State of Nevada
Department of Health and Human Services
*Helping people. It's who we are and what we do.*

# *Nevada State*

# Tuberculosis Program Manual

# Chapter 1
# Introduction

## Contents


**About the Nevada Tuberculosis Program Manual .............1.2**

Purpose............................................................1.3

Audience..........................................................1.3

**How to Use This Manual .......................1.4**

Portable document format...................................1.4

Hyperlinks.........................................................1.4

Forms...............................................................1.4

Icons................................................................1.4

Abbreviations....................................................1.5

**Purpose of Tuberculosis Control..........1.8**

**Nevada Laws and Regulations..............1.9**

Nevada Revised Statutes (NRS).........................1.9

Nevada Administrative Code (NAC)..................1.10

**Objectives and Standards ..................1.11**

Quality of Care..................................................1.11

National and State Program Objectives............1.12

Standards.........................................................1.13

**Roles, Responsibilities, and Contact Information ............................1.14**

State Tuberculosis Program ..............................1.14

Local Public Health Agencies ............................1.15

TB Nurses, Coordinators and Disease Investigators for Local Public Health Agencies ............................1.15

Healthcare Providers ........................................1.17

Clinical Laboratories .........................................1.18

National & Regional Agencies ...........................1.19

Regional Contact Information ............................1.20

**Resources and References .................1.21**

# About the Nevada Tuberculosis Program Manual

## Purpose

This manual is designed to present the key steps and crucial information needed to perform tuberculosis (TB) prevention, control, and elimination tasks in Nevada.

## Audience

The audience for this manual includes, but not limited to:

- Nurses (city/county/regional public health)
- Physicians (health officers, physician consultants, physician's assistants, ARNP)
- Public health officers
- Indian Health Services (IHS) staff
- Infection control nurses/administrators in hospitals and other facilities
- Disease investigation and intervention specialists
- Outreach workers
- Epidemiologists (city/county/regional public health)
- Nevada Division of Public and Behavioral Health (DPBH) TB program staff

This manual provides guidelines, recommendations, and examples from national, state, and local groups. Additional information can be found where a hyperlink is provided. A hyperlink is a reference to another document that will take you to that location. Click on the link to read more about the topic.

The Nevada DPBH TB Program is governed by state law and regulations. Information regarding Nevada Revised Statutes (NRS 441A) and Nevada Administrative Code (NAC 441A) may be found in this Chapter, pages 9 – 10.

# How to Use This Manual

## Portable Document Format

This manual is available electronically as a portable document format (PDF) file. To view the PDF file, you will need the free Adobe Reader, available at http://www.adobe.com/products/acrobat/readstep2.html .

## Hyperlinks

When viewing this manual online with an Internet connection, you can go directly to underlined Web addresses by double-clicking on them.

## Forms

Required and recommended forms referenced throughout this TB Manual are available in Chapter 18, *Forms.*

## Icons

Throughout the manual, these icons quickly cue you about important information and other resources:

This warns about high-consequence information you must understand when performing the task.

This signals when you should call to report or to consult on the task.

This alerts you that a ***form,*** or an example of a form***,*** is available for the task.

This highlights special considerations for pediatric patients.

This suggests another relevant area in the manual or another resource that you may want to review.

## Abbreviations

Refer to the list below for abbreviations used in the manual.

| | |
|---|---|
| ACET | Advisory Council for the Elimination of Tuberculosis |
| ACH | air changes per hour |
| AFB | acid-fast bacilli |
| AIDS | Acquired Immunodeficiency Syndrome |
| AII | airborne infection isolation |
| ALT | alanine aminotransferase |
| *ARPE* | *Aggregate Report for Program Evaluation* |
| ART | antiretroviral therapy |
| AST | aspartate aminotransferase |
| ATS | American Thoracic Society |
| BAMT | blood assay for *Mycobacterium tuberculosis* |
| BCG | Bacille Calmette-Guérin |
| CDC | Centers for Disease Control and Prevention |
| CT | computed tomography |
| CXR | chest radiograph/chest x-ray |
| DNA | deoxyribonucleic acid |
| DOT | directly observed therapy |
| DPBH | Division of Public and Behavioral Health (State entity) |
| DTBE | Division of Tuberculosis Elimination (Federal entity) |
| DTH | delayed-type hypersensitivity |
| ED | emergency department |
| EMB | ethambutol |
| EMS | emergency medical service |
| ESRD | end-stage renal disease |
| FDA | U.S. Food and Drug Administration |

| | |
|---|---|
| HAART | highly active antiretroviral therapy |
| HCW | healthcare worker |
| HEPA | high-efficiency particulate air |
| HIPAA | Health Insurance Portability and Accountability Act |
| HIV | Human Immunodeficiency Virus |
| IDSA | Infectious Diseases Society of America |
| IGRA | interferon gamma release assay |
| INH | isoniazid |
| LTBI | latent tuberculosis infection |
| *M. tuberculosis* | *Mycobacterium tuberculosis* |
| MDR-TB | multidrug-resistant tuberculosis |
| MIRU | mycobacterial interspersed repetitive units |
| MOTT | mycobacterium other than tuberculosis |
| NAA | nucleic acid amplification |
| NBS | NEDSS Based System |
| NEDSS | National Electronic Disease Surveillance System |
| NIOSH | National Institute for Occupational Safety and Health |
| NNRTI | nonnucleoside reverse transcriptase inhibitors |
| NTCA | National Tuberculosis Controllers Association |
| NTNC | National Tuberculosis Nurse Coalition |
| NTM | nontuberculous mycobacteria |
| OSHA | Occupational Safety and Health Administration |
| PAPR | powered air-purifying respirator |
| PCR | polymerase chain reaction |
| PI | protease inhibitor |
| PPD | purified protein derivative |
| PZA | pyrazinamide |
| QA | quality assurance |

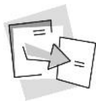
| | |
|---|---|
| QFT | QuantiFERON®-TB test |
| QFT-G | QuantiFERON®-TB Gold test |
| RFB | rifabutin |
| RFLP | restriction fragment length polymorphism |
| RIF | rifampin |
| RNA | ribonucleic acid |
| RPT | rifapentine |
| *RVCT* | *Report of Verified Case of Tuberculosis* |
| RZ | rifampin and pyrazinamide |
| TB | tuberculosis |
| TIMS | Tuberculosis Information Management System |
| TNF-α | tumor necrosis factor-alpha |
| TST | tuberculin skin test |
| TU | tuberculin units |
| USCIS | U.S. Citizenship and Immigration Services |
| UVGI | ultraviolet germicidal irradiation |
| VDOT | Virtual Directly Observed Therapy |
| 3 HP | LTBI Regimen: 3- 3 months, H- Isoniazid, P-Priftin/rifapentine |

# Purpose of Tuberculosis Control

Tuberculosis (TB) is caused by a bacterial organism named *Mycobacterium tuberculosis* (MTB). Mycobacteria can cause a variety of diseases and can affect any part of the body but is most often found in the lungs. Some mycobacteria are called tuberculous mycobacteria because they cause TB or diseases similar to TB. These mycobacteria are *M. tuberculosis, M. bovis, M. africanum, M. canetti, M. pinnipedii, M. caprae, M. mungi* and *M. microti;* together these species of mycobacteria make up the MTB Complex. Other mycobacteria are called nontuberculous mycobacteria (NTM) because they do not cause TB. One common type of nontuberculous mycobacteria is *M. avium intracellular* complex (MAIC). Tuberculosis mycobacteria readily spread from person to person; nontuberculous mycobacteria do not usually spread from person to person.

The goal of TB control in the United States is to reduce TB morbidity and mortality by:

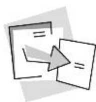
- Preventing transmission of *M. tuberculosis* from persons with contagious forms of the disease to uninfected persons, and
- Preventing progression from latent TB infection (LTBI) to active TB disease among persons who have become infected with the *M. tuberculosis* bacterium.[1]



For information on the transmission of *M. tuberculosis* and on how LTBI progresses to TB disease, see the Centers for Disease Control and Prevention's (CDC's) online course *Interactive Core Curriculum on Tuberculosis* (2013), https://www.cdc.gov/tb/education/corecurr/index.htm

The four fundamental strategies to reduce TB morbidity and mortality are:

1. Early and accurate detection, diagnosis, and reporting of individuals with TB disease leading to the initiation and completion of treatment;
2. Identification of contacts of patients with infectious TB and treatment of those at risk with an effective drug regimen;
3. Identification of other persons with latent TB infection at risk for progression to TB disease, and treatment of those persons with an effective drug regimen; and
4. Identification of settings in which a high risk exists for transmission of *M. tuberculosis* and application of effective infection control measures.[2]



For more information on these strategies see "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]) at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5412a1.htm

# Nevada Laws and Regulations for Tuberculosis Control

## Nevada Revised Statutes

**Nevada Legislature/Nevada Law Library**
**http://www.leg.state.nv.us/law1.cfm**
**Title 40: Public Health and Safety**
**Chapter 441A: Communicable Diseases**
**Tuberculosis (NRS§ 441.A.340 through §441A.400)**

### GENERAL PROVISIONS


NRS 441A.010 **Definitions.**
NRS 441A.020 **"Board" defined.**
NRS 441A.030 **"Child care facility" defined.**
NRS 441A.040 **"Communicable disease" defined.**
NRS 441A.050 **"Health authority" defined.**
NRS 441A.060 **"Health Division" defined.**
NRS 441A.063 **"Infectious disease" defined.**
NRS 441A.065 **"Isolation" defined.**
NRS 441A.070 **"Laboratory director" defined.**
NRS 441A.080 **"Medical facility" defined.**
NRS 441A.090 **"Medical laboratory" defined.**
NRS 441A.100 **"Physician" defined.**
NRS 441A.110 **"Provider of health care" defined. [Effective through December 31, 2007.]**
NRS 441A.110 **"Provider of health care" defined. [Effective January 1, 2008.]**
NRS 441A.115 **"Quarantine" defined.**
NRS 441A.120 **Regulations of State Board of Health.**
NRS 441A.125 **Use of syndromic reporting and active surveillance to monitor public health; regulations.**
NRS 441A.130 **Chief Mecidal Officer to inform local health officers of regulations and procedures.**
NRS 441A.140 **Authority of Health Division to receive and use financial aid.**
NRS 441A.150 **Reporting occurrences of communicable diseases to health authority.**
NRS 441A.160 **Powers and duties of health authority.**
NRS 441A.163 **Investigation: Powers of health authority to conduct investigation of infectious disease or exposure to biological, radiological or chemical agent; reports; regulations.**
NRS 441A.165 **Investigation: Powers of health authority to access medical records, laboratory records and other information in possession of health care provider or medical facility; payment of certain costs related to investigation.**
NRS 441A.166 **Investigation: Subpoena to compel production of medical records, laboratory records and other information; court order directing witness to appear for failure to produce.**
NRS 441A.167 **Investigation: Law enforcement agencies and political subdivisions authorized to share certain information and medical records with state and local health authorities.**
NRS 441A.169 **Investigation: Powers of health authority to issue cease and desist order to health care provider or medical facility; injunction.**

NRS 441A.170 **Weekly reports to Chief Medical Officer.**
NRS 441A.180 **Contagious person to prevent exposure to others; warning by health authority; penalty.**
NRS 441A.190 **Control of disease within schools, child care facilities, medical facilities and correctional facilities.**
NRS 441A.195 **Testing of person or decedent who may have exposed law enforcement officer, correctional officer, emergency medical attendant, firefighter, county coroner or**

medical examiner, person employed by agency of criminal justice or certain other public employees to contagious disease.
NRS 441A.200 Right to receive treatment from physician or clinic of choice; Board may prescribe method of treatment.
NRS 441A.210 Rights and duties of person who depends exclusively on prayer for healing.
NRS 441A.220 Confidentiality of information; permissible disclosure.
NRS 441A.230 Disclosure of personal information prohibited without consent.

TUBERCULOSIS

NRS 441A.340 Duties of health authority.
NRS 441A.350 Establishment and support of clinics.
NRS 441A.360 Provision of medical supplies and financial aid for treatment of indigent patients.
NRS 441A.370 Contracts with hospitals, clinics and other institutions for examination and care of patients.
NRS 441A.380 Treatment of patient for condition related to or as necessary for control of tuberculosis.
NRS 441A.390 Contracts with private physicians to provide outpatient care in rural areas.
NRS 441A.400 Inspection of records of facility where patients are treated.

## Nevada Administrative Code

**Nevada Law Library**

**http://www.leg.state.nv.us/NAC/CHAPTERS.HTML**

**Chapter NAC- 441A: Infectious Diseases; Toxic Agents**

**General Provisions** 441A.010 **through** 441A.200
**Reporting Requirements** 441A.225 **through** 441A.260
**Duties and Powers Relating to the Presence of Communicable Diseases** 441A.275 **through** 441A.310
**Investigating, Reporting, Preventing, Suppressing and Controlling Particular Communicable Disease General Provisions** 441A.325

**Tuberculosis (NAC 441A.350 - .390)**

NAC 441A.350 Health care provider to report certain cases and suspected cases within 24 hours of discovery.
NAC 441A.352 Registered pharmacist and intern pharmacist to report suspected cases.
NAC 441A.355 Active tuberculosis: Duties and powers of health authority.
NAC 441A.360 Cases and suspected cases: Prohibited acts; duties; discharge from medical supervision.
NAC 441A.365 Contacts: Compliance with regulations; medical evaluation; prohibited acts.
NAC 441A.370 Correctional facilities: Infection control program required; testing and surveillance of employees, independent contractors, volunteers and inmates; investigation for contacts; report of such investigation; course of preventive treatment for person with tuberculosis infection; documentation.
NAC 441A.375 Medical facilities, facilities for the dependent, homes for individual residential care and outpatient facilities: Management of cases and suspected cases; surveillance and testing of certain employees and independent contractors; counseling and preventive treatment.
NAC 441A.380 Admission of persons to certain medical facilities, facilities for the dependent or homes for individual residential care: Testing; respiratory isolation; medical treatment; counseling and preventive treatment; documentation.

| | |
|---|---|
| NAC 441A.385 | **Care of medically indigent patient in State Tuberculosis Control Program; payment of cost.** |
| NAC 441A.390 | **Treatment of case or suspect case by health care provider.** |

## Revisions to NRS and NAC

Amendments, or revisions, to existing NRS and NAC occur as necessary. Codification and electronic posting of these amended revisions may up to 24 months to ensue. Therefore, the Nevada DPBH TB Program posts on its website an *Updated Tuberculosis Laws* subsection within the **Statutes** General Information section, available here: http://dpbh.nv.gov/Programs/TB/dta/Statutes/Tuberculosis_(TB)_-_Statutes/

# Objectives and Standards

## Quality of Care

For tuberculosis (TB) programs, quality of care is measured using objectives and standards. Such objectives and standards are used as guides to direct the program and yardsticks to measure its success.

**Objectives** reflect outcomes or results and program desires. Programs require objectives to define expected outcomes and results for case management activities.

**Standards** are an accepted set of conditions or behaviors that define what is expected and acceptable regarding job duties, performance, and provision of services. The TB control program works to achieve objectives through a series of standards.

In Nevada, TB program objectives and standards are established from the following:

### State Laws and Regulations

See *Nevada Laws and Regulations for Tuberculosis Control*, pages 9 -10.

### TB Program Agreements, Plans, and Protocols

- Contracts between Nevada DPBH TB and the local health authorities or agencies
- Centers for Disease Control and Prevention (CDC) Cooperative Agreement

### National TB Guidelines

The national organizations and TB guidelines that help to establish the DPBH TB program's goals, objectives, and standards of performance include:

- American Thoracic Society (ATS)
- Infectious Diseases Society of America (IDSA)
- CDC Division of Tuberculosis Elimination (DTBE) guidelines

# National TB Program Objectives

The Nevada TB Program strives to meet the National Tuberculosis Program Objectives. The National TB Indicators Project (NTIP) target objectives can be found at: https://www.cdc.gov/tb/programs/evaluation/pdf/national_tb_objectives_2020_targets_20160307.pdf

Below are national and state TB program objectives. The CDC program objectives are current as of December 2015.[3]

## National Program Objectives

1) **TB Incidence Rates**
   (including U.S.-born persons, Foreign-born persons, U.S.-born non-Hispanic blacks or African Americans, Children younger than 5 years of age)
2) **Case Management and Treatment**
   a) HIV status
   b) Treatment Initiation
   c) Recommended Initial Therapy
   d) Sputum Culture Result Reported
   e) Sputum Culture Conversion
   f) Completion of Treatment
3) **Laboratory Reporting**
   a) Culture Turnaround Time
   b) Nucleic Acid Amplification Test Turnaround Time
   c) Drug Susceptibility Results
   d) Universal Genotyping
4) **Contact Investigations**
   a) Contact Elicitation
   b) Examination
   c) Treatment Initiation
   d) Treatment Completion
5) **Examination of Immigrants and Refugees**
   a) Examination Initiation
   b) Examination Completion
   c) Treatment Initiation
   d) Treatment Completion
6) **Data Reporting**
   a) Completeness of Report of Verified Case of Tuberculosis (RVCT)
   b) Completeness of Aggregate Reports for Tuberculosis Program Evaluation (ARPE)
   c) Completeness of Electronic Disease Notification (EDN)
7) **Program Evaluation**
   a) Evaluation Activities
   b) Evaluation Focal Point
8) **Human Resource Development**
   a) Development Plan
   b) Training Focal Point

## Standards

Program standards are what the stakeholders of the TB programs would consider to be "reasonable expectations" for the program. For TB, standards have been established by nationally accepted authorities, such as ATS, IDSA and CDC, and generally recognized TB control experts, such as the National Tuberculosis Nurse Coalition (NTNC) and National Tuberculosis Controllers Association (NTCA). Many state programs, and some local TB control programs, have established their own standards and objectives for case management. The NTNC has revised its *Tuberculosis Nursing Manual*, which will contain the most current program, structural and patient care standards that the NTNC recommends. Copies can be ordered from the NTCA at http://tbcontrollers.org.

The standards of care for the medical treatment and control of TB are published jointly by the American Thoracic Society (ATS), the Infectious Diseases Society of America (IDSA), and the CDC. These standards should be available for reference by each TB staff member. The standards are included in the following guidelines:

- 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]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5412a1.htm
- ATS, CDC, IDSA. "Diagnostic Standards and Classification of Tuberculosis in Adults and Children" (*Am J Respir Crit Care Med* 2000; 161[4 Pt 1]). Available at: http://www.cdc.gov/tb/pubs/PDF/1376.pdf
- ATS, CDC, IDSA. "Treatment of Tuberculosis" (*MMWR* 2003; 52[No. RR-11]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5211a1.htm
- CDC, NTCA. "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]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5415a1.htm
- CDC. "Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-care Settings, 2005" (*MMWR* 2005; 54[No. RR-17]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm?s_cid=rr5417a1_e
- CDC. "Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection" (*MMWR* 2000; 49[No. RR-6]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm
- CDC "Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendations from CDC" (MMWR 2006/55(RR09); 1-44). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5509a1.htm

For additional updated and new guidelines, see the Division of Tuberculosis Elimination's "TB Guidelines" Web page (Division of Tuberculosis Elimination Web site; accessed March, 2020). Available at: https://www.cdc.gov/tb/publications/guidelines/list_date.htm

# Roles, Responsibilities & Contact Information

## Roles and Responsibilities of the Nevada Division of Public and Behavioral Health Tuberculosis Program (DPBH TB Program)

The Nevada DPBH TB Program has the overall responsibility for surveillance, containment, management and assessment of TB activities in the state. Specific duties include the formulation and distribution of guidelines for TB control and prevention in Nevada, utilizing established recommendations from the CDC and ATS. The responsibilities of DPBH TB Program include:

a) Providing epidemiological, technical, medical, nursing, and programmatic consultative services regarding TB prevention and control to public and private healthcare providers, including local and Native American public health departments, public and private physicians' nurses, and public and private healthcare facilities.
b) Providing training upon request or identified need for individuals and groups with responsibility for diagnosing/evaluation and treating persons with TB disease and LTBI.
c) Providing technical assistance as necessary.
d) Providing notification to the local health departments of any information received by the CDC's Division of Global Migration and Quarantine (DGMQ).
e) Providing reports as necessary to the CDC.
f) Working with Nevada State Public Health Laboratory to ensure quality TB laboratory services are provided in the state.
g) Ensuring that reporting regulations are met and assist local health departments in enforcing commitment laws when necessary.
h) Verification and accurate count of all new and recurrent cases of TB disease within the state.
i) Aggregating non-patient specific information and transmitting this information to CDC for inclusion in national statistics on the incidences of TB, as well as data on the utilization of recommended control and prevention measures.
j) Maintaining a registry of TB cases with drug-resistant organisms, and provides drug resistance incidence data.
k) Providing case management consultation to local and district health departments and other healthcare providers upon request.
l) Developing and distributing epidemiological data on the incidence and location of TB disease in Nevada.
m) Providing/assisting local health departments' TB programs with program evaluations as needed.
n) Initiating, developing, approving and monitoring contracts with local and district health departments to provide TB services.
o) Providing on-site evaluations of TB control programs in each local health department.
p) Evaluating the TB control program and providing that information to the CDC semiannually.

## Roles and Responsibilities of the Local Health Agencies

The basic role of the Local Tuberculosis Control Programs is to assure the provision of comprehensive TB prevention and control services to persons with known or suspected TB disease or latent TB infection, with as little disruption in their daily lives as possible. Each program is expected to ensure their practices are current based on the CDC guidelines. Local TB clinics have a major responsibility to prevent unnecessary hospitalization by performing, when possible, necessary screening and diagnostic testing along with providing appropriate treatment on an outpatient basis. The local health departments' responsibilities include:

a) Physical evaluation, including medical history.
b) Tuberculin skin test (Mantoux only) administration, reading and interpretation, or collection and processing of a blood assay screening test for TB.
c) Chest x-rays (on-site or at a reasonably convenient location for the patient).
d) Chest x-rays reading and interpretation by a radiologist.
e) Collection of sputum specimens – natural and/or induced (on-site or at a reasonably convenient location for the patient and TB staff).
f) Ensuring, to the best of their ability, that persons on therapeutic or preventive regimens take their medication to completion, including directly observed therapy (DOT) or virtual directly observed therapy (VDOT).
g) Monitoring persons on therapeutic or preventive regimens.
h) Contact identification, notification, and examination, with appropriate follow-up.
i) Consultation to other healthcare providers regarding TB control and prevention methods.
j) TB educational services for patients and their families, other healthcare providers, and the general public, as requested or required..
k) Referral to appropriate agencies for assistance with identified problems/needs

## Roles and Responsibilities of TB Nurses/Coordinators and Disease Investigators in the Local Health Agencies

The TB nurse/coordinators and disease investigators at the local health departments/agencies have a major responsibility for a successful TB control program. They are the prime link in effective TB prevention and control for all persons in the community, whether hospitalized or treated on an outpatient basis. The responsibilities include:

a) Instructing the patient on the importance of continuous and uninterrupted drug therapy and precautions to take to prevent the transmission of infection.
b) Case management to ensure the patient successfully completes anti-TB chemotherapy and treatment of LTBI.
c) Monitoring of the patient's clinical status and obtaining liver function studies as needed.
d) Ensuring, to the best of their ability, compliance with treatment.
e) Collecting specimens as necessary..
f) Ensuring other testing is completed as necessary.
g) Referring patient to other appropriate agencies as necessary.
h) Working with the physician to maintain standards of care for each patient.
i) Contacting any healthcare provider (i.e. outpatient departments, infirmaries of state and local correctional and mental health institutions, federal facilities, and

private physicians) to monitor the current status of the TB patient.

j) Maintaining surveillance for TB within the community.
k) Serving as a liaison between local healthcare providers and facilities and the TB programs (local agency and state).

Specific responsibilities include:

a) Initial patient visit – This visit is often the key to eventual successful completion of adequate treatment for the patient.
b) Assessment of the patient (See Case Management Chapter).
c) Development of the Nursing Care Plan (See Case Management Chapter).
d) Observation for infectiousness, i.e. coughing, general hygiene (if patient covers their cough, disposes of tissues), and collection of specimens.
e) Current and prior medical history, i.e., contacts with other TB cases or a previous history of TB of LTBI, length of illness, other chronic conditions, current medications (including over the counter and herbal), HIV status (or risk factors if not known).
f) Coping skills, i.e., reaction of the patient and family regarding present condition, Identification of barriers to care in order to develop a plan of care.
g) Assessment of the patient's environment, i.e., home, school, work to determine shared environments with others. Also note the climate, central heating and air conditions, confined spaces, air movement within a home, office, classroom, etc., all may be factors to be taken into consideration.
h) Contact identification, ensuring all contacts are examined and appropriately managed. Identification of contacts to a smear positive TB case/suspect is a high priority activity.
i) Initial contact evaluation: examination of close contacts of current infectious cases of pulmonary or laryngeal TB is the most productive method of case finding and initial evaluations should be completed within 10 working days of the initial report of the TB case.

Patient and family education, focusing on achieving an understanding of:

- The disease process
- The reason for chemotherapy for the patient and preventive treatment for contacts
- The importance of continuous and uninterrupted therapy
- The importance of maintaining regular medical supervision
- The signs and symptoms of potential side effects of the prescribed medications and what course of action to follow should these occur
- Transmission of TB and methods of prevention
- The importance of covering the nose and mouth with tissue every time when coughing or sneezing whether alone or with others, and proper disposal of tissue
- The probable duration of the infectious period
- The need for adequate ventilation
- The fact that dishes, linens, and other fomites require no special precaution
- The potential benefit of sleeping apart from the rest of the family during the infectious period
- The reason for contact identification and examination.

j) Maintain medication orders for anti-tuberculosis chemotherapy from the primary healthcare provider and/or the TB clinician for the local health department. Directly observed therapy (DOT) is the standard of care. Rarely, there may be times when self-administered therapy (SAT) is an acceptable option. For patients

who are on SAT, only a one (1) month supply of medication may be given to the patient at any time. Monitoring for potential side effects of the medication is provided at each dose for patients on DOT, and at least monthly for patients on SAT. If any prescription calls for a dose or method of administration which is different from what the CDC and or the ATS recommends, the TB nurse/coordinator should consult with TBCP, the TB clinician for the local health department and/or the local health officer.

k) Specimen collection containers should be provided along with mailing tubes and instructions to the patient for collecting routine laboratory specimens and referral to a local healthcare provider for sputum induction if necessary.
l) Contact follow-up: The TB nurse/coordinator assures that the contact investigation has begun, assists in the investigation if requested, administers TB screening test(s) to contacts identified outside the institution but within that county (if needed) and notifies TB Control Program (TBCP) of contacts requiring examination but residing in other jurisdictions. Contacts are to be evaluated and managed according to current recommendations as noted in this manual. Contacts on preventive therapy for LTBI must be followed and monitored at least monthly. Results of the contact investigation are sent to TBCP.
m) Documenting records and reports in the patient's folder including components of the home, hospital, or clinic visits, contact examination results and follow-up treatment regimen, collection of specimens, smear and culture results, chest x-ray reports, other laboratory reports, assessment of compliance, and any other information pertinent to the appropriate case management of the patient in a timely manner. Examples of some of the forms include Report of Verified Case of Tuberculosis (RVCT) and RVCT Follow-up 1 & 2 forms.
n) Isolation assistance should be requested from the local deputy TB control office and/or the local health office and enforced, when necessary.
o) Isolation enforcement should be used in compliance with the Nevada Revised Statues (NRS) and/or Nevada Administrative Code (NAC) to protect the health of the public. TBCP will assist the local TB nurse/coordinator with this responsibility as necessary and when requested.

## Roles and Responsibilities of Healthcare Providers

Healthcare providers, including general hospital, outpatient departments, infirmaries of state and local correctional and mental institutions, federal facilities, as well as local health departments and private providers in the community, carry out the roles of evaluation, diagnosing, prescribing, and monitoring the medical care of those persons with or suspected to have TB disease or LTBI.

Healthcare providers in Nevada who know of a person who has or is suspected of having tuberculosis, are required by Nevada Administrative Code (NAC 441A.230) to notify the state TB controller or the local health officer and to cooperate in any investigation conducted as a result of the notification. Notification shall include, if known, the name, address and physical location of the person who has or is suspected of having TB. If the person reporting is a licensed physician, the report shall also include the condition of the person and the status of the disease.

According to Nevada Administrative Code (NAC 441A.225 and NAC 441A.240), a physician or an administrator of a healthcare facility or any authorized representative, shall report within twenty-four (24) hours to the local health agency by telephone or other

equally expeditious means, any suspected or confirmed TB disease in any person. Additionally, as of June 2019 Nevada Administrative Code (NAC 441A.350) requires reporting within 24 hours of anyone in Nevada who has shown a positive tuberculosis screening test, whether tuberculin skin test or blood assay test; this should be the report of the condition of latent TB infection as diagnosed by positive TB test result, normal chest radiograph result, and non-contributory signs and symptoms (an LTBI report).

The reporting of each person with known or suspected new or recurrent TB disease and LTBI allows the resources of the local health department and DPBH TB Program to become available to assist the provider in the appropriate management of the patient. Epidemiological services are available to identify and examine TB disease source cases and contacts. The local health department may have chest x-ray availability on site or will have arrangements made with other nearby healthcare facilities to provide x-ray services, including reading and interpretation. Some local health departments may have laboratory services and local medical consultations. All local health departments can link healthcare providers with the services provided by the Nevada Division of Public and Behavioral Health.

Close cooperation between healthcare providers and the local health department is imperative for the optimal outcome for the patient, contacts, and the community as a whole. Physicians and other providers described above are required to cooperate with the local health department when a report is requested on the follow-up care being given to a patient (NRS 441A.400). Periodic updates are required to monitor the patient's bacteriological, radiological, and chemotherapy status, or status of treatment for LTBI. Physicians and other healthcare providers are required to promptly report to the local health department if the patient ceases to or refuses to comply with medical recommendations for voluntary examination, isolation, monitoring or treatment for active TB (NRS 441A.180, NAC 441A.350).

## Roles and Responsibilities of Clinical Laboratories

A clinical laboratory director, or authorized representative, in accordance with Nevada Revised Statutes (NRS 441A.150), shall submit to the health authority a written or electronic report of positive laboratory findings for *Mycobacterium tuberculosis* and its drug sensitivity patterns. Nevada Administrative Code (NAC 441A.235) requires that the written or electronic laboratory report shall include the patient's name, address and telephone number (if available), date of birth, reference number, specimen type, date of collection, type of test, test results, and the ordering physician's name and telephone number. This required report includes the findings of any test that is suggestive of tuberculosis, most specifically positive smears for acid-fast bacilli (AFB) as well as positive cultures for *Mycobacterium tuberculosis.*

In addition, to provide epidemiological data and information regarding TB in Nevada including drug-resistance patterns and genotype, all clinical laboratories are strongly encouraged to provide an isolate of all cultures positive for *Mycobacterium tuberculosis* to the Nevada State Public Health Laboratory, 1660 N. Virginia St., Reno, Nevada, 89557-0385, telephone (775) 688-1335.

The following is from *"Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health Care Settings Facilities, 2005/1994" published in Morbidity and Mortality Weekly Report, Vol. 5 434, No. RR 1713, December 30, 2005*.

"Prompt laboratory results are crucial to the proper treatment of the TB patient and to early initiation of infection control measures. To ensure timely results, laboratories performing mycobacteriologic tests should be proficient at both the laboratory and administrative aspects of specimen processing. Laboratories should use the most rapid methods available (e.g., fluorescent microscopy for AFB smears; radiometric culture methods for isolation of mycobacteria, nucleic acid probes, or high-pressure liquid chromatography (HPLC) for species identification; and radiometric methods for drug susceptibility testing). As other more rapid or sensitive tests become available, practical, and affordable, such tests should be incorporated promptly into the mycobacteriology laboratory. Laboratories that rarely receive specimens for mycobacteriologic analysis should refer the specimens to a laboratory that more frequently performs these tests."

### Nevada State Public Health Laboratory

The Nevada State Laboratory processes sputum and other specimens for tuberculosis diagnostic and monitoring purposes as submitted by local health departments, private healthcare providers, healthcare facilities, and other laboratories. Acid-fast bacilli (AFB) smears, direct identification, nucleic acid amplification testing, of mycobacteria from clinical specimens (rapid methods), mycobacterial cultures, anti-tuberculosis drug sensitivity studies, and mycobacterial organism identification are included in the services provided. The laboratory serves as the tuberculosis reference laboratory for the entire state.

Specimen containers and mailing tubes may be obtained at no charge to patients or local health departments by calling (775) 688-1335.

## Roles and Responsibilities of Regional and National Agencies

The Centers for Disease Control and Prevention (CDC), the American Thoracic Society (ATS), formerly the medical Section of the American Lung Association (ALA), and the Francis J Curry Regional Training and Medical Consultation Center, provide official recommendations and guidelines for the control of tuberculosis, including standards of care for persons with known or suspected tuberculosis infection or disease, diagnostic methods, effective and appropriate anti-tuberculosis drug regimens, laboratory standards, contact identification, examination and follow-up, and methods for the prevention of transmission of tuberculosis within healthcare facilities and long-term care institutions. Both agencies also provide education, consultation and technical assistance as necessary to the Nevada State Health Division, Tuberculosis Control Section (TBCP), as well as public and private healthcare providers throughout the state upon request.

## Regional Contact Information

Carson City Health and Human Services
900 East Long Street, Carson City, NV. 89706
(775) 887-2190

Churchill County Community Health Clinic
485 West B Street, Suite 101, Fallon, NV 89406
(775) 423-4434

Clark County (Southern Nevada Health District)
280 S. Decatur Blvd., Las Vegas, NV 89107
(702) 759-1369

Douglas County Community Health Clinic
1329 Waterloo Lane, Gardnerville, NV 89410
(775) 782-9038

Elko County Community Health Clinic (contract nurse – limited hours)
1825 Pinon Road, Suite A, Elko, NV. 89801
(775) 778-0780

Humboldt County Community Health Clinic
50 E. Haskell Street, Suite B, Winnemucca, NV. 89445
(775) 623-6575

Lander County Community Health Clinic
825 North 2nd Street, Battle Mountain, NV. 89445
(775) 623-6575

Lincoln County Community Health Clinic
1005 Main St, Panaca, NV 89402
(775) 962-8086

Lyon County (Fernley) Community Health Clinic
555 East Main Street, Fernley, NV. 89408
(775) 575-3363

Lyon County (Dayton) Community Health Clinic
5 Pinecone Dr., Suite 103, Dayton, NV. 89403
(775) 246-6211

Lyon County (Silver Springs) Community Health Clinic
3595 W. Highway 50, Suite 3, Sliver Springs, NV. 89429
(775) 577-0319

Lyon County (Yerington) Community Health Clinic
26 Nevin Way, Yerington, NV. 89447
(775) 463-6539

Mineral County Community Health Clinic
331 1st Street, Hawthorne, NV. 89415
(775) 945-3657 or (775) 945-3658

Nye County (Pahrump) Community Health Clinic
1981 E. Calvada Blvd. North, Suite 100, Pahrump, NV 89048-0250
(775) 751-7070

Nye County (Tonopah) Community Health Clinic
#1 Frankie Avenue, Tonopah, NV. 89049
(775) 482-6659

Pershing County Community Health Clinic
535 Western Avenue, Lovelock, NV 89419
(775) 273-2041

Washoe County Health District
10 Kirman Avenue, Reno, NV. 89502
(775) 785-4785

White Pine County Community Health Clinic
297 11th Street East, Suite 5, Ely, NV. 89301
(775) 293-6558

# Resources and References

## Resources

- Division of Tuberculosis Elimination (DTBE) available at: http://www.cdc.gov/tb
- CDC. "Framework for Program Evaluation in Public Health" (*MMWR* 1999; 48[No. RR-11]). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm
- Division of Tuberculosis Elimination. *A Guide to Developing a TB Program Evaluation Plan* (Division of Tuberculosis Elimination Web site; accessed November 1, 2006). Available at: https://www.cdc.gov/tb/programs/evaluation/default.htm
- Division of Tuberculosis Elimination. *Understanding the TB Cohort Review Process: Instruction Guide* (Division of Tuberculosis Elimination Web site; accessed November 1, 2006). Available at: https://www.cdc.gov/tb/publications/guidestoolkits/cohort/cohort.pdf
- Instructions to Panel Physicians for Completing New U.S. Department of State Medical Examination For Immigrant or Refugee Applicant (DS-2053) and Associated Worksheets (DS-3024, DS-3025, and DS-3026) Available at: http://www.cdc.gov/Ncidod/dq/pdf/ds-forms-instructions.pdf
- National TB Indicators Project (NTIP). Available at: https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm

## References

[1] 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):14.
[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):15.
[3] CDC Division of Tuberculosis Elimination. August, 2015, http://www.cdc.gov/tb/Program_Evaluation/Indicators/ProgramObjectives.pdf.