	<b>2</b>
<b>Glossary</b>	<b>3</b>
<b>Procedures for Preparing For Source Case Investigation</b>	<b>4</b>
<b>Management of Associates</b>	<b>13</b>
<b>Summarizing and Concluding Source Case Investigation</b>	<b>14</b>
<b>Interjurisdictional Issues</b>	<b>14</b>
<b>Suggested Readings</b>	<b>16</b>
<b>Appendices</b>	<b>17</b>
A. Source Case Investigation Worksheet for Interviewing Index Person	17
B. Source Case Investigation Worksheet for Interviewing Associates	19
C. Evaluation Process Algorithm	20
D. Tool for Source Case Investigation Summary Report	21
E. Sample Forms for Documenting Source Case Investigation Results	22



## **CTCA GUIDELINES**

### **Guidelines for Source Case Investigation**

**The intent of this guideline is to encourage a standard of care with respect to Source Case Investigation (SCI) within California. Although the primary focus of SCI is young children, this guideline is written to be applicable to those jurisdictions who elect to do SCI for older converters as well. CTCA recognizes the autonomy of each local health jurisdiction to determine its approach to Source Case Investigation in light of other TB priorities and its own resources. Any questions regarding practice should be referred to the TB Controller in your jurisdiction.**

#### **Goals of Source Case Investigation**

The goal of the source case (associate)<sup>1</sup> investigation is to identify the source of infection for young children and other high-risk individuals who fall within the targeted populations:

- Priority I      Class 2 child up to 4 years of age<sup>2</sup>
  
- Priority II     Class 2 converters 4 years of age and over may receive source case investigation based on local resources.

**\*NOTE:** For Class 3 or 5 children who may present a communicability risk, please refer to **CDHS/CTCA Guidelines for Contact Investigation**

#### **Objectives for Source Case Investigation**

The four main objectives of source case investigation consist of:

- I.      Determining which associates need to be evaluated and begin testing<sup>3</sup> within 10 working days of receiving a referral.
  
- II.     Completing evaluation of associates up to 4 years of age within 10 working days of receiving referral to identify individuals infected from a common source of exposure.
  
- III.    Completing evaluation of adult high-risk associates (e.g. immunocompromised persons) within 10 working days of receiving referral to identify individuals infected from a common source of exposure.
  
- IV.    Completing evaluation of all other associates within 20 working days of receiving referral.

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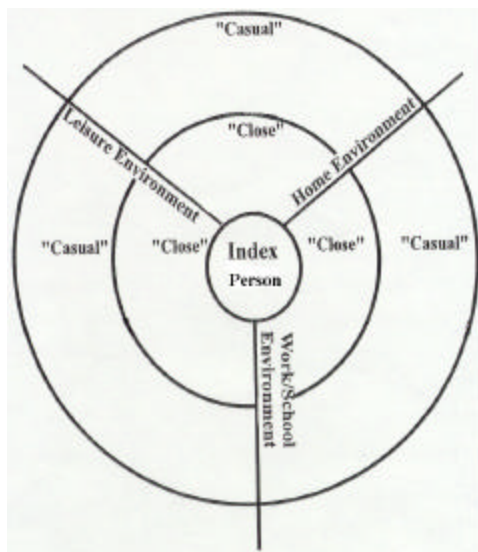
<sup>1</sup> The term associate is used in source case investigation to indicate individuals who have had interaction with the index person and to differentiate the process from contact investigation.

<sup>2</sup> Up to 4 years of age cut-off for source case investigation based on the likelihood of finding source case as well as the standard set in American College of Pediatrics Red Book. Jurisdictions may select an age cut-off of up to 5 years of age depending on local resources.

<sup>3</sup> Testing (or TST) refers to Mantox tuberculin skin testing.

## Glossary

- I. **SOURCE CASE (ASSOCIATE) INVESTIGATION (SCI)** is the process of identifying the person who is the source case for the index person and persons (associates) infected by the source case.
- II. **SOURCE CASE** is a person with infectious TB disease who may have transmitted *M. tuberculosis* to another person or persons.
- III. **INDEX PERSON** is the infected person for whom Source Case Investigation is initiated.
- IV. **CONCENTRIC CIRCLE**, as it applies to SCI is a systematic approach to testing associates in order of the greatest probability of identifying the source of infection.



**Note:** High-risk associates may be either close or casual associates. Regardless, they are always in the first concentric circle

- V. **HIGH RISK ASSOCIATE** is an associate (either close or casual) who is at high-risk of progression from TB infection to TB disease and/or is more likely to suffer morbidity or mortality from TB disease. A high-risk associate has one or more of the following characteristics:
  - A. Is up to four years of age.
  - B. Is infected with HIV, or who is at risk for HIV infection (See **Appendix 3: Factors Associated with Increased Risk of HIV Infection, p. 22, CDHS/CTCA Contact Investigation Guidelines**).

- C. Has other medical conditions associated with increased risk of progression to active TB (See **Appendix 2: Medical Conditions Associated with Increased Risk of Progression to TB Disease, p. 21, CDHS/CTCA Contact Investigation Guidelines**).

Since clinically active disease can occur in high risk associates very rapidly once infected, they must receive prompt medical evaluation.

VI. **CLOSE ASSOCIATE** is a person who has prolonged, frequent, or intense contact with an index person. Whether a person is a close associate also depends on:

- A. Physical proximity to the index person.
- B. The environment in which exposure to the index person occurs.
- C. Duration of contact.

Examples of close associates include, but are not limited to, persons who:

1. Share the same house or room as the index person.
2. Spend time with the index person frequently.
3. Share air in small, enclosed spaces with little natural or mechanical ventilation.
4. Carpool with the index person several days per week.

VII. **OTHER THAN CLOSE ASSOCIATE/CASUAL ASSOCIATE** is a person who has less prolonged, minimal contact with index person (e.g. limited time spent sharing airspace in home, school, etc.).

VIII. **TUBERCULIN SKIN TEST CONVERSION** is defined as an increase of at least 10 mm of induration from < 10 mm to ≥ 10 mm within 24 months from a documented negative to a positive tuberculin skin test (i.e. from 4 mm to 14 mm).

### **Procedures for Preparing for the Source Case Investigation**

I. Collecting and Evaluating Initial Index Person's Information

Prior to the initial interview, review the report on the index person and obtain the following information from the patient's medical provider, if not provided:

- A. Index person identifiers
  1. full name and any aliases
  2. dates of birth (including those for aliases)
  3. locating information (address, telephone number, next of kin, emergency contacts)

- B. Index person TB history
1. dates and results in millimeters of the most recent PPD
  2. dates and results in millimeters of prior TB skin tests
  3. chest radiograph results
  4. list of medications, dosages and start/stop dates
  5. other medical conditions
  6. BCG date (s)\*

**\*NOTE:** Source Case Investigation should be conducted as a general rule without regard to BCG status. Staff should consult with TB Controller before making exceptions. Exceptions may include:

- Individual from country with low incidence of TB
- BCG received within the 12 months preceding Tuberculin Skin Test

C. Index person social history

1. country of origin and length of time in the U.S.
2. history of travel to endemic areas
3. social affiliations (i.e. church, sports, family)
4. immigration / visa status (i.e. H4, dependents of workers)

D. Any information available on associates and settings in which the index person may have acquired TB. (See the **Conducting the Initial Interview, II** below for specifics.)

II. Conducting the Initial Interview (See **Appendix A: Source Case Investigation Worksheet for Interviewing Index Person** for examples of interview questions.)

A. Identify Setting and Person/Proxy for Interview

1. If the index person is a child, the interview should be conducted with the parent or guardian in the home (any place where the index person dwells and conducts day-to-day living activities e.g. house, apartment, shelter).
2. If the index person is an adult, the interview should take place in the home, but may take place anywhere including a shelter, prison, nursing home or substance abuse center.
3. Interviewing the index person at home is essential to SCI because it may:

- a. reveal information that the index person or guardians may not initially provide about associates (e.g. pictures of children or relatives in the household) and medical risk factors for associates (e.g. diabetes immunosuppression).
  - b. provide an opportunity to identify and resolve discrepancies between index person's or guardian's answers to interview questions and observations about associates and their risk factors.
- B. Obtain information about associates
1. names, demographic information, locating information and relationship to the index person for each associate named.
  2. date of birth or age
  3. TB medical information (e.g. presence of symptoms and onset date, history of testing, infection or disease, treatment) and facility where medical evaluation was performed
  4. presence of TB risk factors (e.g. HIV infection, risk factors for HIV infection or other medical risk factors linked to increased risk of progression to disease)
  5. duration and frequency of time associate spent with index person, physical proximity and the settings in which contact occurred
- C. Obtain information about contact with groups or persons at high-risk for TB (e.g. homeless, diabetics, immunocompromised, incarcerated, etc.)
- D. Obtain information regarding settings in which index person may have acquired TB infection.
1. If index person is a child, settings may include:
    - a. residence (e.g. congregate setting, cohabitants, temporary/permanent)
    - b. school (e.g. site, time spent, absences)
    - c. time spent visiting high-risk settings for TB (e.g. jails, nursing homes, substance abuse treatment facilities)
    - d. social/recreational activities and frequency and number of other people present (e.g. babysitting, home visits, church)
    - e. travel to endemic countries (e.g. visits to extended family outside the U.S.)

2. If index person is an adult, settings may also include:
  - a. work (e.g. site, full/part-time schedule, absences)
  - b. time spent working in or visiting high-risk settings for TB (e.g. jails, nursing homes, substance abuse treatment facilities, dialysis centers)
  - c. social/recreational activities and frequency and number of other people present (e.g. sports, nightclubs, church)
- E. Assess environmental conditions for settings in which TB may have been acquired
  1. room size (large vs. small)
  2. ventilation (doors, windows)
  3. crowding/concentration of persons present
- F. Preparing the Associate Roster and Establishing Priorities
  1. Establish an associate list. Use the concentric circle approach (See **p. 36, CDHS/CTCA Contact Investigation Guidelines, Tools: Using the Concentric Circle**) as it applies to Source Case Investigation to help organize information about associates.
  2. Prioritize associates for screening in the following order:
    - a. Persons with TB symptoms (*arrange immediate clinical evaluation*)
    - b. Children up to four years of age (because of their risk of disseminated disease, not because of infectiousness).
    - c. Adult high-risk associates (e.g. immunocompromised persons)
    - d. Persons in high-risk settings
    - e. Other close associates

**Note:** Concurrent screening of associates could and should be done if necessary or possible.
  3. Reprioritize associates based on information obtained in associate interviews.
- G. Interviewing Associates
  1. Address the following points in interview with associate: (For suggested questions for interviewing, see **Appendix B: Source Case Investigation Worksheet for Interviewing Associates** in this document.)

- a. Establish trust and rapport, confirm associate's identity, explain confidentiality and nature of visit.
- b. Obtain personal information: home and work addresses and telephone numbers, date of birth, aliases and dates of birth, nicknames, place of birth and date of arrival in U.S.
- c. Obtain a TB history: prior TB exposures, dates and results of prior TSTs, history of treatment for disease or infection, BCG history, travel to areas at risk for TB, contact with high-risk persons or settings
- d. Obtain a medical history: recent hospitalizations, chronic medical conditions (e.g. HIV status, diabetes, cancer or other immunosuppressive conditions), current medications and medication allergies
- e. Assess for HIV risk factors and history of HIV testing (See **p. 22, CDHS/CTCA Contact Investigation Guidelines, Appendix 3: Factors Associated with Increased Risk of HIV Infection**)
- f. Perform a TB symptom screen: type, severity, onset and duration of each symptom. *Arrange for immediate evaluation of symptomatic associates.*

**NOTE:** Use respiratory precautions ( e.g. interviewing outdoors, using a respirator) where indicated.

- g. Ask the associate to identify other potential associates who may need screening and, when appropriate, interview the associate about the index person to verify information and/or obtain new information. It is important to protect the index person's confidentiality. (See **H, Protecting Index Person Confidentiality**)
  - h. Assess the associate for psychosocial factors and barriers that may influence potential adherence with screening throughout the course of the interview. Use problem solving techniques and enablers as needed.
  - i. Identify healthcare resources and make appropriate referrals (e.g. clinics, social services, drug treatment, HIV testing)
2. Refer associates who live outside the jurisdiction to the local health department in their jurisdiction of residence.
    - a. Obtain locating information, associate risk factors and information on the duration and frequency of exposure to the index person and make referrals as indicated. (See **Interjurisdictional Issues** section of this document.)

- b. If a source case is identified, proceed as you would in a Contact Investigation. Provide information to the jurisdiction where the associate resides on the period of infectiousness and drug susceptibilities if the associate is considered to have been exposed.

#### H. Protecting Index Person's Confidentiality When Speaking to Associates

Source Case Investigation usually can and should be accomplished without jeopardizing index person's confidentiality.

1. Confidentiality problems may occur when staff:
  - a. Inadvertently reveal clues about the index person.
  - b. Provide information about index person to motivate associates to follow-up.
  - c. Are unable to appropriately and assertively respond to uncooperative associates.
  - d. Incorrectly assume that index person (or guardian) has informed others about his or her TB status.
2. Staff should use the following strategies to protect index person confidentiality.
  - a. Use gender-neutral language even when it is bad grammar.

**Example:** *"Somebody was diagnosed with TB infection, and they were concerned about you."* Instead of, *"A baby girl was diagnosed with TB infection and her parents were was concerned about you."*
  - b. Do not be manipulated into violating confidentiality by associates who indicate that they have not been around anyone with TB infection.
  - c. Do not mention the index person's medical provider, place, date of diagnosis, or hospitalization.
  - d. Do not mention the environment where contact occurred.

**Example:** *"You have been around somebody who has TB infection"*. Instead of, *"You have been around somebody at the day care center who has TB infection"*.
  - e. Do not specify dates of association with the index person.
  - f. When following-up on inter-jurisdictional referrals, do not mention which county or state initiated the referral.

3. In some situations, revealing index person information may be appropriate:
  - a. Each jurisdiction needs to take each situation individually and determine whether the breach in confidentiality will ultimately serve and protect the public health.

**Example:** *To disclose to a preschool when evaluation of first concentric circle fails to yield the source case.*
  - b. The TB Controller or Designee should be consulted when considering whether to reveal the identity of the index person.

I. Reinterviews

1. Assigned staff are unlikely to obtain complete associate information in only one interview because the index person or guardian may:
  - a. Not yet have developed trust with staff
  - b. Not be able to immediately recall his/her associates
  - c. Be anxious about his/her diagnosis or other issues
  - d. Be worried about protecting confidentiality of information (See **H, Protecting Index Persons Confidentiality** within this document)
2. The index person or guardian must be reinterviewed one or more times to ensure that accurate and complete associate information is elicited. It may also be helpful to have a different person perform the follow-up interview. Reinterviews may be conducted in the clinic.

J. Expansion of the Investigation to Identify the Source

1. Analyze results from the initial interviewing and testing to see if source is identified in first concentric circle
  - a. Determine if all individuals identified as associates in the first circle have been evaluated.
  - b. Determine if any of the associates with symptoms suggestive of TB have been evaluated as a TB suspect and ruled out.
  - c. Classify the associates by concentric circle segment (home, work/school, leisure). Depending on the number of associates within the segment, it may be appropriate to stratify them based on country of origin, race/ethnicity, age, or risk factors.

- d. Identify individuals in the first circle with positive TSTs, identify common settings and activities, and expand testing where indicated.
  - e. Calculate the percentage of associates with positive TSTs (See **Appendix D Tool for Source Case Investigation Summary Report** in this document.)
2. If initial interviewing and testing fail to identify a source in the first circle\*, determine if the travel and social history provides a possible explanation for latent TB infection in a child up to 4 years of age or a recent converter.

**\*NOTE:** If the source case is found, stop the source case investigation and proceed with contact investigation.

History to include:

- a. Country of origin and length of time in U.S.
  - b. History of travel to endemic area outside the U.S. (*in relation to a prior negative TST*)
  - c. History of visitors from endemic area.
  - d. Association with persons or groups at high risk for TB (e.g., persons with HIV infection, homeless, incarcerated).
3. For index persons who are children: if above steps in Section 2 fail to provide a likely source, expand the epidemiological investigation to the second circle to identify the source case\*.

**\*NOTE:** If the source case is found, stop the source case investigation and proceed with contact investigation.

- a. If a child is in group setting (e.g., preschool, day care, church nursery), contact center director and request information on TB screening requirements for staff/volunteers who have regular contact with the child (without identifying child by name). Also, determine TST requirements for children attending the center.
- b. Request review of TB skin test results of all staff and volunteers (and children if testing is required) in facility. Inquire if anyone has demonstrated symptoms of respiratory illness.
- c. If facility staff / volunteers have not been tested within three months of child having positive TB skin test, evaluate need for on-site testing. If testing appears to be indicated, follow these steps:

- i. If LHD resources allow, set-up onsite TB testing clinic for staff and volunteers within 20 days.
  - ii. If LHD resources are insufficient for onsite clinic, refer to LHD clinic. If staff/volunteers prefer to see their own health care provider, provide TB skin test report form to be submitted to TB Control within 20 days. (See **Appendix F, Sample Form for Private Provider to Report TST Results**)
  - iii. Obtain line listing to monitor completion of testing.
  - iv. Evaluate need to test children due to the possibility of exposure to a common source.
- d. Determine if there are any documented converters or PPD reactors.
  - e. Ensure a chest radiograph is done on associates who have positive TB skin test and/or are symptomatic.
4. For index persons who are adults: if above steps in **Section J 2** fail to provide a likely investigation to the second circle to identify the source case\*.
- \*NOTE: If the source case is found, stop the source case investigation and proceed with contact investigation.
- a. Perform assessment in group setting (e.g. worksite, long term care facility, institution)
  - b. Perform a symptom review of all associates
5. If testing in first the circle yields an infection rate *greater than* the expected positivity rate for the community and no source is found, expand to the next circle. If the rate is *less than* expected positivity rate, conclude Source Case Investigation.
6. If a significant number of documented converters<sup>4</sup> are identified, consideration should be given to:
- a. Whether to expand the investigation to the second circle.
  - b. Repeat testing in 3 months for individuals in the first circle. This may yield additional information that may help identify the source. It may also determine whether to expand investigation to the third circle.

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<sup>4</sup> This may vary between jurisdictions depending on local experience and epidemiology.

## Management of Associates

- I. Identify all close associates who need to be screened and begin testing of high risk associates based on the following procedures:
  - A. Follow standard procedures for tuberculin skin test (TST). (See **CDHS/CTCA Joint Guidelines for Contact Investigation.**)
    1. Obtain a chest radiograph for associates with newly positive TST, signs or symptoms of tuberculosis, or history of immunodeficiency.
    2. If associate has a previously positive PPD, obtain documentation of prior test results, chest radiograph reports and treatment.
      - a. For persons with a documented history of an abnormal chest radiograph or active TB disease:
        - i. Perform a symptom screen.
        - ii. Obtain a repeat radiograph regardless of the absence of symptoms.
        - iii. Evaluate and rule out active TB disease.
      - b. For persons without documentation of PPD or prior abnormal chest radiograph results (follow as in **I(A)** above).
      - c. For persons with a documented prior positive PPD and a prior negative chest radiograph:
        - i. Perform symptom screen
        - ii. Obtain chest radiograph if symptomatic, immunocompromised or the associate has other medical risk factors associated with increased risk of progression to active TB disease and has not completed an adequate course of treatment for LTBI.
        - iii. Consideration should be given to obtaining a repeat chest radiograph screening of asymptomatic persons with LTBI in certain high risk settings where:
          - there may be a high rate of TST conversion or infection in the setting,
          - and/ or when assessment of symptoms may be unreliable.

3. Evaluate persons with positive TST for treatment for latent TB infection according to established procedures (See **CDHS/CTCA Guidelines for Targeted Testing and Treatment of Latent TB Infection in California.**)
- II. Address failure to comply with source case investigation.
    - A. Follow-up with associates to determine the reason for non-compliance within 3 working days.
    - B. Educate associates regarding the medical implications and (if applicable and employable) legal implications of non-compliance. (i.e. Legal Order for Examination, Legal Order for Isolation)
    - C. If unsuccessful in getting associates into the clinic for TST, make referral to other resources (e.g., outreach immunization clinics) or make arrangements to do the testing in the home.
    - D. Address failure to keep chest radiograph initial appointment:
      1. Contact associate within 5 working days to determine reason for noncompliance.
      2. Educate associate regarding both the medical and legal implications of non-examination.
      3. If still unsuccessful, the treatment team, in conjunction with the TB Controller should decide whether to issue a Legal Order for Examination.
    - E. Evaluate need for Legal Order for Examination for those who are considered Class 5.
    - F. Educate and discontinue follow-up of associates with low probability of being a source.

### **Summarizing and Concluding Source Case Investigation**

When all associates identified as appropriate for testing have been evaluated, the source case investigation is concluded. It is important to summarize the investigation and ensure that all associates who meet criteria start on treatment of latent TB infection according to established local guidelines. (See **CDHS/CTCA Guidelines for Targeted Testing and Treatment of Latent TB Infection in California.**)

The source case summary should be documented in a concise manner and include, but not be limited to the following:

- I. Index Person Demographics
- II. Summary results of evaluations in each setting in which the index person may have been exposed to TB including home, work/school, and leisure.
- III. Epidemiological results of the entire investigation should be documented in a Summary Report. Both sending and receiving jurisdictions should work cooperatively with one another using reasonable judgement and diligence in notification, providing updated information when it is received or requested.

- IV. See **Appendix D: Tool for SCI Summary Report** for suggested format and indices.

### **Interjurisdictional Issues**

For additional information, see **CDHS/CTCA Interjurisdictional Continuity of Care Policy Statement** (Rev. 4/99).

- I. Responsibilities of Sending Jurisdiction (Jurisdiction with index person)
- A. Obtain complete locating information for out-of-jurisdiction associates and, if available, information on risk factors.
  - B. Complete a California Confidential TB Referral Form for all associates who reside out-of-jurisdiction, and fax it to the jurisdiction in which they are located. The receiving jurisdiction will determine whether follow-up is necessary. Request “Return Deposition” on referral form.
    - 1. Use associate screening results forwarded by the receiving jurisdiction to assist with the assessment of whether to expand the investigation.
    - 2. If receiving jurisdiction is unable to locate associate, the sending jurisdiction may need to do further investigation.
  - C. Contact LHD to verify receipt of referral form.
  - D. Notify receiving jurisdiction when TB disease is identified in a local associate. Send results of susceptibility testing on the case to the receiving jurisdiction. Receiving jurisdiction should evaluate associates as potential contacts.
- II. Responsibilities of Receiving Jurisdiction (Jurisdiction in which associates are located)
- A. Notify sending jurisdiction of the outcome of investigation whether source is or is not located.
  - B. Contact sending jurisdiction if there are gaps in information gathered through Source Case Investigation.
  - C. Notify sending jurisdiction if new information about index person comes to light (e.g. visitor from endemic country.)
- III. Both sending and receiving jurisdictions should use reasonable judgement and diligence in informing and working cooperatively with one another, providing updated information when it is received or requested.

## Suggested Readings

1. American Academy of Pediatrics. 2000. Tuberculosis. *In* Red Book: Report of the Committee on Infectious Diseases, 25<sup>th</sup> ed. American Academy of Pediatrics, Elk Grove Village IL.
2. American Thoracic Society / Centers for Disease Control and Prevention. Targeted skin testing and treatment of latent tuberculosis infection. *MMWR* 2000; 49 (no. RR-6)  
Web link: [http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj\\_guide.htm](http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj_guide.htm)
3. California Department of Health Services / California Tuberculosis Controllers Association. Guidelines for Targeted Testing and Treatment of Latent Tuberculosis Infection. 2000.
4. California Department of Health Services / California Tuberculosis Controllers Association. Guidelines for Contact Investigation, 1998.
5. California Department of Health Services / California Tuberculosis Controllers Association. Interjurisdictional Continuity of Care Policy Statement. 1999.
6. American Thoracic Society / Centers for Disease Control and Prevention. Diagnostic standards and classification of tuberculosis in adults and children. *Am J Respir Crit Care Med* 2000;161:1376-1395.  
Web link: [http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj\\_guide.htm](http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj_guide.htm)

**APPENDIX A: SOURCE CASE INVESTIGATION WORKSHEET FOR INTERVIEWING INDEX PERSON**

These questions are intended as a guide to ensure that all key areas of Source Case Investigation are addressed within the interview. They should complement other effective interviewing skills. For more information on effective interviewing techniques, please consult the Tuberculosis Patient Interview Guide attached to the CDHS/CTCA Contact Investigation Guidelines.

**Date:** \_\_\_\_\_ **Interviewer:** \_\_\_\_\_ **Language:** \_\_\_\_\_

**Index Person:** \_\_\_\_\_ **DOB:** \_\_\_\_\_

*If index person is a child, the interview should be conducted with the parent or guardian.*

**Person Interviewed:** **Index Person** \_\_\_ **Parent/Guardian:** \_\_\_ **Name** \_\_\_\_\_  
*(Please check one)* *If parent or guardian*

**Address:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Country of Origin:** \_\_\_\_\_ **Mo/Yr arrived in U.S.** \_\_\_\_\_

**School/Childcare:** \_\_\_\_\_ **Workplace** \_\_\_\_\_  
*(If Index person is an adult)*

**Group Settings/Activities:** \_\_\_\_\_

**BCG date:** \_\_\_\_\_ **Prior PPD date/results:** \_\_\_\_\_ **Current date/results:** \_\_\_\_\_

**Radiograph Date/Results:** \_\_\_\_\_ **Meds:** \_\_\_\_\_ **Dosage:** \_\_\_\_\_ **Start date:** \_\_\_\_\_

For each associate identified, determine the relationship of the person to the index person, the amount of time spent together and the settings and environmental conditions in which time was spent.

1. How long have you lived at this address? (If at current address less than one year, repeat questions two through four for each address)
2. How many people live here?
3. How many people lived with you in the house before who do not live here now?
4. What is your relationship to them and how much time do they /did they spend with you or your child?
5. Has your child lived with anyone else besides you in the last year?
6. Is your child in daycare? Who besides you cares for or baby-sits your child? How often?
7. How many relatives do you have in this area? How often do you see them?

8. Do you have a boyfriend/girlfriend/ex-spouse? How much time does your child spend with them?
9. Who visits you more than two to three times per week?
10. Who does your child visit more than two to three times a week?
11. Who do you eat your meals with?
12. Where does your child go/what does your child do after school and on weekends? Is he/she involved in any sports, clubs, group activities etc?
13. How long does s/he spend in each activity?
14. Who else spends at least six to eight hours a week with your child?
15. Have you/your child traveled outside of the United States in the last year? Where? When? For how long?
16. When was the last time your child went on vacation or out of town? Where did you stay? Who did you visit?
17. Who has come for a visit and stayed overnight during this past year or visited for several days?
18. How many other relatives have you spent time with in the last year that you have not already named? When was the last family gathering or reunion?
19. Do you know/have you known anyone who's been told they have tuberculosis?
20. Do you know anyone that's been coughing a lot, losing a lot of weight?
21. Do you know anyone that has a lot of health problems? Anyone with cancer, HIV, diabetes (or other TB medical risk factors)?
22. Do you know anyone that's been in the hospital, in a nursing home, in jail, homeless, etc.? Has your child been to visit anyone in these settings?
23. Who are the five people your child is around the most?

**APPENDIX B: SOURCE CASE INVESTIGATION WORKSHEET FOR INTERVIEWING ASSOCIATES**

These questions are intended as a guide to ensure that all key areas of Source Case Investigation are addressed within the interview. They should complement other effective interviewing skills. For more information on effective interviewing techniques, please consult the Tuberculosis Patient Interview Guide attached to the CDHS/CTCA Contact Investigation Guidelines.

**Date:** \_\_\_\_\_ **Index Person:** \_\_\_\_\_ **DOB:** \_\_\_\_\_

**Interviewer:** \_\_\_\_\_ **Language:** \_\_\_\_\_

**Associate Name:** \_\_\_\_\_ **DOB:** \_\_\_\_\_

**Person Interviewed:** Associate \_\_\_ Parent/Guardian: \_\_\_ Name \_\_\_\_\_  
(Please check one) If parent or guardian

**Relationship to Index Person** \_\_\_\_\_

**Address:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

1. How have you been feeling? Have you had a cough unexplained weight loss, sweating very heavily at night, chest pain or shortness of breath? **If symptomatic, arrange for immediate evaluation and use respiratory precautions.**
2. Have you ever been told that you had TB? Have you ever been told you have been exposed to TB? When? Where? By whom?
3. Have you ever had a skin test for TB? When? Where? What were the results?
4. Have you ever had a chest radiograph? When? Where? What were the results?
5. Have you ever been treated for TB before? When? Where? What medication(s) were you given? How long did you take them?
6. Do you have any problems with your health? Do you have any problems with your lungs? How often do you go to the doctor? For what reasons?
7. Do you take any medication?
8. Have you gone to the hospital for any reason in the last year?
9. Have you ever had a test for HIV? Do you engage in behaviors that put you at risk for HIV? (e.g. IV drug use, multiple sex partners)
10. Have you been around anyone that's been coughing a lot, losing a lot of weight?

**APPENDIX C: Evaluation Process**

<b>Evaluation Step</b>	<b>Who/when/where Indicated</b>
Interview <sup>5</sup>	All associates
Symptom review	All associates
TST placed and read	If no documented prior history of positive TST or TB disease
Chest radiograph and medical evaluation (as indicated)	If TB symptoms are present, or If TST is positive, or If history of active TB and no documented CXR in the past 6 months, or If history of positive TST and no documented CXR, or If history of positive TST, medical risk factors that increase the risk of progression, and no or incomplete treatment for LTBI.
*AFB smear and culture (x 3) and other diagnostic test <sup>6</sup> required for TB work-up.	If pulmonary disease is suspected
Other diagnostic tests	If non-pulmonary disease is suspected

<sup>5</sup> If non-pulmonary or laryngeal TB is suspected, other diagnostic tests may be indicated.

<sup>6</sup> According to ATS/CDC, CDHS/CTCA and local guidelines

## APPENDIX D: Tool for SCI Summary Report

In addition to the suggestions made in the section on **Summarizing and Concluding Source Case Investigation** the SCI Summary Report should contain the following summary statistics and summary indices.

### Summary statistics:

The following statistics summarize what was accomplished in the source case investigation. However, they are not descriptive with regard to program performance.

Variable	Description
<b>A</b>	Number of identified associates appropriate for evaluation
<b>B</b>	Number of associates evaluated
<b>C</b>	Number of TST positive associate
<b>D</b>	Number of new TB cases identified
<b>E</b>	Number of documented converters
<b>F</b>	Number of associates appropriate <sup>7</sup> for treatment of LTBI
<b>G</b>	Number of associates who started on treatment of LTBI
<b>H</b>	Number of associates who completed treatment of LTBI

### Indices

The following indices inform the TB control program regarding the source case investigation and may help evaluate program performance.

Index	Description	Formula (see variables above)
Examination Index	Number of associates evaluated divided by Number of identified associates appropriate for evaluation.	$B/A \times 100 = \text{_____}\%$
Conversion Index	Number of current documented converters tested divided by Number of associates evaluated	$E/B \times 100 = \text{_____}\%$
Infection Index	Total number of TST positive associates (current & prior positives) divided by Number of associates evaluated	$C/B \times 100 = \text{_____}\%$
Disease Index	Number of new TB cases found divided by Number of associates evaluated	$D/B \times 100 = \text{_____}\%$
Initiation of Treatment of LTBI Index	Number of associates started on treatment of LTBI divided by Number of associates appropriate <sup>8</sup> for treatment of LTBI	$G/E \times 100 = \text{_____}\%$
Completion of Treatment of LTBI Index	Number of associates who completed treatment of LTBI divided by Number of associates who started treatment of LTBI	$H/G \times 100 = \text{_____}\%$

<sup>7</sup> According to ATS/CDC, CDHS/CTCA and local guidelines

<sup>8</sup> According to ATS/CDC, CDHS/CTCA and local guidelines

## **APPENDIX E: Sample Forms for Documenting Source Case Investigation Results**

1. Monterey County
2. Los Angeles County
3. Riverside County
4. Santa Barbara County
5. San Diego County