



County of Henrico
Office of Emergency Management
And Workplace Safety

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Safety Manual
Chapter 7 Tuberculosis Exposure Control Plan

Area of Application:	County of Henrico General Government & Schools
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Purpose:

This chapter establishes exposure control procedures for the County of Henrico employees at risk for occupational exposure to Tuberculosis (TB).

Scope:

This chapter applies to County of Henrico personnel with job functions that may expose them to Tuberculosis. Typically, these employees include, but are not limited to, those who work in the following areas:

- A. Health care settings (e.g. hospitals, nursing homes, emergency medical centers, clinics serving high-risk populations)
- B. Correctional institutions and jails
- C. Emergency shelters
- D. Long-term care facilities
- E. Drug treatment centers
- F. Schools
- G. Public Safety, such as Police Officers and Fire Fighters

Program Administration:

Through guidance from the Office of Emergency Management and Workplace Safety and Employee Health Services, each affected department will establish a policy to address potential TB exposures specific to its operations. Policies will specify how a department will minimize or eliminate employee exposure to TB.

Definitions:

Active TB – Infectious state of TB, patient has an active case of the disease.

Acquired Drug Resistance - Resistance to one or more ant-tuberculosis drugs a patient develops while on therapy.

Chest Radiograph – An image for viewing the chest and respiratory system. Abnormalities in the lungs, such as lesions or cavities, and/or enlarged lymph nodes, may indicate a TB infection.

Contact - An individual who has shared the breathing zone of a person with active TB. If a sufficient amount of time has passed with protection, exposure is likely.



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Directly Observed Therapy - A strategy in which each dose of medication is ingested by the patient; under the supervision of a health care worker.

Exposure. The condition of being subjected to something such as infectious agents which that may have a harmful effect. A person exposed to TB does not necessarily become infected.

HEPA - (High Efficiency Particulate Air) Filter. Specialized filter that is capable of removing 99.7% of particles 0.3 microns in diameter. It may be of assistance in control of TB transmission. Requires expertise in installation and maintenance.

Induced Sputum - The Sputum obtained from a patient unable to cough up a spontaneous specimen. The patient inhales a mist of saline that stimulates a cough from deep within the lungs.

Infection - The condition in which organisms capable of causing disease (e.g. Tuberculosis) multiply within the body and cause a response from the host's immune defenses. Infection may or may not lead to clinical disease.

Latent TB – Non-active nor infectious, indicates an individual has just been exposed.

Mantoux Test - A tuberculin test given by injecting a measured amount of liquid tuberculin into the dermis with a needle and syringe.

National Institute for Occupational Safety and Health (NIOSH) – The federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is a branch of the Centers for Disease Control (CDC)

Positive PPD reaction - A reaction to the purified protein derivative (PPD) test that suggests the individual tested is infected with tubercle bacilli. Determination of the reaction is largely dependent on interpretation by the person evaluating the test given the patient's or health care workers medical history and risk factors.

Purified Protein Derivative (PPD) – Used for routine TB test.

Specimen. Any body fluid, secretion, or tissue sent to the laboratory where smears and cultures for tubercle bacilli will be performed. The specimen may consist of sputum, urine, spinal fluid, material obtained from biopsy, etc.

Surveillance – The close monitoring of individuals to identify TB infection and TB disease.

Transmission - The spread of an infectious agent, such as TB, from one individual to another. The duration and intensity of exposure to TB is directly related to the likelihood that transmission will occur and a person will become infected.

Tuberculosis - A bacteria infection that mainly affects the lungs but can also involve other organs.

Tuberculin – Used (Mantoux PPD) to perform TB test.

Tuberculosis Isolation Precautions - Infection control procedures that should be applied when persons with known or suspected infectious TB are hospitalized or residing in other inpatient facilities. These precautions include the use of a private room with negative pressure in relation surrounding air and removal of air from the room directly to the outside. Not the same as "respiratory isolation" which calls for a private room, but does not require negative pressure and exhaust of room air to the outside.

Policy:

The County of Henrico shall provide a Tuberculosis Exposure Control Program to inform, train, provide equipment, and conduct medical evaluation and treatment for identified job functions having the risk of Tuberculosis infection.



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A. Introduction

1. All elements of the County of Henrico Tuberculosis Exposure Control Program constitute official written policy and procedure. Willful violation of any element of this program may constitute grounds for disciplinary action up to and including termination.
2. Occupational exposure to tuberculosis (TB) is recognized as a hazard to certain County of Henrico employees. The extent of the hazard and necessary exposure control measures shall be determined through individual worksite exposure risk/hazard assessments. Each affected worksite will develop a site-specific exposure control plan, which meets the intent of this plan.
3. Universal precautions will be observed by all employees in the prevention spreading or contracting a disease or infections.

B. Provisions

1. The County of Henrico shall provide education to identified employees to reduce the risk of occupational exposure.
2. The County of Henrico shall supply appropriate respiratory protection equipment capable of filtering out TB bacilli at no charge to at risk employees.
3. The County of Henrico shall provide individual risk assessments and, if necessary, free screening (Mantoux skin test) prior to placement in high-risk settings. Medical surveillance and retesting intervals shall be determined through individual work site exposure hazard/risk assessment.
4. The County of Henrico will monitor follow-up medical evaluation, management and treatment in cases of exposure and positive test results.

Active TB:

A. High-Risk Groups

1. Persons with weakened immune systems such as AIDS
2. Individuals having, or having had, close contacts with active TB patients.
3. Foreign-born persons from Asia and the Pacific Islands, Africa and Latin America.
4. Low-income populations including the homeless.
5. High-risk minorities such as African Americans, Latinos and Native Americans.
6. Alcoholics and intravenous drug users.
7. Residents of long-term care facilities such as nursing homes and correctional institutions.

B. Active Symptoms

1. Prolonged cough, coughing up blood
2. Fever
3. Chills
4. Night sweats
5. Lethargy or Weakness
6. Loss of appetite
7. Weight loss

Control Measures:

- A. Engineering, such as isolation (negative pressure) rooms where applicable.
- B. Work Practice



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1. When treating individuals suspected of, or confirmed having active TB, ventilation of enclosed rooms/areas should be increased to the greatest extent possible by opening doors, windows, etc.
2. Suspected or confirmed active individuals should be asked to wear a surgical mask (**not a respirator**) to prevent droplet generation from coughing.
3. Such individuals should be provided with tissues and instructed to cover their mouth and nose when coughing or sneezing if they find it necessary to temporarily remove the surgical mask to clear their airway.

Personal Protective Equipment:

Employees shall continuously wear NIOSH/CDC "approved for TB" HEPA, "N" or "P" series particulate respirators in any of the following circumstances:

- A. While occupying rooms with suspect or confirmed active TB patients.
- B. When intubating, ventilating, suctioning or administering aerosolized medications to suspect or confirmed active TB patients
- C. When transporting suspect or confirmed active TB patients.
Exception - Employees are not required to wear respirators while driving if the individual is masked.
- D. Anytime an individual is suspected of displaying symptoms of active TB.

Decontamination:

- A. Non-disposable instruments such as laryngoscope blades, stylettes and reusable BVM valve assemblies and masks shall be disinfected after use per manufacturer's guidelines.
- B. Non-critical items such as gurneys, blood pressure cuffs and stethoscopes do not transmit TB infection. Cleaning with detergents or low-level disinfectants is all that is required.
- C. The Centers for Disease Control and Prevention (CDC) has indicated that once impacted on a filter, biological particles are not readily returned to the air. Thus, respirator filters can remain safe and functional for weeks to months. Current County of Henrico practice, however, calls for disposal of the respirator after use with one patient.
- D. Instructions for routine periodic sanitizing of reusable cartridge-type respirators are outlined in Chapter 14, Respiratory Protection, and the County's Respiratory Protection Program Template.
- E. A reusable disposable type respirator shall be discarded if it loses its structural or functional integrity or is contaminated with blood, body fluids, sputum, vomitus or other visible organic matter.

Employee Medical Screening and Surveillance:

- A. Every employee hired to work in a position at risk for potential exposure shall receive a pre-placement evaluation/assessment. Medical screening and evaluation will depend on the individuals past exposures/risk group, the assigned worksite exposure control risk/hazard assessment, and guidelines listed in the worksite specific exposure control plan.
- B. A Purified Protein Derivative test (PPD) shall be performed prior to placement in any position identified as necessary through assessment, and required guidelines in the worksite specific exposure control plan. Intervals at which an employee must be tested will be determined by exposure level.



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- C. PPD tests shall be read between 48 and 72 hours after the injection by designated, trained, personnel. **Self-reading by employees is not acceptable.**
- D. Any employee who tests positive after employment begins shall be required to receive follow-up medical evaluations/protocol in accordance current standards established by the Centers for Disease Control (CDC). Follow-up may include any or all of the following:
 - 1. Chest Radiograph
 - 2. Induced Sputum Culture
 - 3. Medication
- E. Employees having tested positive will no longer be able to receive a PPD. Persons with history of positive PPD will fill out a questionnaire to check for signs of active TB; this should be performed annually. If responses are suggestive of active TB, then a medical evaluation begins which would include a Chest X-Ray.

Reporting and Evaluating Exposure Incidents:

- A. An "exposure incident" is an event in which an employee sustains substantial exposure to a confirmed infectious TB case without the benefit of the particulate respirator. Determination of a "substantial" exposure is based on:
 - 1. The infectious nature of the exposure source
 - 2. Proximity of the employee to the exposure source
 - 3. Extent of protective measures employed
 - 4. Length of the exposure event
- B. Upon discovery that an employee has been subject to an exposure incident, that employee shall be promptly notified of that incident.
- C. All exposures will be reported to the Virginia Department of Health, Division of Tuberculosis Control (DTC).
- D. Within one week from the date of discovery of the exposure incident and again 12 weeks after the exposure, the employee shall receive medical evaluation, testing, and treatment if required.
- E. All testing and treatment requirements shall be coordinated through the County of Henrico Health Department office of Communicable Diseases and results made available to the employee.
- F. The County will monitor and insure that all appointments for the employee's treatment and evaluation are kept. If a treating facility provides this service, a copy of that agreement shall be maintained on file.
- G. The County shall reasonably accommodate any additional treatment and testing as deemed necessary at no cost to the employee.

Role of the County Health Department Division of Tuberculosis Control (DTC):

- A. Acts as a liaison between the different entities involved in the implementation of the Virginia TB laws.
- B. Coordinates all actions taken under the laws.
- C. Provides the necessary guidance through the processes.

Evaluation and Management of TB Positive Employees:

- A. Any employee testing positive shall meet at least the current standard set by the Center for Disease Control (CDC) and the worksite specific exposure control plan.



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- B. A determination shall be made by the treating physician or health care provider as to the infectious state of the employee.
- C. The Department Head shall be notified as to the infectious state of the employee so that a determination may be made as to other employees that may require testing and employment considerations if the employee presents a risk of infection.
- D. If the employee could present risk of infection to other employees or the general public, the employee shall not return to their previous duties. Authorization to return to work without infection shall be made by the treating physician or health care facility.
- E. If the employee is not infectious to others and does not present a risk to employees or the general public, the employee shall work assigned duties. Should the employee's status change, the treating physician or health care facility shall notify the employee and the County of Henrico.

Employee Training and Information:

- A. All employees performing job functions identified as at risk to exposure shall receive TB training prior to initial assignment and annually thereafter.
- B. Current employees who have not received such training shall be trained at the earliest opportunity.
- C. TB training of employees should be developed from the worksite specific Exposure Control Plan and shall include at least the following:
 - 1. How TB is transmitted.
 - 2. The difference between Latent and Active TB.
 - 3. Signs and symptoms of TB.
 - 4. Control measures to reduce the risk of transmission
 - 5. Reporting a suspected exposure to TB.
 - 6. Procedure for medical treatment and further testing requirements.
 - 7. Proper use of particulate respirators

Record Keeping Requirements:

- A. Exposure records, skin testing results, medical evaluations and treatment shall be maintained as part of the employee's confidential Exposure and Medical Record at Employee Health Services.
- B. All medical records may be viewed by the appropriate government agency such as OSHA, the employee or the treating medical facility or physician upon approval by the employee.
- C. All medical records shall be kept for the duration of employment plus 30 years or as amended by Federal OSHA Standard.
- D. Records of TB training and respirator training shall be maintained for at least 3 years.
- E. Records of cleaning and inspections of reusable respirators (if in use) shall be maintained for 3 years.
- F. TB infection (skin test conversion) and TB disease are both recordable on the OSHA 300 Log based on the following circumstances:
 - 1. If any employee has been occupationally exposed to anyone with a known case of active tuberculosis and subsequently develops a tuberculosis infection as evidenced by a positive skin test or diagnosis by a doctor you must record the case on the OSHA 300 log.
 - 2. Under the following circumstances the employer can line out or erase the log if evidence is obtained that the employee's TB case **was not caused by an occupational exposure**:
 - a. The worker is living in a household with a person who has been diagnosed with active TB.



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- b. The Public Health Department has identified the worker as a contact of an individual with a case of active TB unrelated to the workplace; or
- c. A medical investigation shows that the employee's infection was caused by exposure to TB away from work, or proves that the case was not related to the workplace TB exposure.
- d. You do not have to record on the log a positive TB skin test result obtained at a **pre-employment** physical as this exposure did not occur at your worksite.

Respiratory Protection Program:

- A. Respirators provided for employee use are solely for protection against airborne transmission of TB as outlined in this Tuberculosis Infection Control Program. The only acceptable respirator is a NIOSH-approved HEPA particulate respirator.
- B. Selection of this respirator is based on existent regulations, recommendations and policies of FED-OSHA and the CDC.
- C. This respirator is intended solely for protection against TB and other airborne biological pathogens. It is not protective in hazardous chemical atmospheres.
- D. Employees shall be trained in the proper use and limitations of this type(s) of respirator prior to such use. Documentation of such training shall be retained for not less than 3 years.
- E. When reusable cartridge type respirators are used, they shall be cleaned at regular intervals by the employee whom issued using appropriate cleaning materials supplied by the County. Respirators shall be inspected for worn or deteriorated parts at such time. Cleaning and inspection shall be documented using the method provided.
- F. The County of Henrico shall have respirators available at all times.
- G. Employees shall report conditions or circumstances where exposure could not be controlled or use of the respirator adversely affected the employee. Such reports should be evaluated for opportunities to improve this program.
- H. Each respirator user shall be trained in how to wear, adjust and determine proper fit of the respirator.
- I. Each respirator wearer shall pass a documented fit-test prior to being approved for respirator use. Qualitative fit testing shall employ irritant smoke and/or sodium saccharine. Respirators shall not be worn if facial hair comes between the sealing surface of the face piece and the face. Employees with such facial hair will not be fit-tested.
- J. Employees who cannot pass a respirator fit-test may not respond to calls involving the treatment or transport of suspected or confirmed active TB patients.
- K. Any employee who is ineligible for fit testing due to facial hair is expected to shave as necessary, to pass the test.
- L. All employees required to respirator must be trained and shall consist of at least the following:
 - 1. The use and limitations of the HEPA, "N" and "P" series particulate respirator (**whichever type is currently utilized**)
 - 2. leaning and inspection procedures for reusable canister respirators (if used)
 - 3. How to wear, adjust and determine proper fit of the designated respirator.
 - 4. Employees' successful completion of a documented fit-test conducted by a trained fit-tester.



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Disclaimer:

Although every effort has been made to ensure this Chapter addresses all applicable regulations, it is the responsibility of each department to maintain compliance.