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TUBERCULOSIS CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

A Resource for Evaluation





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PREFACE

This guide is designed for use in the evaluation of tuberculosis (TB) contact investigations in congregate settings, which are a specific type of contact investigation. Many patients diagnosed with infectious or potentially infectious TB disclose exposure in settings where groups of people meet or gather. These are commonly referred to as congregate settings. Some common types of congregate settings include (but are not limited to) workplaces, shelters, schools, social or recreational settings, and places of worship. A contact investigation in a congregate setting (CICS) may lead to the identification of large numbers of contacts.

An effective contact investigation is an essential element of TB control. During a contact investigation, a health care worker (HCW) attempts to locate all the identified high-priority contacts of presenting patients with infectious TB. The goal of the contact investigation is to refer all identified high-priority contacts for medical evaluation and treatment, if indicated. The contact investigation includes interviews with patients and contacts, review of medical records, and site visits. The success of a contact investigation is dependent upon the skill of the HCW and the ability of the TB program to provide an effective evaluation of the investigation process.

When done well, the CICS can result in the identification and treatment of latent TB infection (LTBI) and TB disease. However, done poorly, the CICS can be an ineffective use of TB program resources. Whether used for review of ongoing CICSs, or for retrospective management review of a CICS, the evaluation process will help ensure adherence to the standards of practice for each TB program while providing additional information on the knowledge, skill, and expertise of the HCW. In addition, it will link CICS activities to selected programmatic outcomes and provide guidance for improving the program.

The instruments in this guide are designed for use primarily within public health departments or TB programs (where the essential components of TB control already exist), rather than by community-level health care providers.

INTRODUCTION

CICSs are essential in identifying individuals with LTBI and TB disease and in bringing these persons to treatment, thus interrupting the chain of transmission. However, because they require significant resources, particularly staff time, CICSs can be challenging. They require both technical expertise in infectiousness and transmission, and skill and professionalism when dealing with sensitive issues such as patient confidentiality. For this reason, TB program staff should periodically review and assess the quality of CICSs conducted within the program area. This evaluation may be performed by first-line supervisors (those who directly manage HCWs), or by TB program managers. Though not all TB programs will have direct supervisory responsibility for workers conducting CICSs, the instruments in this guide can still be used in those settings, as they are designed to assess whether the CICS was conducted effectively overall, in addition to assessing the activities of particular HCWs.

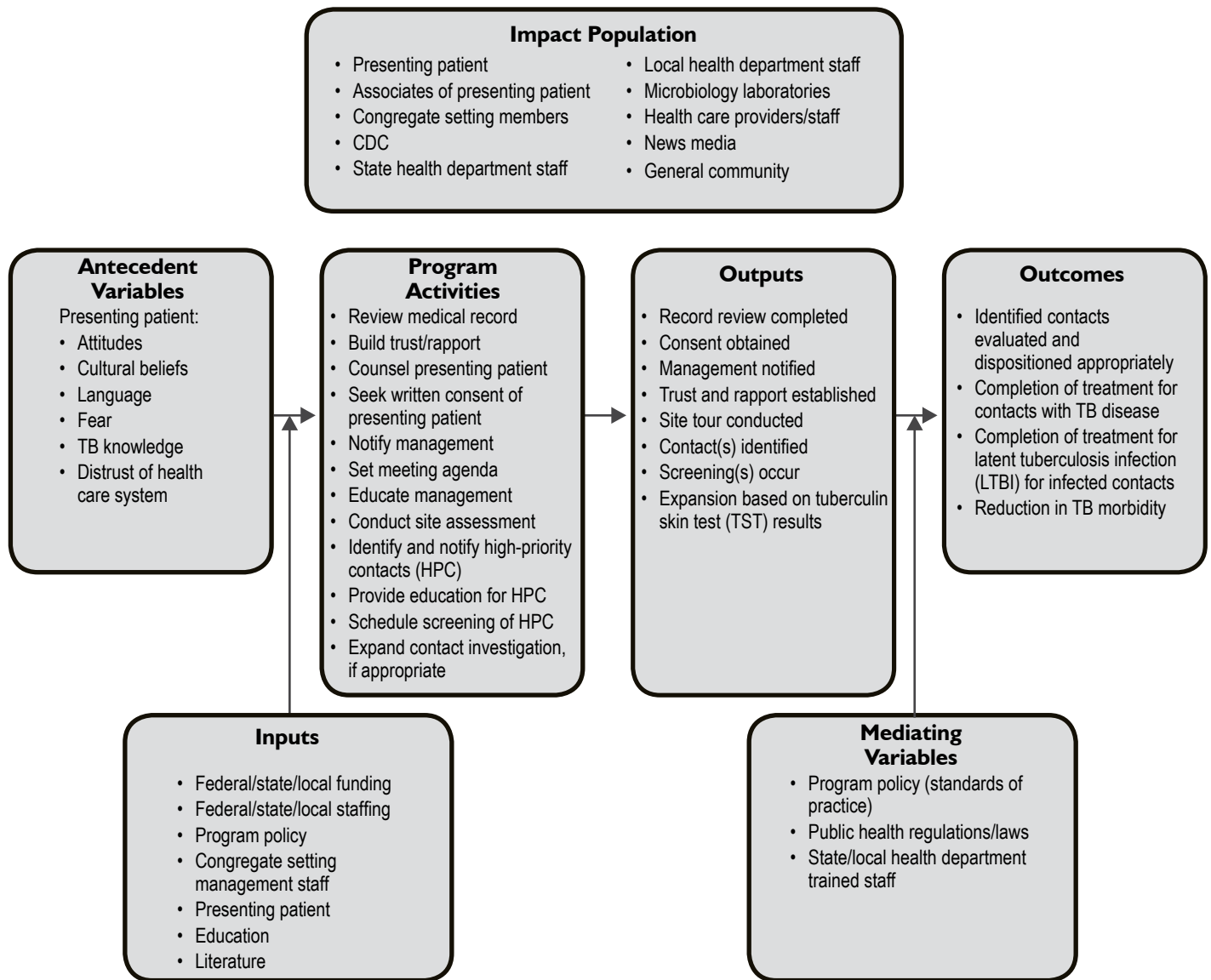
A retrospective or prospective evaluation of CICSs may be conducted for a variety of reasons, including:

- Assessing performance of new or existing staff
- Assessing programmatic outcomes of CICSs
- Identifying and resolving problems associated with CICSs

This guide focuses on how to evaluate a CICS; it does not fully address how to conduct the investigation itself. However, it does briefly outline the essential components of an effective CICS.

A structured process that incorporates all the elements of a CICS can be beneficial in conducting and evaluating a CICS. One method for creating this structured process is through use of a logic model. A logic model is a graphic representation of a sequence of events, or a “road map” of the activities and processes undertaken to achieve the stated desired outcomes and programmatic objectives. In preparing this guide, NJMS Global Tuberculosis Institute has developed a logic model (Figure 1) that describes a CICS. In the course of implementing a successful TB program complete with all essential components of TB control, (including contact investigations) all the *program activities*, *outputs*, and *outcomes* described in the logic model will occur. The evaluation tools in this guide focus on the outputs and outcomes of a CICS. Although some of these outputs and outcomes are difficult to measure, the elements that can be readily evaluated through record review or observation of the HCW have been incorporated into the instruments in this guide.

Figure 1. Logic Model for Congregate Setting Contact Investigation



INPUTS	Resources that influence program activities
PROGRAM ACTIVITIES	Elements of congregate setting investigation
OUTPUTS	Direct results of program activities
MEDIATING VARIABLES	Programmatic influences affecting outcomes
OUTCOMES	Anticipated or actual effects of program activities and outputs that are linked to program objectives
INPUTS	Resources that influence program activities

EVALUATING CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

This guide includes evaluation instruments and explanatory text, as well as recommendations for assessing and utilizing the completed evaluation. The tools may be used retrospectively to assess completed investigations, or to assess an ongoing investigation. Evaluation of a CICS covers two broad areas, the HCW’s performance and skills, and overall programmatic outcomes. The evaluation tools and corresponding text in this guide are divided as follows:

EVALUATING HCW PERFORMANCE AND SKILLS IN A CICS

- Includes *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings*
- Describes the criteria used to evaluate a HCW's skills and overall performance of HCWs conducting the CICS
- Corresponds with the *program activities* and *outputs* of the CICS, within the logic model framework

EVALUATING PROGRAMMATIC OUTCOMES IN CICSs

- Includes *Programmatic Outcomes Evaluation Form for Contact Investigations in Congregate Settings*
- Describes the criteria used to evaluate programmatic performance
- Corresponds with *outcomes* of the CICS within the logic model framework, although there is some overlap with *outputs* described by the *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings*. Items in this section are generally the long-term results of the CICS, ie, evaluating program performance and achievement of objectives

The guide also includes the *Sample Contact Investigation in a Congregate Setting Summary Form* (Appendix). This form is useful both in conducting and evaluating CICSs. The summary form:

- Should be completed by the HCW during the course of a CICS, and reviewed by supervisor
- Provides some of the information necessary for a systematic evaluation of the CICS, such as the one described in this guide
- Can be modified to include specific local health department standards of practice
- Does not provide all information required for evaluation of a CICS. A complete review of all information collected and documented during the course of the CICS is still necessary

STEPS IN EVALUATING A CICS

To use this guide, after a CICS is identified for evaluation:

- 1. Use** the presenting patient's medical record, the case file for the CICS, and the summary form (if one was used) to complete the *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings* and/or the *Programmatic Outcomes Evaluation Form for Contact Investigations in Congregate Settings*.
- 2. Analyze** and respond to the findings (as described on page 17) after the evaluation forms have been completed.
 - Meet with the HCW to review strengths and weaknesses of the CICS and explain possible causes of any substandard performance
 - Take immediate corrective action as may be needed in the specific CICS being evaluated
 - Summarize findings and make recommendations as needed
- 3. Implement** any recommended changes.

EVALUATING HEALTH CARE WORKER PERFORMANCE AND SKILLS IN CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

The TB interview/contact investigation process begins when a HCW reviews the medical record of the newly reported suspect or case to determine whether the presenting patient is infectious or potentially infectious. This decision must reflect individual TB program policy but should be based on a thorough review of the existing:

- Bacteriology/pathology results
- Radiographic findings
- Symptom history

The decision to interview is a decision to identify, investigate, locate, and refer for screening, medical evaluations, and treatment, if indicated, all high-priority contacts.² This essential TB control activity should include the investigation of all household, social/recreational, and congregate setting contacts. Transmission should not be regarded as an isolated incident confined to a limited area, but rather as an event that can occur in various exposure sites.

Once it has been determined that a TB interview should be initiated, the HCW will conduct the interview to obtain and record specific information from the presenting patient. This information may then lead to a decision to conduct a CICS. Elements or activities of a CICS fall within 9 major areas. The successful completion of these activities is dependent on the performance and skills of the HCWs involved in the investigation. The activities may be carried out by one HCW, or by different members of the health care team. The following 9 areas of activity necessary for a successful CICS are reflected in the *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings* that is used to evaluate the skills and performance of the HCW in a CICS.

2. If the presenting patient is diagnosed with pulmonary, laryngeal, or pleural TB with cavitory lesion on chest x-ray and/or positive acid-fast bacilli (AFB) sputum smear, the following are considered his or her high-priority contacts: all household members; children less than 5 years old; contacts with medical risks (HIV infection or other immunocompromising conditions); contacts with exposure during medical procedures (bronchoscopy, sputum induction, or autopsy); contacts in congregate settings; contacts whose exposure exceeds duration or environmental limits as established by local TB control programs for high-priority contacts.

If the presenting patient has suspected or confirmed pulmonary or pleural TB with negative sputum AFB smear results, abnormal chest x-ray consistent with TB disease with positive Nucleic Acid Assay and/or AFB culture positive, the following are considered his or her high-priority contacts: all household members; children less than 5 years old; contacts with medical risks; contacts with exposure during medical procedures.

The 9 areas of activity are:

- A. Assessment of the need for a CICS
- B. Interaction with the presenting patient
- C. Interaction with congregate setting management staff
- D. On-site assessment of congregate setting
- E. Identification of high-priority contacts
- F. Notification and testing of high-priority contacts
- G. Education for management, high-priority contacts, and all those associated with the congregate setting
- H. Expansion of investigation, as needed
- I. Closure of investigation

The information necessary to complete the *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings* can be collected primarily through record review. However, while use of record review will provide significant insight into the performance of the HCW, it cannot provide a full picture of his or her skills and performance. Effective HCW evaluation should also include periodic assessment using field observations. An in-person assessment of activities, such as building trust and rapport with congregate setting management and presenting effective TB education, will provide essential information that cannot be collected from a record review. When the *Health Care Worker Skills and Performance Evaluation Form* is used retrospectively to evaluate CICSs, field observation is not possible. Thus, the form has been designed to present a very detailed picture without the use of an in-person assessment. However, some questions on the form can be more fully answered through an observation of HCW skills and performance during the course of the CICS.

HEALTH CARE WORKER SKILLS AND PERFORMANCE EVALUATION FORM FOR CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

NOTE: FORM CAN BE DOWNLOADED FROM: <http://www.umdnj.edu/globaltb/products/tbcontactinvestigation.htm>

Directions: Review HCW record or observe HCW in the field to complete this form, using the information on the following pages for additional guidance in answering questions. Additional pages for comments can be attached to this form if needed.

CRITERIA	YES	NO	COMMENTS
A. ASSESSMENT OF THE NEED FOR A CONTACT INVESTIGATION IN A CONGREGATE SETTING			
1. a. Was the medical information reviewed to determine infectiousness/potential infectiousness of the presenting patient?			
b. If no, reason:			
2. a. Was the infectious period established according to local health department/TB program standards of practice?			
b. If no, reason:			
3. Was the presenting patient associated with a congregate setting during the infectious period?			
4. If patient was associated with a congregate setting, were appropriate criteria used to determine whether a CICS was necessary?			
5. Was the assessment for the need to conduct a CICS reviewed and approved by TB program management/supervisory staff?			
B. INTERACTION WITH THE PRESENTING PATIENT			
6. Was the presenting patient informed of the need to conduct a public health investigation at the congregate setting?			
7. a. Was patient's written consent to reveal identity obtained?			
b. If no, was established procedure for breach of confidentiality followed?			
C. INTERACTION WITH CONGREGATE SETTING MANAGEMENT STAFF			
8. a. If a contact investigation was recommended by TB program, was congregate setting management staff notified of the need to schedule a meeting date?			
b. If no, reason:			
9. If congregate setting management staff was notified of need for meeting, what type of notification was used? (Check all that apply) <input type="checkbox"/> Telephone <input type="checkbox"/> Mail <input type="checkbox"/> Unscheduled visit <input type="checkbox"/> Other (eg, e-mail)			

CRITERIA	YES	NO	COMMENTS
10. During the initial management notification process, was the identity of the presenting patient revealed to congregate setting management staff?			
11. a. Was a meeting date scheduled during initial notification? b. If no, reason:			
12. a. Was an initial meeting with congregate setting management staff held?			
b. If yes, when:			
13. Was an agenda prepared and followed during the initial management meeting?			
14. a. During the initial management meeting , was the identity of the presenting patient revealed to congregate setting management staff?			
b. Reason for decision:			
c. If yes, did management staff sign an agreement to maintain patient confidentiality?			
15. During the initial management meeting , were efforts made to establish trust and rapport with congregate setting management staff (for evaluations including HCW observation)?			
16. Was there discussion of the need for initial and post-exposure screening for high-priority contacts?			
D. ON-SITE ASSESSMENT OF CONGREGATE SETTING			
17. a. Was an on-site assessment conducted to assess potential exposure and transmission?			
b. Was documentation of the site visit collected during the assessment? If yes, check method used: <input type="checkbox"/> Notes <input type="checkbox"/> Drawings <input type="checkbox"/> Photographs			
c. If no, reason:			
18. If the identity of the presenting patient was revealed to congregate setting management staff, was site assessment focused on specific activities and responsibilities of presenting patient?			
19. Did TB program management/supervisory staff review information collected during on-site assessment?			

CRITERIA	Yes	No	COMMENTS
E. IDENTIFICATION OF HIGH-PRIORITY CONTACTS			
20. Were high-priority contacts identified?			
21. What variables were used to identify high-priority contacts?			
a. Frequency and duration of exposure			
b. Environment where exposure occurred during the infectious period			
c. Risk factors associated with contacts			
F. NOTIFICATION AND TESTING OF HIGH-PRIORITY CONTACTS			
22. a. Were identified high-priority contacts and all others associated with the congregate setting notified of potential exposure and transmission?			
b. If yes, how were they notified? (check all that apply) <ul style="list-style-type: none"> <input type="checkbox"/> Letter <input type="checkbox"/> Telephone call <input type="checkbox"/> E-mail <input type="checkbox"/> Staff meeting 			
c. If no, reason:			
23. Advance scheduling of initial screenings for high-priority contacts scheduled in advance?			
24. a. Were initial screenings for high-priority contacts conducted?			
b. If yes, did screenings take place within the time frame consistent with local health department standards of practice?			
G. EDUCATION PROVIDED FOR MANAGEMENT, HIGH-PRIORITY CONTACTS, AND THOSE ASSOCIATED WITH THE CONGREGATE SETTING			
25. Was basic TB information provided to congregate setting management staff in simple, easily understood way?			
26. Were educational sessions provided to all associated with congregate setting?			

CRITERIA	YES	NO	COMMENTS
H. EXPANSION OF INVESTIGATION, AS NEEDED			
27. a. Was the contact investigation expanded?			
b. If no, reason:			
c. If yes, what were the criteria used to justify expansion? (Check all that apply.) <ul style="list-style-type: none"> <input type="checkbox"/> Documented recent TST converters <input type="checkbox"/> Percentage of positive TST reactors meeting/exceeding local health department/TB program guidelines <input type="checkbox"/> Documented transmission to children <input type="checkbox"/> Secondary cases identified 			
I. CLOSURE OF INVESTIGATION			
28. Was the contact investigation closed in a manner consistent with local health department standards of practice for conducting CICs?			
ADDITIONAL COMMENTS			

The following summary corresponds to the items on the *Health Care Worker Skills and Performance Evaluation Form for Contact Investigations in Congregate Settings*. The numbered sections provide additional guidance and background information, which will be useful in completing the corresponding questions on the evaluation form.

A. ASSESSMENT OF THE NEED FOR A CONTACT INVESTIGATION IN A CONGREGATE SETTING

1. Review of medical information

Information collected during the patient interview and from the medical record should reveal whether the presenting patient was infectious or potentially infectious.

2. Establishment of infectious period

The HCW must determine the period of time that the patient was infectious or potentially infectious according to local health department or TB program standards of practice. This allows the HCW to identify high-priority contacts who may have been exposed.

3. Association with a congregate setting during the infectious period

Review of medical record and TB interview should reveal if the presenting patient was associated with a congregate setting.

4. Criteria used in determining whether a CICS was necessary

Whenever a presenting patient is associated with any type of congregate setting during the infectious period and has suspected or confirmed pulmonary, laryngeal, or pleural TB with: a) smear-positive respiratory specimens and/or b) cavitory disease on chest radiograph, an **on-site assessment** of the setting should be conducted to determine if exposure occurred.

5. Review and approval for CICS by TB program supervisory staff

TB program supervisory staff should be in agreement with the HCW's decision before a CICS is initiated.

B. INTERACTION WITH THE PRESENTING PATIENT

6. Presenting patient informed of the need for CICS

The HCW should explain to the presenting patient why a CICS is necessary and make clear that the CICS will involve meeting with appropriate management at the congregate setting and other individuals as deemed appropriate.

7. Patient's written consent to reveal identity obtained

If written consent is required by state or local jurisdictions, the patient should sign a consent form authorizing any disclosures of confidential information on a need-to-know basis. If the patient refuses to consent to disclosure of confidential information, the TB program either must comply or, if the refusal threatens public health, develop a plan of action to breach confidentiality. Breaches in confidentiality should only occur according to established procedures.

C. INTERACTION WITH CONGREGATE SETTING MANAGEMENT STAFF:

8. Management staff notification

The highest-level management staff at the congregate setting should be notified of the need for an immediate face-to-face meeting. This notification should take place 24 to 48 hours after the HCW has notified his or her supervisor that the presenting patient was associated with a congregate setting.

9. Method of notification regarding need for meeting

Telephone notification is the preferred method to introduce the topic and set up an appointment. Mail is generally too slow and impersonal for this contact, and unscheduled visits or e-mails are generally inappropriate.

10. Patient confidentiality during initial management notification process

Providing the patient's name during the initial notification phone call risks violating medical privacy. Further, the telephone is generally an inappropriate method to provide necessary education, which could prevent undue concern or panic for individuals in the congregate setting.

11. Scheduling of meeting date during initial management notification

During initial notification, an immediate face-to-face meeting with congregate setting staff should be scheduled.

12. Conducting initial meeting with management staff

The initial meeting with congregate setting management should take place as soon as possible after initial notification.

13. Agenda for initial meeting with management staff

The agenda for the management meeting should allow for orderly discussions while focusing primarily on those issues that are most relevant to the investigation. It should include a variety of topics such as:

- A brief review of the purpose of the meeting (without initially identifying the presenting patient)
- Emphasis on public health responsibility to identify potential contacts and prevent further transmission
- Confidentiality issues with emphasis on management's obligation to protect a patient's right to medical privacy if the patient's identity is revealed
- Potential media interest and suggested ways to respond to inquiries
- Education on TB transmission and other relevant topics
- An overview and discussion of relevant presenting patient information including:
 - Basis of diagnosis
 - Current medical status including treatment
 - Level of infectiousness prior to diagnosis
 - Explanation of infectious period and the role it plays in the identification of contacts
 - Use of directly observed therapy to help ensure patient adherence
 - Legal ramifications of nonadherence, if applicable

- General discussion with management and others focusing on:
 - Environment at the congregate setting
 - Total number of individuals associated with the setting, etc
 - Standards of practice for identifying and screening high-priority contacts
 - On-site testing (who will be administering test, where it will take place, etc)

14. Revealing identity of presenting patient to management staff, if appropriate

The release of a patient’s identity may be indicated, on a case-by-case basis, to ensure a quality CICS. When the patient’s identity is released to congregate setting management staff, a signed agreement to maintain patient confidentiality should be obtained from management staff.

15. Trust and rapport established with congregate setting management staff

Trust and rapport with congregate setting management is essential in a CICS. Since this cannot be accurately assessed from a record review, this question can only be completed if the evaluation includes an observation of the HCW during the initial management meeting.

16. Discussion of initial and post-exposure screening for high-priority contacts

Congregate setting management staff must be aware of need and procedures for initial screening of high-priority contacts, as well as the need for post-exposure testing 8 to 10 weeks after the date of last exposure.

D. ON-SITE ASSESSMENT OF CONGREGATE SETTING

17. On-site assessment to determine exposure and potential transmission

The on-site assessment is essential in determining who **must** be screened. Ideally, the assessment should include accurate and detailed drawings and/or photographs of the congregate setting with emphasis on room design(s), room size(s) in square feet, ceiling height, type of ventilation, number and location of individuals as relates to the presenting patient within the congregate setting. Written documentation allows the HCW to accurately recall the congregate setting and review the setting with his or her supervisor. Based on information gathered during the assessment, the HCW can make recommendations regarding who should be considered high-priority contacts.

18. Assessing likelihood of exposure based on activities and responsibilities of presenting patient during the on-site assessment

If the identity of the presenting patient has been revealed at the management meeting prior to the assessment, then emphasis can be placed on the patient and his/her responsibilities and daily activities.

19. Review of on-site assessment by TB program supervisory staff

TB program management staff should be in agreement with the HCW’s decisions regarding potential for transmission. In some cases the on-site assessment may reveal that no exposure occurred, thus no screening will be recommended.

E. IDENTIFICATION OF HIGH-PRIORITY CONTACTS

20. Identification of high-priority contacts

Initial focus of CICSs should be on identification of high-priority contacts with medium and low-priority contacts reserved for possible expansion of the investigation. High-priority contacts represent those at highest risk for exposure and transmission, based on national and local health department standards of practice.

21. Variables used to identify high-priority contacts

The following criteria should be considered in identifying high-priority contacts:

- Frequency and duration of exposure during the infectious period
 - Single exposure or multiple exposure(s)
 - Long versus short duration of exposure(s)
- Environment where exposure occurred during the infectious period
 - Large or small area
 - Indoors or outdoors
 - Adequate or inadequate ventilation
- Risk factors associated with contacts
 - Age (infant, child, adult, elderly)
 - Health status (immunocompetent or immunosuppressed)
 - Lifestyle (stable or transient, substance abuse)

F. NOTIFICATION AND TESTING OF HIGH-PRIORITY CONTACTS

22. Notification of high-priority contacts and others

With assistance from TB program, all high-priority contacts and others associated with the congregate setting should be notified by congregate setting management about potential exposure and transmission.

23. Scheduling of initial screening for high-priority contacts in advance

The time, date, and place for screening for all high-priority contacts should be scheduled in advance.

24. Screening of high-priority contacts

Screening for high-priority contacts should take place within a time frame consistent with local health department standards of practice.

G. EDUCATION PROVIDED FOR MANAGEMENT, HIGH-PRIORITY CONTACTS, AND THOSE ASSOCIATED WITH THE CONGREGATE SETTING

TB education allows individuals at the congregate setting to become more informed regarding the likelihood of exposure and transmission. Effective educational sessions held prior to screening of high-priority contacts may convince individuals who have minimal or no exposure to the presenting patient (ie, the “worried well”) that they do not need to be screened. Educational presentations should be simple and easy to understand.

25. Provision of basic TB information to congregate setting management staff

- How TB is (and is not) transmitted
- Factors influencing transmission (eg, environmental factors)
- Diagnostic tests for LTBI and TB disease
- Need for initial TST and re-testing
- Difference between LTBI and TB disease
- Symptoms of TB disease
- Treatment of disease and LTBI
- Directly observed therapy

26. Educational sessions for those associated with congregate setting

Educational sessions for high-priority contacts and others associated with the congregate setting should include the same basic information presented to management. Sessions should include a visual component (slides or overheads) and written materials, such as brochures, which can be distributed to participants. The on-line resource *TB Education and the Congregate Setting Contact Investigation: A Resource for the Public Health Worker*, available at <http://www.umdj.edu/globaltb/products/tbcontactinvestigation.htm> provides information that can be used in TB education sessions.

H. EXPANSION OF INVESTIGATION, AS NEEDED

27. Expansion of investigation

Evidence of recent transmission and/or an excessive number of positive reactors signals a need to consider expanding the investigation to the next group of contacts, using the (currently accepted) concentric circle principle of contact investigation. Evidence suggesting recent transmission may include:

- Transmission as confirmed by existence of documented TST converters in high-priority contacts
- Percentage of positive TST reactors meeting or exceeding established local health department/TB program recommendations
- Positive TST results in children less than 5 years of age
- Identification of secondary cases

I. CLOSURE OF INVESTIGATION

28. Consistency with local health department standards of practice for closing CICSs

The closure of the CICS should be dependent on the identification and complete screening(s) (initial and post-exposure) of all high-priority contacts at risk of exposure and transmission.

EVALUATING PROGRAMMATIC OUTCOMES OF CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

The previous section of this guide addressed evaluation of the performance and skills of the HCW conducting the CICS. This section addresses the larger programmatic outcomes of the CICS. Selected measurable outputs and outcomes from the logic model on page 2 have been identified and are used as measures of evaluation in this section.

When complete, the *Programmatic Outcome Evaluation Form for Contact Investigations in Congregate Settings* will provide a concise view of how successful the CICS was from a broader programmatic perspective. A successful CICS should not necessarily be linked to, nor measured by, the *number* of contacts identified. Occasionally, a successful investigation may conclude that no exposure or minimal exposure has occurred and, as a result, no high-priority contacts are identified. However, if it is determined that exposure has likely occurred and the identification of contacts is recommended, then the *Programmatic Outcome Evaluation* form can be used to assess the outcomes of the investigation.

The form contains 3 columns in which entries can be made: *Number*, *Percentage*, and *Program Objective*. Where they exist, national objectives set by the CDC are also listed on the evaluation form. In cases where TB programs have established their own objectives for these categories, these program objectives can be entered in the last column and compared with actual results from this CICS.

The form includes both short-term and long-term outcomes of the CICS as follows:

- 1. Short-term outcomes** (Questions 1 to 11) can be evaluated after all identified high-priority contacts have completed initial and post-exposure screening and medical evaluation.
- 2. Long-term outcomes** (Questions 12 to 14) relate to therapy completion and cannot be evaluated until LTBI treatment for all contacts placed on therapy is completed.

PROGRAMMATIC OUTCOMES EVALUATION FORM FOR CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

NOTE: FORM CAN BE DOWNLOADED FROM: <http://www.umdnj.edu/globaltb/products/tbcontactinvestigation.htm>

Directions: Complete this form to assess program performance compared with national and program objectives. Fill in the final column with the specific objectives set by your TB program.

SHORT-TERM OUTCOMES	NUMBER	PERCENTAGE	PROGRAM OBJECTIVE
1. How many high-priority contacts were identified during this investigation?			
2. How many high-priority contacts had a history of TB disease?			
3. How many high-priority contacts were documented as previously TST positive?			
4. How many high-priority contacts were TST tested during this investigation?			
5. How many high-priority contacts had TST positive results?			
6. How many TST positive high-priority contacts received a chest x-ray?			
7. How many TST positive high-priority contacts were prescribed treatment for LTBI?			
8. How many TST positive high-priority contacts < 15 years old were started on LTBI treatment? (National objective = 95%)			
9. How many TST positive high-priority contacts > 15 years old were started on LTBI treatment? (National objective = 75%)			
10. How many secondary cases were identified as a result of this investigation?			
11. How many contacts diagnosed with suspected or verified pulmonary TB disease were interviewed for contact investigation? (National objective = 100%)			
LONG-TERM OUTCOMES	NUMBER	PERCENTAGE	PROGRAM OBJECTIVE
12. How many contacts with active TB disease completed treatment in 6 to 12 months? (National objective = 90%)			
13. How many TST positive contacts < 15 years old who were placed on LTBI treatment completed treatment? (National objective = 90%)			
14. How many TST positive contacts > 15 years old who were placed on LTBI treatment completed treatment? (National objective = 75%)			

*Initially TST-negative contacts should not be counted here until second (post-exposure) TST results are available.

SUMMARY: EVALUATION OF CONTACT INVESTIGATIONS IN CONGREGATE SETTINGS

After completing the evaluation form(s), a clear picture of the effectiveness and success of the CICS will emerge. This picture will include both performance and skills demonstrated by the HCW during the process of conducting the CICS, as well as the impact of the CICS on the achievement of programmatic outcomes. After the evaluation, the following actions should be considered:

- 1. Provide feedback to HCW(s):** Review in detail the strengths and weaknesses of the CICS. If mistakes were made, review the record with the HCW, identify the proper action, and clarify how the error may have impacted one or more of the programmatic outcomes. In addition, explore possible causes for each error.
- 2. Identify cause for poor performance:** Based on review and discussion with HCW, attempt to determine the specific cause(s) of any inappropriate performance. To help guide corrective action, try to determine the cause of the problem. Possible causes and solutions include, but are not limited to:
 - Lack of skill (training needed)
 - Inadequate guidance or oversight (improved direction from supervisor)
 - Lack of written guidance (policy or procedures needed)
- 3. Take corrective action to appropriately complete the CICS, if necessary:** If the evaluation revealed that HCW error or inappropriate procedure resulted in an inadequate investigation, work quickly to remedy the situation. For example, if not all required contacts have been tested, assign staff to do so.
- 4. Summarize findings and make appropriate recommendations:** Based on information collected from the evaluation forms and feedback from the HCW, briefly list the strengths and weaknesses of the CICS. For each weakness cite the probable cause and recommended changes that will likely lead to improved performance. While this may be a specific recommendation related to the HCW, the investigation may also reveal a flaw in program policy or procedure that should be corrected to better enable successful CICSs.

A copy of the completed evaluation forms should be placed in the HCW's file. Some of the information gathered in the evaluation of programmatic performance may be helpful in producing regular reports as required by health department standards of practice, or as a part of a larger evaluation effort. The summary findings and recommendations should be shared with TB program supervisory staff, who can authorize further corrective action, if deemed appropriate. Through the evaluation and the above post-evaluation steps, the CICS process may be improved, thus contributing to the success of the overall TB control effort in the program area.

Further, TB programs that utilize these evaluation instruments may find it useful to periodically assess all the forms completed during a given time. This will help program staff identify if there are any patterns (of staff behavior or epidemiologic patterns) that are emerging.

APPENDIX

SAMPLE CONTACT INVESTIGATION IN A CONGREGATE SETTING SUMMARY FORM

NOTE: FORM CAN BE DOWNLOADED FROM: <http://www.umdj.edu/globaltb/products/tbcontactinvestigation.htm>

Directions: This form should be completed by the HCW conducting the CICS and reviewed by his or her supervisor.

Health Care Worker (HCW) Name: _____

Date: _____

Supervisor Review Initials: _____

If it is determined that the presenting patient was associated with a congregate setting during his or her infectious period, the following is to be completed by the HCW during the course of the congregate setting contact investigation:

Patient name (last, first): _____

Patient ID #: _____

Infectious period: Start date: _____ End date: _____

I. Background

Name of congregate setting: _____

Address: _____

Telephone number: _____

Contact person: _____

Telephone number of contact person (if different from above): (____) _____

Address of contact person (if different from above): _____

Date management notified of potential exposure: ____/____/____

Date of scheduled management meeting: ____/____/____

Date of scheduled on-site assessment of congregate setting (if different from above): ____/____/____

2. Findings (narrative format)

Please document the results of the following:

Management meeting (with emphasis on the sharing of key information, who was present, was patient identity revealed, was education provided, etc?) Date: ____/____/____

On-site assessment (attach drawings and/or photographs and list any other supporting evidence collected for the purpose of determining high-priority contact identification). Date: ____ / ____ / ____

3. Observations (narrative format)

Please document any problems or needs identified regarding this investigation (eg, uncooperative management staff, need for an interpreter or educational materials in other languages, assistance from TB program supervisor, etc):

4. Recommendations (narrative format)

Please document your recommendations as they relate to potential exposure and transmission, and the identification of high-priority contacts:

5. Outcomes

Please document results of screening and medical evaluation (if applicable) as indicated in the following:

I. INITIAL OUTCOMES	NUMBER	
Total: High-priority contacts identified		
Previously TST positive		
History of TB disease		
Refused TST		
TST administered		
II. OUTCOMES OF SCREENING	INITIAL SCREENING (NUMBER)	POST-EXPOSURE SCREENING (NUMBER)
Total: TST administered		
Positive TST results		
Documented convertors		
Negative TST results		
Total: Chest x-ray provided		
Normal		
Abnormal, consistent with TB		
III. DISPOSITION OF PATIENTS	INITIAL SCREENING (NUMBER)	POST-EXPOSURE SCREENING (NUMBER)
Total: Diagnosed LTBI		
Prescribed LTBI treatment		
Total: Diagnosed TB case/suspect		
# Receiving treatment		

Supervisor's Comments:

ADDITIONAL TB RESOURCES

Centers for Disease Control and Prevention (CDC) Division of Tuberculosis Elimination

www.cdc.gov/tb

The CDC Division of Tuberculosis Elimination's website contains information on TB in the United States and provides TB education and training materials and resources.

Find TB Resources Website

www.findtbresources.org

This website includes a searchable database of materials from numerous national and international organizations. The site also includes information about other TB organizations, how to order materials, and funding opportunities.

TB Regional Training and Medical Consultation Centers (RTMCCs)

CDC funds four regionally-assigned RTMCCs to provide training, education and medical consultation services to TB health care workers. The RTMCC all products page provides RTMCC-produced TB educational materials <http://sntc.medicine.ufl.edu/rtmccproducts.aspx>

Curry International Tuberculosis Center (CITC)

CNTC serves: Alaska, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming, Federated State of Micronesia, Northern Mariana Islands, Republic of Marshall Islands, American Samoa, Guam, and the Republic of Palau.

3180 18th Street, Suite 101
San Francisco, CA 94110
415-502-4600 (Phone) 415-502-4620 (Fax)
<http://www.currytbcenter.ucsf.edu/>

Heartland National Tuberculosis Center (HNTC)

HNTC serves: Arizona, Illinois, Iowa, Kansas, Minnesota, Missouri, New Mexico, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, and Wisconsin.

2303 SE Military Drive
San Antonio, TX 78223
800-839-5864 (Phone) 210-531-4500 (Fax)
www.heartlandntbc.org

New Jersey Medical School Global Tuberculosis Institute (GTBI)

GTBI serves: Connecticut, District of Columbia, Delaware, Indiana, Massachusetts, Maryland, Maine, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia.

225 Warren Street
Newark, NJ 07101
973-972-3270 (Phone) 973-972-3268 (Fax)
www.umdnj.edu/globaltb

Southeastern National Tuberculosis Center

SNTC serves: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, Puerto Rico, and the U.S. Virgin Islands.

Shipping Address: Emerging Pathogens Institute
2055 Mowry Rd. Suite 250
Gainesville, FL 32611

Mailing Address: PO Box 103600, Gainesville, FL 32610-3600
888-265-7682 (Phone) 352-265-7683 (Fax)
<http://sntc.medicine.ufl.edu>



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