

Investigation of Contacts of Persons with Infectious Tuberculosis, 2005

Text Only Version

Slide 1: Investigation of Contacts of Persons with Infectious Tuberculosis, 2005

National Tuberculosis Controllers Association
Centers for Disease Control and Prevention

Division of Tuberculosis Elimination
Centers for Disease Control and Prevention

Slide 2: Background (1)

1962: Isoniazid (INH) demonstrated to be effective in preventing tuberculosis (TB) among household contacts of persons with TB disease

Investigation and treatment of contacts with latent TB infection (LTBI) quickly becomes strategy in TB control and elimination in the U.S.

1976: American Thoracic Society (ATS) published guidelines for investigation, diagnostic evaluation, and medical treatment of TB contacts

Slide 3: Background (2)

2005: National TB Controllers Association (NTCA) and CDC release guidelines on the investigation of contacts of persons with infectious TB

Expanded guidelines on investigation of TB exposure and transmission, and prevention of future TB cases through contact investigations

Standard framework for assembling information and using findings to inform decisions

Slide 4: Contact Investigations – A Crucial Prevention Strategy

On average, 10 contacts are identified for each person with infectious TB in the U.S.

20%–30% of all contacts have LTBI

1% of contacts have TB disease

Of contacts who will ultimately have TB disease, approximately one-half develop disease in the first year after exposure

Slide 5: Benefits of Contact Investigations

Finding and treating additional TB disease cases (potentially interrupting further transmission)

Finding and treating persons with LTBI to avert future cases

Slide 6: Contact Investigation Responsibilities

Health departments are responsible for ensuring the conduct contact investigations

Contact investigations are complicated activities that require

Many interdependent decisions

Time-consuming interventions

Slide 7: Key Terms (1)

Case – A particular instance of a disease (e.g., TB). A case is detected, documented, and reported.

Contact – Someone who has been exposed to *M. tuberculosis* by sharing air space with a person with infectious TB.

Slide 8: Key Terms (2)

Index – The first case or patient who comes to attention as indicator of a potential public health problem.

Source case or patient – The case or person who was the original source of infection for secondary cases or contacts; can be, but is not necessarily, the index case.

Slide 9: Decisions to Initiate a Contact Investigation

Slide 10: Decisions to Initiate a Contact Investigation

Public health officials must decide which

Contact investigations should be assigned a higher priority

Contacts to evaluate first

Decision to investigate an index patient depends on presence of factors used to predict likelihood of transmission

Slide 11: Factors that Predict Likely Transmission of TB

Anatomical site of the disease

Positive sputum bacteriology

Radiographic findings

Behaviors that increase aerosolization of respiratory secretions

Age

HIV status

Administration of effective treatment

Slide 12: Characteristics of the Index Patient Associated with Increased Risk of TB Transmission

Pulmonary, laryngeal, or pleural TB

Acid-fast bacilli (AFB) positive sputum smear

Cavitation on chest radiograph

Adolescent or adult patient

No or ineffective treatment of TB disease

Slide 13: Behaviors of the Index Patient Associated with Increased Risk of TB Transmission

Frequent coughing

Sneezing

Singing

Close social network

Slide 14: Initiating a Contact Investigation (1)

Consider if index patient has

Confirmed or suspected pulmonary, laryngeal, or pleural TB

Chest radiograph consistent with pulmonary TB

Recommended if

Sputum smear has AFB on microscopy

Chest radiograph indicates presence of cavities in the lung (AFB sputum smear negative)

Slide 15: Initiating a Contact Investigation (2)

Not generally indicated if

Sputum smear has AFB on microscopy and nucleic acid amplification (NAA) tests for *M. tuberculosis* are negative

Slide 16: Initiating a Contact Investigation (3)

Persons with AFB smear or culture-positive sputum and cavitary TB assigned the highest priority

Should not be initiated for contacts who have suspected TB disease and minimal findings in support of pulmonary TB diagnosis

Slide 17: Initiating a Contact Investigation (3)

Initiation of other investigations depends on

Availability of resources to be allocated

Achievement of objectives for higher priority contact investigations

Slide 18: Decision to Initiate a TB Contact Investigation

If the site of disease is pulmonary, laryngeal, or pleural and the AFB sputum smear is positive and the nucleic acid assay is positive or not performed, a contact investigation should always be initiated.

If the site of disease is pulmonary, laryngeal, or pleural and the AFB sputum smear positive and the nucleic acid assay is negative, a contact investigation is not indicated.

If the site of disease is pulmonary, laryngeal, or pleural and the AFB sputum smear is negative or not performed and there is cavitory disease, a contact investigation should always be initiated if there are sufficient resources.

If the site of disease is pulmonary, laryngeal, or pleural and the AFB sputum smear is negative or not performed and the chest radiograph is abnormal indicating non-cavitory consistent with TB, a contact investigation should be initiated if there are sufficient resources.

If the site of disease is pulmonary, laryngeal, or pleural and the AFB sputum smear is negative or not performed and the chest radiograph is abnormal not consistent with TB, a contact investigation should be initiated only in exceptional circumstances.

Site of disease - pulmonary suspect (tests pending, e.g., cultures) and the AFB sputum smear is negative or not performed and there is cavitory disease, a contact investigation should always be initiated if there are sufficient resources.

Site of disease - pulmonary suspect (tests pending, e.g., cultures) and the AFB sputum smear is negative or not performed and the chest radiograph is abnormal indicating non-cavitory consistent with TB, a contact investigation should be initiated if there are sufficient resources.

Site of disease - pulmonary suspect (tests pending, e.g., cultures) and the AFB sputum smear is negative or not performed and the chest radiograph is abnormal not consistent with TB, a contact investigation should be initiated only in exceptional circumstances.

If the site of disease is nonpulmonary (pulmonary and laryngeal involvement ruled out), a contact investigation is not indicated.

Slide 19: Investigating the Index Patient and Sites of Transmission

Slide 20: Comprehensive Index Patient Information

Foundation of a contact investigation

Information to be gathered includes

Disease characteristics

Onset time of illness

Names of contacts

Exposure locations

Current medical factors (e.g., initiation of treatment and drug susceptibility results)

Slide 21: Preinterview Phase

Collect patient background information and circumstances of illness

Possible sources include

Medical record

Reporting physician

Match patient's name to prior TB registries and the surveillance database

Slide 22: Data to Collect in Pre interview Phase (1)

History of previous TB exposure or infection

History of previous TB disease and treatment

Anatomical sites of TB disease

Symptoms of illness

Date of onset

Chest radiography results

Other diagnostic imaging study results

Slide 23: Data to Collect in Pre interview Phase (2)

Histologic or bacteriologic analysis results

Current bacteriologic results

Anti-TB chemotherapy regimen

HIV testing results

Patient's concurrent medical conditions

Other diagnoses that may influence or impinge on the interview

Identifying demographic information

Slide 24: Determining the Infectious Period

Focuses investigation on contacts most likely to be at risk for infection

Sets time frame for testing contacts

Information to assist with determining infectious period

Approximate dates TB symptoms were noticed

Bacteriologic results

Extent of disease

Slide 25: Start of Infectious Period

Cannot be determined with precision; estimation is necessary

Start is 3 months before TB diagnosis (recommended)

Earlier start should be used in certain circumstances (e.g., patient aware of illness for longer period of time)

Slide 26: Estimating the Beginning of the Infectious Period

Characteristic of Index Case			
TB symptoms	AFB sputum smear positive	Cavitary chest radiograph	Likely period of infectiousness
Yes	No	No	3 months before symptom onset or 1st positive finding consistent with TB disease, whichever is longer
Yes	Yes	Yes	3 months before symptom onset or 1st positive finding consistent with TB disease, whichever is longer
No	No	No	4 weeks before date of suspected diagnosis
No	Yes	Yes	3 months before positive finding consistent with TB

SOURCE: California Department of Health Services Tuberculosis Control Branch; California Tuberculosis Controllers Association. Contact Investigation Guidelines. Berkley, CA: California Department of Health Services; 1998.

Slide 27: Reading the TST (1)

Infectious period closed when all the following criteria are met

Effective treatment for ≥ 2 weeks,

Diminished symptoms, and

Bacteriologic response

Slide 28: Exposure Period for Contacts

Determined by how much time the contact spent with the index patient during the infectious period

Slide 29: Contact Investigation Interviews

Establishing trust and rapport with patient is critical

Interviewers should be trained in interview methods and tutored on the job

Conducted in patient's primary language or in conjunction with a trained interpreter

Interviews should be conducted in person in the hospital, TB clinic, patient's home, or a convenient location that accommodates the patients privacy

Slide 30: Interviewing the Index Patient

Minimum of two interviews should be conducted

First interview should be conducted

≤ 1 business day of reporting for infectious patients

≤ 3 business days for others

Second interview conducted 1–2 weeks later

Additional interviews depend on the amount of information needed and time to develop rapport with patient

Slide 31: Contact Investigation Interview General Principles

Establish rapport with patient

Exchange information

Review transmission settings

Record sites of transmission

Compile list of contacts

Provide closure

Conduct follow-up interviews, if needed

Slide 32: Proxy Interviews

Can build on the information provided by index patient

Essential when patient cannot be interviewed

Conducted with key informants most likely to know the patients' practices, habits, and behaviors

Jeopardizes patient confidentiality

Slide 33: Field Investigation (Site Visits)

Site visits are complementary to interviewing

Should be made ≤ 3 days of the initial interview

Elicits additional contact information; especially helpful for finding children

Lack of site visits has contributed to TB outbreaks

Slide 34: Follow-up Steps

Continuing investigation is shaped by reassessments of ongoing results

Notification and follow-up communication with other jurisdictions should be arranged for out-of-area contacts

Slide 35: Specific Investigation Plan

Investigation plan should include

Information gathered in interviews and site visits

Registry of contacts and their assigned priorities

Written timeline for monitoring the investigation progress

Data recorded on standardized forms

Part of the permanent medical record

Slide 36: Time Frames for Initial Follow-up of Contacts Exposed to TB

Type of Contact	Business days from listing of a contact to initial encounter*	Business days from initial encounter to completion of medical evaluation†
High priority contact: index case AFB sputum smear positive or cavitory disease on chest x-ray	7	5
High priority contact: index case AFB sputum smear negative§	7	10

Medium priority contact: regardless of AFB sputum smear or culture result	14	10
<p>*A face-to-face meeting that allows the health care worker to assess the overall health of the contact, administer a TST, and schedule further evaluation.</p> <p>†The medical evaluation is complete when the contact's status (LTBI or TB disease) is determined.</p> <p>§Abnormal chest x-ray consistent with TB disease, might be NAA positive and /or AFB culture positive</p>		
<p>SOURCE: California Department of Health Services Tuberculosis Control Branch; California Tuberculosis Controllers Association. Contact Investigation Guidelines. Berkley, CA: California Department of Health Services; 1998.</p>		

Slide 37: Assigning Priorities to Contacts

Slide 38: Assigning Priorities to Contacts (1)

Priorities should be assigned to contacts and resources allocated to complete all investigative steps for high-and medium-priority contacts.

Any contact not classified as high or medium priority is assigned a low priority.

Slide 39: Assigning Priorities to Contacts (2)

Priorities based on likelihood of infection and hazards to the contact if infected

Priority scheme directs resources to contacts who

Have secondary case of TB disease

Have recent M. tuberculosis infection (most likely to benefit from treatment)

Are most likely to develop TB disease if infected or could suffer severe morbidity if they develop TB disease

Slide 40: Factors for Assigning Contact Priorities

Characteristics of the index patient

Characteristics of contacts

Age

Immune status

Other medical conditions

Exposure

Slide 41: Prioritization of Contacts (1)

Patient has pulmonary, laryngeal, or pleural TB with cavitary lesion on chest radiograph or is AFB sputum smear positive

Household contact	High
Contact < 5 years of age	High
Contact with medical risk factor (HIV or other medical risk factor)	High
Contact with exposure during medical procedure (bronchoscopy, sputum induction, or autopsy)	High
Contact in a congregate setting	High
Contact exceeds duration/environment limits (limits per unit time established by the health department for high-priority contacts)	High
Contact is ≥ 5 years and ≤ 15 years of age	Medium
Contact exceeds duration/environment limits (limits per unit time established by the health department for medium-priority contacts)	Medium

Any contact not classified as high or medium priority is assigned a low priority.
Slide 42: Prioritization of Contacts (2)

Patient is a suspect or has confirmed pulmonary/pleural TB – AFB smear negative, abnormal chest radiograph consistent with TB disease, may be NAA and/or culture positive

Contact < 5 years of age	High
Contact with medical risk factor (e.g., HIV)	High
Contact with exposure during medical procedure (bronchoscopy, sputum induction, or autopsy)	High
Household contact	Medium
Contact exposed in congregate setting	Medium

Contact exceeds duration/environment limits (limits per unit time established by the local TB control program) Medium

Any contact not classified as high or medium priority is assigned a low priority.

Slide 43: Prioritization of Contacts (3)

Patient is a suspect pulmonary TB case – AFB smear negative, NAA negative/culture negative, abnormal chest radiograph not consistent with TB disease

Household contact Medium

Contact < 5 years of age Medium

Contact with medical risk factor (e.g., HIV infection or other immunocompromising condition) Medium

Contact with exposure during medical procedure (bronchoscopy, sputum induction, or autopsy) Medium

Any contact not classified as high or medium priority is assigned a low priority.

Slide 44: Diagnostic and Public Health Evaluation of Contacts

Slide 45: Initial Assessment of Contacts

Should be accomplished within 3 working days of the contact having been listed in the investigation

Gathers background health information

Permits face-to-face assessment of person's health

Slide 46: Information to Collect During Initial Assessment (1)

Previous M. tuberculosis infection or disease and related treatment

Contact's verbal report and documentation of previous TST results

Current symptoms of TB illness

Slide 47: Information to Collect During Initial Assessment (2)

Medical conditions making TB disease more likely

Mental health disorders

Type, duration, and intensity of TB exposure

Sociodemographic factors

Slide 48: Information to Collect During Initial Assessment (3)

HIV status; contacts should be offered HIV counseling and testing if status unknown

Information regarding social, emotional, and practical matters that might hinder participation

Slide 49: Reassess Strategy After Initial Information Collected

After initial information collected

Priority assignments should be reassessed

Medical plan for diagnostic tests and possible treatment can be formulated for high- and medium-priority contacts

Slide 50: Tuberculin Skin Testing

All high or medium priority contacts who do not have a documented previous positive tuberculin skin test (TST) or previous TB disease should receive a TST at the initial encounter.

If not possible, TST should be administered

≤ 7 working days of listing high-priority contacts

≤ 14 days of listing medium-priority contacts

Slide 51: Interpreting Skin Test Reaction

≥ 5 mm induration is positive for any contact

Two-step procedure should not be used for testing contacts

A contact whose second TST is positive after initial negative result should be classified as recently infected

Slide 52: Post exposure Tuberculin Skin Testing

Window period is 8–10 weeks after exposure ends

Contacts who have a positive result after a previous negative result are said to have had a change in tuberculin status from negative to positive

Slide 53: Medical Evaluation

All contacts whose skin test reaction induration is ≥ 4 mm or who report any symptoms consistent with TB disease should undergo further examination and testing for TB

Slide 54: Evaluation and Follow-up of Children <5 Years of Age

Always assigned a high priority as contacts

Should receive full diagnostic medical evaluation, including a chest radiograph

If TST ≤ 5 mm of induration and last exposure < 8 weeks, LTBI treatment recommended (after TB disease excluded)

Second TST 8–10 weeks after exposure; decision to treat is reconsidered

Negative TST – treatment discontinued

Positive TST – treatment continued

Slide 55: Evaluation and Follow-up of Immunosuppressed Contacts

Should receive full diagnostic medical evaluation, including a chest radiograph

If TST negative ≥ 8 weeks after end of exposure, full course of treatment for LTBI recommended (after TB disease is excluded)

Slide 56: Medical Treatment for Contacts with LTBI

Slide 57: Health Department Responsibilities

Focusing resources on contacts in most need of treatment

Monitoring treatment, including that of contacts who receive care outside the health department

Providing directly observed therapy (DOT), incentives, and enablers

Slide 58: Decision to treat contacts with a negative skin test result should take the following factors into consideration

The frequency, duration, and intensity of exposure

Corroborative evidence of transmission from the index patient

Slide 59: Prophylactic Treatment

Prophylactic treatment (after TB disease is excluded) of presumed *M. tuberculosis* infection recommended for persons

With HIV infection

Taking immunosuppressive therapy for organ transplant

Taking anti-tumor necrosis factor alpha (TNF- α) agents

Slide 60: Treatment After Exposure to Drug-Resistant TB

Consultation with physician with MDR expertise recommended for selecting a LTBI regimen

Contacts should be monitored for 2 years after exposure

Slide 61: Selecting Contacts for Directly Observed Therapy

Contacts aged < 5 years

Contacts who are HIV infected or otherwise substantially immunocompromised

Contacts with a change in their tuberculin skin test status from negative to positive

Contacts who might not complete treatment because of social or behavior impediments

Slide 62: When to Expand a Contact Investigation

Slide 63: Determining When to Expand a Contact Investigation

Consideration of the following factors recommended

Achievement of program objectives with high- and medium-priority contacts

Extent of recent transmission

Unexpectedly large rate of infection or TB disease in high-priority contacts

Evidence of second-generation transmission

TB disease in any contacts who had been assigned low priority

Infection in any contacts aged < 5 years

Contacts with change in skin test status from negative to positive

Slide 64: Strategy for Expanding a Contact Investigation

Should be based on the investigation data

Results should be reviewed weekly

In absence of recent transmission, investigation should not be expanded to lower-priority groups

Slide 65: Communicating Through the News Media

Slide 66: Possible Situations for News Coverage

Certain contact investigations have the potential for sensational news coverage. Examples include

Involving numerous contacts (especially children)

Occurring in public settings

Occurring in workplaces

Associated with TB fatalities

Associated with drug-resistant TB

Slide 67: Reasons for Participating in News Media Coverage (1)

Educates the public regarding the nature of TB

Reminds public of continued presence of TB

Provides a complementary method to alert exposed contacts of the need for seeking medical evaluation

Relieves unfounded public fears regarding TB

Slide 68: Reasons for Participating in News Media Coverage (2)

Illustrates the health department's leadership in communicable disease control

Ensures that constructive public inquiries are directed to the health department

Validates the need for public resources to be directed to disease control

Slide 69: Potential Drawbacks to News Coverage

Increase public anxiety

Cause unexposed person seeking unnecessary medical care

Contribute to unfavorable views of the health department

Contribute to spread of misinformation

Trigger unconstructive public inquiries

Unintended disclosure of confidential information

Slide 70: Strategy for News Coverage

Anticipatory preparation of clear media messages is recommended

Develop communication objectives

Issue news release in advance of any other media coverage

Collaborate with partners outside of the health department

Slide 71: Data Management and Evaluation of Contact Investigations

Slide 72: Data Collection

Three broad purposes in contact investigations

Management of care and follow-up index patients and contacts

Epidemiologic analysis of investigation in progress and investigations overall

Program evaluation using performance indicators that reflect performance objectives

Slide 73: Reasons Contact Investigation Data are Needed

Presents broad amount of demographic, epidemiologic, historic, and medical information needed to provide comprehensive care

Provides information on process steps necessary for monitoring timeline objectives

Provides information needed to reassess investigation strategy

Slide 74: Confidentiality and Consent in Contact Investigations

Slide 75: Safeguarding Confidentiality

Challenging and difficult during contact investigations

Essential to maintaining credibility and trust

Constant attention required to maintain confidentiality

Specific policies for release of confidential information related to contact investigations are recommended

Slide 76: Confidentiality and Consent

TB control programs should address the following confidentiality and consent issues before initiation of contact investigations

Contact investigation policies and training

Informed consent

Site investigations

Other medical conditions besides TB

Slide 77: Staffing and Training for Contact Investigations

Slide 78: Staffing and Training for Contact Investigations

Contact investigations involve personnel in the health department and other health care delivery systems

Contact investigation tasks require multiple functions and skills

Training is essential for successful contact investigations

Slide 79: Contact Investigations in Special Circumstances

Slide 80: Definition of an Outbreak

During (and because of) a contact investigation, 2 or more contacts are found to have active TB, regardless of their assigned priority; or

Any 2 or more cases occurring within a year of each other, discovered to be linked, and the linkage is established outside of a contact investigation

Slide 81: TB Outbreaks

A TB outbreak is a sign of extensive transmission and implies that

A TB patient was contagious

Contacts were exposed for a substantial period of time

The interval since exposure has been sufficient for infection to progress to disease (interval may be shortened by HIV infection)

Slide 82: Develop Outbreak Strategy Based on Risk Factors

Contagious TB undiagnosed or untreated for an extended period, or an extremely contagious case

Source patient visiting multiple sites

Patient and contacts in close or prolonged company

Environment promoting transmission

Contacts very susceptible to disease after *M. tuberculosis* infection

Gaps in contact investigations and follow-up

Extra-virulent strain of *M. tuberculosis*

Slide 83: Congregate Settings

Concerns associated with congregate settings

Substantial number of contacts

Incomplete information regarding contact names and locations

Incomplete data for determining priorities

Difficulty in maintaining confidentiality

Collaboration with officials and administrators who are unfamiliar with TB

Legal implications

Media coverage

Slide 84: Congregate Settings – Designating Priorities

Site specific

Customized algorithm required for each situation

Source-case characteristics

Duration and proximity of exposure

Environmental factors that modify transmission

Susceptibility of contacts

Slide 85: Congregate Settings - Setting-Based Investigation

Interview and test contacts on site is optimum approach

Alternative is evaluation at the health department with additional personnel and extended hours

As last resort, notify contacts in writing to seek diagnostic evaluation with their own health care provider

Slide 86: Correctional Facilities

Establish preexisting formal collaboration between correctional and public health officials

Trace high-priority contacts who are transferred, released, or paroled before medical evaluation for TB

Low completion rate is anticipated unless follow-through supervision can be arranged for released or paroled inmates

Slide 87: Workplaces

Duration and proximity of exposure can be greater than for other settings

Details to gather from index patient during initial interview include

Employment hours

Working conditions

Workplace contacts

Occasional customers of workplace should be designated as low priority

Slide 88: Hospitals and Other Health-Care Settings

Personnel collaborating with hospitals and other health-care agencies should have knowledge of legal requirements

Plan investigation jointly with health department and setting (division of responsibilities)

Majority of health-care settings have policies for testing employees for M. tuberculosis infection

Slide 89: Schools

Early collaboration with school officials and community members is recommended

Issues of consent, assent, and disclosure of information more complex for minors

Site visits should be conducted to check indoor spaces, observe general conditions, and interview maintenance personnel regarding ventilation

Slide 90: Shelters and Other Settings Providing Services for Homeless Persons

Challenges include

Locating the patient and contacts if mobile

Episodic incarceration

Migration from one jurisdiction to another

Psychiatric illnesses

Preexisting medical conditions

Site visits and interviews are crucial

Work with setting administrators to offer onsite supervised intermittent treatment

Slide 91: Interjurisdictional Contact Investigations

Requires joint strategies for finding contacts, having them evaluated, treating infected contacts, and gathering data

Health department that counts index patient is responsible for leading the investigation and notifying health departments in other jurisdictions

Slide 92: Source-Case Investigations

Slide 93: Source-Case Investigations

Seeks the source of recent M.tuberculosis infection

In the absence of cavitary disease, young children usually do not transmit M. tuberculosis to others

Recommended only when TB control program is achieving its objectives when investigating infectious cases

Slide 94: Child with TB Disease

Source-case investigations considered for children <5 years of age

May be started before diagnosis of TB confirmed

Slide 95: Child with LTBI

Search for source of infection for child is unlikely to be productive

Recommended only with infected children < 2 years of age, and only if data are monitored to determine the value of the investigation

Slide 96: Procedures for Source-Case Investigation

Same procedure as standard contact investigation

Patient or guardians best informants (associates)

Focus on associates who have symptoms of TB disease

Should begin with closest associates

Slide 97: Data collection

Data needed for assessing the productivity of source-case investigations

Number of index patients investigated for their sources

Number of associates screened for TB disease

Number of times a source is found

Slide 98: Cultural Competency and Social Network Analysis

Slide 99: Cultural Competence

Knowledge and interpersonal skills that allow health-care providers to appreciate and work with persons from cultures other than their own

Ability to understand cultural norms and to bridge gaps requires training and experience

Slide 100: Social Network Analysis

Social Network – linkage of persons and places where *M. tuberculosis* is spread via shared air space

Social Network Analysis – methodology of visualizing and quantitating the relative importance of members in a social network

Social Network Analysis assumes there is some detectable patterning of the TB cases and their contacts in a community

Slide 101: Personal Networks for Two TB Cases

Diagram showing the personal networks for two TB cases. Personal network for Bill includes Juan, Rose and Ted. The personal network for Rita includes Ted, Moe, and Ali.

Slide 102: Combined: A Social Network

Diagram showing the combined personal networks for Bill and Rita, with the link between the two being Ted. Allows review of multiple rather than individual personal networks.

Allows review of multiple rather than individual personal networks

Slide 103: Combined: A Social Network with Place

Diagram showing the combined personal networks for Bill and Rita with the addition of a location, Mel's bar.

Slide 104: Social Network Analysis – Approach (1)

Provides a systematic method to deal with data already gathered in routine contact investigations

Analysis of the network can help identify important contacts (i.e., those most likely to be infected)

Real-time monitoring of network growth may facilitate early detection of outbreaks

Slide 105: Social Network Analysis – Approach (2)

May help programs focus control efforts

May offer effective way to list contacts and assign priorities

Has been tested retrospectively on TB outbreak and contact investigations

Slide 106: Reference

Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis: Recommendations from the National Tuberculosis Controllers Association and CDC. MMWR 2005; 54 (No. RR-15)

<http://www.cdc.gov/mmwr/pdf/rr/rr5415.pdf>(<http://wwwdev.cdc.gov/mmwr/pdf/rr/rr5415.pdf>)

Slide 107: Continuing Education Credits (1)

Participants will be able to receive one of the following

Continuing Medical Education (CME) credit Continuing Medical Education (CME) credit –

Continuing Nursing Education (CNE) credit Continuing Nursing Education (CNE) credit –

Continuing Education Unit (CEU) Continuing Education Unit (CEU) –

Certified Health Education Specialist (CHES) credit Certified Health Education Specialist (CHES) credit –

Participants are required to read and study the guidelines, take a test, and complete an evaluation.

Slide 108: Continuing Education Credits (2)

MMWR CE Credit

<http://www.cdc.gov/mmwr/cme/conted.html>(<http://wwwdev.cdc.gov/mmwr/cme/conted.html>)

Continuing education credits will be available until December 16, 2008

Slide 109: Additional Resources

For additional information on TB, visit the CDC Division of Tuberculosis Elimination

Website(<http://wwwdev.cdc.gov/tb>)

Guidelines Available Online

CDC's Morbidity and Mortality Weekly Report(<http://wwwdev.cdc.gov/mmwr>)