Surveillance

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Introduction

Purpose

Use this section to do the following:

- Understand the importance of surveillance in tuberculosis (TB) control and prevention.
- Report suspected and confirmed TB cases.
- Ensure you are using the required data collection forms.
- Understand how the computerized TB registry works.
- Understand how genotyping can assist TB control efforts.

Surveillance—the ongoing systematic collection, analysis, interpretation, and dissemination of data about a health-related event—is a critical component of successful TB control, providing essential information needed to do the following:

- 1. Determine TB patterns and trends of the disease.
- 2. Identify sentinel events, such as potential outbreaks, recent transmission, multidrug resistance, and deaths.
- 3. Identify high-risk populations and settings.
- **4.** Establish priorities for control and prevention activities.
- Strategically plan use of limited resources.¹

Surveillance data are also essential for quality-assurance purposes, program evaluation, and measurement of progress toward TB elimination.

State and local TB control programs should have the capability to monitor trends in TB disease and latent TB infection (LTBI) in populations at high risk, in order to detect new patterns of disease and possible outbreaks. Populations at high risk should be identified and targeted for active surveillance and prevention, including targeted testing and treatment of LTBI. Please see the Wyoming Department of Health TB Program TB Risk Assessment form for at risk populations at

http://www.health.wyo.gov/phsd/tb/forms2.html. Surveillance and surveys from throughout the United States indicate that certain epidemiologic patterns of TB are consistently observed among these populations, suggesting that the recommended control measures are generalizable. State and local surveillance data should be analyzed to determine additional high-risk population groups. In addition to providing the epidemiologic profile of TB in a given jurisdiction, state and local surveillance are essential to national TB surveillance.² Data for the national TB surveillance system are reported by state health departments in accordance with standard TB case definition and case report formats. The *Report of Verified Case of Tuberculosis (RVCT)* forms are designed to collect information on cases of TB. The Centers for Disease Control and Prevention's (CDC's) national TB surveillance system publishes epidemiologic analyses of reported TB cases in the United States.³

Reporting of new cases is essential for surveillance purposes.⁴ Please contact the TB Program Manager at **307-777-8939** for all suspect cases, cases with symptoms, a patient with a history of untreated TB disease and contacts to infectious persons.

Surveillance in TB Control Activities

Wyoming TB Program staff is available to assist and facilitate most TB activities.

Case detection: Case reporting to the Wyoming TB Program is done for surveillance purposes and for facilitating a treatment plan and case management services.⁵



For more information on case reporting, see the "Reporting Tuberculosis" topic in this section.

Outbreak detection: Surveillance data is routinely reviewed to determine if there is an increase in the expected number of TB cases, one of the criteria for determining if an outbreak is occurring. For an increase in the expected number of TB cases to be identified, the local epidemiology of TB should be understood. Detection of a TB outbreak in an area in which prevalence is low might depend on a combination of factors, including recognition of sentinel events, routine genotype cluster analysis of surveillance data, and analysis of *Mycobacterium tuberculosis* drug resistance and genotyping patterns. Genotyping data should routinely be reviewed because genotype clusters also may indicate an outbreak. Prompt identification of potential outbreaks and rapid responses are necessary to limit further TB transmission. When an outbreak is identified, short-term investigation activities should follow the same principles as those for the epidemiologic part of the contact investigation (i.e., identifying the infectious period, settings, risk groups, and mode of transmission and conducting contact identification and follow-up). However, long-term activities require continued active surveillance.



For more information on outbreak investigations, see the "Outbreak Investigation" topic in the Contact Investigation section.

Contact investigation: Collecting, analyzing, interpreting, and disseminating data on contacts and contact investigations are necessary for prioritizing the highest-risk contacts to focus the use of resources, in accordance with national guidelines. Although surveillance of individual contacts to TB cases is not conducted in the United States, the

CDC collects aggregate data from state and local TB programs through the *Aggregate Report for Program Evaluation (ARPE)*. Routine collection and review of this data can provide the basis for evaluation of contact investigations for TB control programs.⁷



For more information on surveillance in contact investigations, see the Contact Investigation section.

Targeted testing: Review and interpretation of surveillance data inform targeted testing policies and strategies. Targeted testing is intended to identify persons other than TB contacts who have an increased risk for TB and to offer such persons diagnostic testing for *M. tuberculosis* infection and treatment, if indicated, in order to prevent subsequent progression to TB disease. Targeted testing and treatment of LTBI are best accomplished through cost-effective programs aimed at patients and populations identified on the basis of local surveillance data as being at increased risk for TB.⁸



For more information on surveillance and targeted testing, see the Targeted Testing section or click link.

http://www.health.wyo.gov/phsd/tb/index.html

Treatment of LTBI: Surveillance of persons with LTBI does not routinely occur in the United States. However, the CDC is developing a national surveillance system to record adverse events leading to the hospitalization or death of a person under treatment for LTBI. Healthcare providers are encouraged to report such events to the CDC's Division of Tuberculosis Elimination by calling **1-404-639-8401**. Surveillance of these events will provide data to evaluate the safety of treatment regimens recommended in current quidelines.⁹



For more information on surveillance and targeted testing, see the Targeted Testing section. For more information on updated LTBI treatment recommendations, see the CDC's "Update: Adverse Event Data and Revised American Thoracic Society/CDC Recommendations Against the Use of Rifampin and Pyrazinamide for Treatment of Latent Tuberculosis Infection—United States, 2003" (MMWR 2003;52[31];735–739) at this hyperlink: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5231a4.htm.

The Wyoming Department of Health (WDH) TB Control Program may provide free medication for suspect and active TB cases as well as persons diagnosed with latent TB infection who are currently residing in the state of Wyoming. All TB medication is provided free of charge without regard to the patient's ability to pay. Health-care personnel who are requesting a patient be started on TB medications may call the WDH TB Program at **307-777-8939**.

Patients must meet TB disease criteria in order to qualify for medications through the WDH TB Program. Providers requesting medication must submit the TB Risk Assessment as well as the patient's original prescription and chest x-ray to the WDH TB Program prior to receiving medications.



For more information on TB medication services, see TB medication formulary or click link http://www.health.wyo.gov/phsd/tb/medform.html

Policy

Data collection and reporting on TB should be done in accordance with Wyoming laws and regulations. Reporting and recordkeeping requirements are covered in this section.



For roles and responsibilities, refer to the "Roles, Responsibilities, and Contact Information" topic in the Introduction.



For more information on confidentiality and the Health Insurance Portability and Accountability Act (HIPAA), see the Confidentiality section.

Laws and Rules

Wyoming laws and rules on tuberculosis (TB) are located in the Wyoming State Statutes (W.S.).



W.S. 35-4-103. Investigation of diseases; quarantine; regulation of travel; employment of police officers to enforce quarantine; report of county health officer; supplies and expenses

W.S. 35-4-107. Report required of physician; record of each case to be kept; duty of individuals to report diseases

http://legisweb.state.wy.us/statutes/dlstatutes.htm



Contact the Wyoming TB Program at **307-777-8939** for assistance with interpreting state laws and rules regarding TB control.

Tuberculosis Classification System

The system for classifying tuberculosis (TB) is based on how the infection and disease develop in the body. Use this classification system to help track the status of TB in your patients and to allow comparison with other reporting areas.

Table 1: TUBERCULOSIS CLASSIFICATION SYSTEM¹⁰

Class	Туре	Description
0	No tuberculosis (TB) exposureNot infected	 No history of exposure Negative reaction to the tuberculin skin test (TST) or interferon gamma release assay (IGRA)
1	TB exposureNo evidence of infection	 History of exposure Negative reaction to the TST or IGRA
2	■ TB infection ■ No disease	 Positive reaction to the TST or IGRA Negative bacteriologic studies (if done) No clinical, bacteriologic, or radiographic evidence of TB disease
3	■ TB disease ■ Clinically active	 Mycobacterium tuberculosis complex cultured (if this has been done) Clinical, bacteriologic, or radiographic evidence of current disease
4	TB diseaseNot clinically active	 History of episode(s) of TB Or Abnormal but stable radiographic findings Positive reaction to the TST or IGRA Negative bacteriologic studies (if done) And No clinical or radiographic evidence of current disease
5	■ TB suspect	■ Diagnosis pending

Source: Adapted from: CDC. Classification system. In: Chapter 2: transmission and pathogenesis. *Core Curriculum on Tuberculosis (2000)* [Division of Tuberculosis Elimination Web site]. Updated November 2001. Available at: http://www.cdc.gov/tb/pubs/corecurr/default.htm. Accessed July 3, 2006.

Reporting Tuberculosis

Detecting and reporting suspected cases of tuberculosis (TB) is the key step in stopping transmission of *Mycobacterium tuberculosis* because it leads to prompt initiation of effective multiple-drug treatment, which rapidly reduces infectiousness. The Centers for Disease Control and Prevention (CDC) reports that delays in reporting cases of pulmonary TB are one of the major challenges to successful control of TB.¹¹ As one of the strategies to achieve the goal of reduction of TB morbidity and mortality, the CDC recommends immediate reporting of a suspected or confirmed case of TB to the jurisdictional health agency.¹² Also, by Wyoming law and regulation, a case of active TB disease must be reported to the local public health agency within **24 hours** of diagnosis.

When reporting TB, keep the following definitions in mind:

- Case: An episode of TB disease in a person meeting the laboratory or clinical criteria for TB, as defined in the document "Case Definitions for Infectious Conditions Under Public Health Surveillance." These criteria are listed below in Table 2.14
- Suspect: A person for whom there is a high index of suspicion for active TB (e.g., a known contact to an active TB case or a person with signs or symptoms consistent with TB) who is currently under evaluation for TB disease.¹⁵
- Confirmed: A case that meets the clinical case definition or is laboratory confirmed, as described below in Table 2.¹⁶

Table 2: CASE DEFINITIONS¹⁷

Clinical Case Definition Laboratory Criteria for Diagnosis A clinical case meets all of the following criteria: A case is laboratory confirmed when it meets one of the following criteria: ■ A positive tuberculin skin test Isolation of Mycobacterium tuberculosis from a Other signs and symptoms compatible with clinical specimen* tuberculosis ■ Demonstration of *M. tuberculosis* from a clinical an abnormal, unstable chest specimen by nucleic acid amplification (NAA) radiograph or clinical evidence of current Demonstration of acid-fast bacilli (AFB) in a disease clinical specimen when a culture has not been ■ Treatment with 2 or more antituberculosis or cannot be obtained medications Completed diagnostic evaluation

* Use of rapid identification techniques for *M. tuberculosis* (e.g., deoxyribonucleic acid [DNA] probes and mycolic acids highpressure liquid chromatography performed on a culture from a clinical specimen) is acceptable under this criterion.

† NAA tests must be accompanied by culture for mycobacteria species. However, for surveillance purposes, the CDC will accept results obtained from NAA tests approved by the Food and Drug Administration and used according to the approved product

Source: Adapted from: CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):40–41.

labeling on the package insert.

Suspect pulmonary TB and initiate a diagnostic investigation when the historic features, signs, symptoms, and radiographic findings of TB are evident among adults. **TB should** be suspected in any patient who has a persistent cough for over two to three weeks, or other indicative signs and symptoms.¹⁸



For more information on suspected pulmonary TB, see the Diagnosis of Tuberculosis Disease section.

Mandatory and timely case reporting from community sources (e.g., providers, laboratories, hospitals, and pharmacies) should be enforced and evaluated regularly. Reporting enables the TB control program to take action at local, state, and national levels and to understand the magnitude and distribution of the TB problem. Wyoming Department of Health requires reporting of TB disease within **24 hours** of diagnosis by fax **307-777-5279** or phone **307-777-8939**.

Prompt reporting (prior to culture confirmation) allows the state and local public health agency to do the following quickly:

- Verify diagnosis.
- Assign a case manager and coordinate treatment.
- Determine if an outbreak is occurring.
- Control the spread of TB.²⁰

Failure to report cases threatens public health because it may result in the adverse outcome of a patient's treatment or delayed contact investigation of an infectious case.²¹

Reporting gives physicians access to resources provided by the Wyoming TB Program. Private physicians are encouraged to work collaboratively with their local public health agency in the management of their TB cases and contacts. All providers who undertake evaluation and treatment of patients with TB must recognize that, not only are they delivering care to an individual, they are assuming an important public health function that entails a high level of responsibility to the community, as well as to the individual patient. The following public health services may be available to assist physicians with managing their TB cases:

- Epidemiologic investigation, including identification and examination of contacts
- Chest radiographic services and liver profile services
- Antituberculosis medications
- Wyoming Public Health Laboratory services and consultation:

State Laws and Regulations

W.S. 35-4-107. Report required of physician and laboratory; record of each case to be kept; duty of individuals to report diseases

http://legisweb.state.wy.us/statutes/dlstatutes.htm



For more information on confidentiality and the Health Insurance Portability and Accountability Act (HIPAA), see the Confidentiality section.

Reporting Suspected or Confirmed Cases of Tuberculosis to the Local Public Health Agency

Healthcare providers and laboratories should report suspected or confirmed cases of TB using the information in Table 3.

Table 3: WHEN TO REPORT TUBERCULOSIS

What Condition/ Test Result	Who Reports	When to Report	How to Report
Confirmed or suspected cases of tuberculosis (TB) disease Confirmation by laboratory tests is not required. This includes pulmonary and extrapulmonary cases.	 Physicians Other healthcare providers Hospitals Other similar private or public institutions Anyone providing treatment to the confirmed or suspected case Note: The attending physician or other healthcare provider must report even if the laboratory is also reporting the test results. 	Report within 24 hours of diagnosis	Telephone Mondays through Fridays, 8am-5pm, telephone the report to TB Program Manager at 307-777-8939. Fax Fax the report to 307-777-5279.

What Condition/ Test Result	Who Reports	When to Report	How to Report
Sputum smears positive for acid-fast bacilli (AFB) Cultures growing AFB or cultures that are demonstrated positive for Mycobacterium tuberculosis complex* Nucleic acid amplification tests/DNA probes positive for M. tuberculosis complex	All laboratories that perform TB testing In-state laboratories that send specimens for out-of-state testing Note: The laboratory must report even if the attending physician or other healthcare provider is also reporting.	Report within 24 hours of results Note: If specimens or isolates are sent to the state public health laboratory within 2 days after specimen collection or identification of <i>M. tuberculosis</i> , then the requirement to report results are fulfilled.	Fax Fax the report to 307-777-5279.

^{*} Note: This includes both the preliminary report of cultures growing AFB without confirmation of *M. tuberculosis* complex and the final report of cultures that are demonstrated to be positive for *M. tuberculosis* complex.



Use the Active TB Communication Exchange form to report suspected and confirmed cases of TB. http://www.health.wyo.gov/phsd/tb/tbcommexch.html

Healthcare Providers

Healthcare providers should report the following information on confirmed or suspected cases of TB.

Reporting Healthcare Provider

- Attending Provider Name
- Address
- Phone number
- Fax number
- Date of report
- Public Health Manager Name

Patient Information

- Name
- Address
- Phone numbers
- Employment information
- County of residence
- Date of Birth
- Sex
- Race/Ethnicity
- Country of origin

Demographic and Social Information

- Homeless within past year?
- Resident of correctional facility?
- Resident of long-term care facility?
- Injection drug use within past year?
- Excess alcohol use within past year?

Medical Information

- Reason for test
- Symptoms/onset
- Disease site
- Comorbid health conditions
- Human immunodeficiency virus (HIV) testing information
- Results of QuantiFERON®-TB Gold (QFT-G) or tuberculin skin test (TST) (TST in mm) and date of test
- Chest radiograph results and dates (if applicable)
- Bacteriology results, date(s), and name of laboratory performing test(s)
- Drug therapy (medications used, dates given, mode of treatment)
- Liver disease, including Hepatitis A, B and/or C?
- Diabetes, including type
- Organ Transplant

Laboratories

Laboratories should report the following information on test results.

Reporting Laboratory

- Name
- Address
- Phone number
- Date of report
- Ordering provider information
- Test type and results

Required Reports to Wyoming TB Program

Entities reporting case(s) are required to complete and submit the reports listed in Table 4 to the Wyoming TB program by phone **307-777-8939** or fax **307-777-5279**:

Table 4: REQUIRED REPORTS

Report Title	When Due
TB Test Summary Log	When ordering new PPD/testing supplies
WDH TB Risk Assessment (pages 1-3)	Within 24 hours of diagnosis (Active TB Disease) Additional data will be collected by the TB Program to be entered into the RVCT forms.
WDH TB Risk Assessment (pages 1-3)	When requesting state provided treatment for patients (Latent TB Infection)
TB Contact Investigation Report	 Upon completion of initial TB skin testing Upon completion of re-tests Upon contacts completion of therapy for Latent TB Infection



To download forms for the above required reports, go to the Wyoming Department of Health TB Program webpage http://www.health.wyo.gov/phsd/tb/index.html

WDH TB Risk Assessment forms can be found at http://www.health.wyo.gov/phsd/tb/forms2.html

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The Report of Verified Case of Tuberculosis (RVCT) forms are designed to collect information on cases of TB. Data obtained from RVCT forms are entered into the Tuberculosis Information Management System (TIMS) by TB Program manager and then transferred electronically to the CDC. Information from the WDH TB Risk Assessment are used by the TB Program to complete the RVCT form. While a case of TB is required to be reported to the CDC only if active disease is verified and the case is to be part of the annual morbidity count, the CDC encourages the use of the RVCT forms and TIMS for the collection of data on suspected cases of TB. Verification of suspect cases can be accomplished through period updates of the records in TIMS.²²

Data Collection

Forms

It is recommended that the following standardized forms should be completed and placed in the patient's chart if and when the related activities are performed.

Table 5: RECOMMENDED FORMS FOR A TUBERCULOSIS PATIENT'S CHART

Chart of a Patient on Treatment for Tuberculosis Disease

Tuberculosis (TB) Disease Treatment/Case Management

- WDH TB Risk Assessment
- Directly Observed Therapy Agreement
- Home Isolation Agreement
- TB Home Evaluation

Patient Education

• Treatment of Active TB Education Form

Confidentiality and Medical Records

- Monthly TB Patient Assessment
- Directly Observed Therapy Form

Contact Investigation

- TB Contact Investigation Report
- TB Contact Investigation Summary

Transfer Notifications

• Interjurisdictional TB Notification

The following forms should be completed and placed in files for LTBI treatment and contact investigations.

Table 6: RECOMMENDED FORMS FOR A LATENT TUBERCULOSIS INFECTION PATIENT'S CHART AND FOR A CONTACT INVESTIGATION FILE

Chart of a Patient on Treatment for Latent Tuberculosis Infection		
Latent Tuberculosis Infection (LTBI) Treatment WDH TB Risk Assessment Treatment of Latent TB Education Form Monthly TB Patient Assessment If on Directly Observed Therapy Directly Observed Therapy Agreement Directly Observed Therapy Form	Transfer Notifications • Interjurisdictional TB Notification	
File for a Contact Investigation		
 TB Contact Investigation Report TB Contact Investigation Summary 		



To download forms for the above required reports, go to the Wyoming TB Program webpage at http://www.health.wyo.gov/phsd/tb/index.html

Computerized Tuberculosis Registry

To carry out mandatory community public health responsibilities, the Wyoming TB Program maintains a computerized record system (case registry) with up-to-date information on all current clinically active and suspected TB cases and LTBI cases receiving state provided medications in the community. The TB case registry ensures that laboratory data, including all initial diagnostic tests, are promptly reported, if applicable, to the healthcare provider and Wyoming TB Programs. Follow-up tests, including data on sputum culture conversion and drug susceptibility testing of clinical isolates, should also be promptly reported so any needed modifications in management can be made. Aggregate program data should be analyzed, interpreted, and made available to the healthcare community and to community groups and organizations with specific interests in public health. Providing this information supports education and advocacy and facilitates collaboration in the planning process.

To ensure appropriate follow-up of all TB patients and persons suspected of having TB, the following registry information is updated by Canyon Hardesty on a continuing basis:²⁴

- Acid-fast bacilli smear results
- Culture results
- Drug susceptibility results
- Clinical status
- Chest radiograph results
- Doses of medications being administered
- PPD or IGRA test results

Document Retention

The Wyoming TB Program will maintain all state TB public health records for a minimum of 7 years.

TB case records will be available at the state TB Program offices for seven years beyond completion of case follow-up.

Radiographs are not stored by the state. Radiographs are held by the principal healthcare provider or radiology office where the radiographs were obtained.

Case management health information and other TB records should be maintained at the local public health agency according to current applicable record retention rules and regulations.

Genotyping

Genotyping is a useful tool for studying the pathogenesis, epidemiology, and transmission of *Mycobacterium tuberculosis*. *M. tuberculosis* genotyping refers to laboratory procedures developed to identify *M. tuberculosis* isolates that are identical in specific parts of the genome (of similar strain types).

Genotyping is based on an analysis of deoxyribonucleic acid (DNA). Mycobacteria reproduce by binary fission, which means that in almost all cases each new bacillus has identical DNA, just as human identical twins are genetically identical to each other. However, changes in the DNA occur spontaneously at low frequency. Over time, these changes, known as DNA mutations, have accumulated to produce the diversity of *M. tuberculosis* strains currently circulating in the world.

The diversity of strain provides a means to identify instances of recent transmission of tuberculosis (TB) as well as the chains of transmission that occur among persons with TB. This diversity also helps to elucidate the patterns and dynamics of TB transmission. When a person with TB improves but then becomes ill again, this diversity can differentiate reactivation with the same strain of *M. tuberculosis* from reinfection with a different strain. Genotyping can also be used to identify false-positive cultures.

Advances in DNA analytic methods have made it possible for TB programs to obtain rapid and reliable genotyping results. These advances include the following:

- The determination of the complete DNA sequence of M. tuberculosis in 1998
- The development of IS6110-based restriction fragment length polymorphism (RFLP) genotyping, which provided a discriminatory typing method and led to a standardized system for genotyping *M. tuberculosis* isolates

Two new methods, spoligotyping and mycobacterial interspersed repetitive units (MIRU) analysis, are based on polymerase chain reaction (PCR) and provide much more rapid results than RFLP analysis. The addition of genotype information to the pool of information generated by surveillance data and data collected through epidemiologic investigation allow confirmation of suspected transmission. A potential outbreak should be suspected whenever there is more than one case of TB whose isolate has the same genotype (genotype cluster). Further investigation that includes review of surveillance data, chart review, and reinterview of TB cases may refute or confirm the epidemiologic connection between more than one TB case. In some instances, a genotype cluster reflects a false-positive culture that may be a result of laboratory cross-contamination. Routine review of genotyping data, along with epidemiologic, clinical, and laboratory data, may identify patients who are wrongly classified as TB patients and should be further investigated.

The Wyoming TB Program reviews genotyping data to check for any matches. Upon identification of a match, the Wyoming TB Program manager telephones the local public health agency managing the case to discuss what further steps should be taken.



For more information on genotyping, see the National Tuberculosis Controllers Association/Centers for Disease Control and Prevention Advisory Group on Tuberculosis Genotyping's *Guide to the Application of Genotyping to Tuberculosis Prevention and Control* (2004) at this hyperlink: http://www.cdc.gov/tb/genotyping/manual.htm.



All positive *M. tuberculosis* cultures originating at the Wyoming Public Health Laboratory are automatically submitted to a national genotyping laboratory for genotyping analysis. All other laboratories, including out-of-state labs, must submit *M. tuberculosis* cultures to the Wyoming Public Health Laboratory for genotyping, as well as for confirmation and susceptibility testing.

Dissemination and Evaluation

Dissemination

Wyoming TB Program Tuberculosis (TB) surveillance data will be disseminated periodically to healthcare providers, health agencies, and the public through multiple channels including health alerts, reports, summaries, and presentations.

Evaluation

The purpose of evaluating public health surveillance systems is to ensure that problems of public health importance are being monitored efficiently and effectively. TB surveillance systems are evaluated periodically, and the evaluation includes recommendations for improving quality, efficiency, and usefulness. Evaluation of a public health surveillance system focuses on how well the system operates to meet its purpose and objectives.



For more information see the CDC's "Updated Guidelines for Evaluating Public Health Surveillance Systems" (*MMWR* 2001;50[No RR-13]) at this hyperlink: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm.

References

ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):10.

² ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):10.

³ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):10.

⁴ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):15.

⁵ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. *MMWR* 2005;54(No. RR-12):5.

⁶ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. *MMWR* 2005;54(No. RR-12):39.

ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America, MMWR 2005;54(No. RR-12):39.

⁸ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):15.

⁹ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):42.

¹⁰ CDC. "Classification system." Chapter 2: transmission and pathogenesis. Core Curriculum on Tuberculosis (2000) [Division of Tuberculosis Elimination Web site]. Updated November 2001. Available at: http://www.cdc.gov/tb/pubs/corecurr/default.htm. Accessed July 3, 2006.

ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):3.

ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR 2005;54(No. RR-12):15.

¹³ CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):40–41.

¹⁴ CDC. Reported Tuberculosis in the United States, 2004. Atlanta, GA: US Department of Health and Human Services, CDC; September 2005. Appendix B, Section V.

¹⁵ CDC. Reported Tuberculosis in the United States, 2004. Atlanta, GA: US Department of Health and Human Services, CDC; September 2005. Appendix B, Section V.

¹⁶ CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):40–41.

¹⁷ CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):40–41.

¹⁸ ATS, CDC, IDSA. Controlling tuberculosis in the United States: recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. *MMWR* 2005;54(No. RR-12):33.

¹⁹ ATS, CDC, IDSA. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000;161:1392.

²⁰ County of Los Angeles Tuberculosis Control Program. *Tuberculosis Control Program Manual: 2003 Edition* [County of Los Angeles Public Health Web site]. 2003:8–6. Available at: http://www.lapublichealth.org/tb/TBManual/TBmanual.pdf . Accessed February 7, 2007.

²¹ County of Los Angeles Tuberculosis Control Program. *Tuberculosis Control Program Manual: 2003 Edition* [County of Los Angeles Public Health Web site]. 2003:8–7. Available at: http://www.lapublichealth.org/tb/TBManual/TBmanual.pdf . Accessed February 7, 2007.

²² CDC. "RVCT Form Completion Instructions." TIMS User's Guide Version 1.20 January 2003:SUR I-1.

²³ CDC. Essential components of a tuberculosis prevention and control program screening for tuberculosis and tuberculosis infection in high-risk populations: recommendations of the Advisory Council for the Elimination of Tuberculosis. *MMWR* 1995;44(No. RR-11):14.

²⁴ CDC. Essential components of a tuberculosis prevention and control program screening for tuberculosis and tuberculosis infection in high-risk populations: recommendations of the Advisory Council for the Elimination of Tuberculosis. *MMWR* 1995;44(No. RR-11):14.