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| **Tuberculosis Exposure Control Plan** |
| **Purpose** | This policy provides guidance to reduce exposures to *Mycobacterium tuberculosis* (TB). |
| **Epidemiology and Transmission** | * *M. tuberculosis* (TB) is carried in airborne particles, known as droplet nuclei that can be generated when a person with pulmonary TB coughs, sneezes, shouts or sings.

These particles can also be caused by aerosol-generating procedures, e.g., intubation, manipulating patient samples (tracheal aspirate, sputum) in the laboratory.* The particles are approximately 1-5 microns in size, and normal air currents keep them airborne and can spread them throughout a room or building.
* Infection may occur when a person inhales droplet nuclei containing *M. tuberculosis.* An exposure to TB may not cause an infection.
* Latent TB is an infection in a person who has a positive Tuberculin Skin Test but has no physical findings of the disease and a chest x-ray that is normal or shows evidence of healed infection. They are not infectious.
* Characteristics of the TB patient that enhance transmission include:
	+ Disease in the lungs, airway or larynx.
	+ Presence of a cough.
	+ Failure of the patient to cover their mouth and nose when coughing.
	+ Presence of acid-fast bacilli in sputum.
	+ Presence of cavitations on chest x-ray.
	+ Short duration of adequate chemotherapy.
	+ Administration of procedures that can induce coughing or cause aerosolization of *M. tuberculosis.*
* Environmental factors that enhance transmission include:
	+ Exposure of susceptible persons to an infectious person in relatively small enclosed spaces.
	+ Inadequate local or general ventilation that results in insufficient dilution and/or removal of infectious droplet nuclei.
	+ Recirculation of air containing infectious droplet nuclei.
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| **TB Exposure Screening** | Children’s Minnesota has a TB testing program for healthcare workers that may be at risk for exposure to infectious TB. Staff that fall into this category are to perform exposure screening at the following intervals:* During the new employee health assessment
* After exposure or when suspected of having infectious TB
* Annually

Employee Health Services (EHS) monitors employees that experience latent TB due to exposures.For additional information, refer to organizational policy [1203.00 Tuberculosis (TB) Control Plan](https://starnet.childrenshc.org/references/Policy/1200/1203.00-tuberculosis-exposure-control-plan.pdf).  |
| **Respiratory Protection Program** | Children’s Minnesota has a Respiratory Protection Program (RPP) in place for its healthcare workers that may be exposed to TB, other airborne infectious agents, or hazardous air contaminants. This includes employees that collect patient specimens as well as laboratory staff that process or handle specimens (i.e. tissues, CSF, respiratory specimens, blood, body fluid) that may contain *M.tuberculosis.* The program is designed to instruct employees on the proper use of hospital provided respiratory protection equipment as well as when it is necessary for usage. Annual Respirator Fit Testing is required for laboratory staff that may be involved in a potential exposure.  |
| **Department Precautions** | **Phlebotomy**When entering a room with a patient with suspect or confirmed TB disease:1. Wear N95 mask or PAPR hood. Follow [1201.12 Airborne (Transmission-based) Precautions](http://khan.childrensmn.org/References/Policy/1200/1201.02-airborne-%28transmission-based%29-precautions.pdf).
2. Wear gown and gloves.
3. Perform hand hygiene once gloves have been doffed.

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|  | **Microbiology:**1. Wear laboratory coat and gloves.
2. Process respiratory samples in a level 2 biological safety cabinet (BSC).
3. Disinfect the outside of any known or suspected TB sample container before opening with a tuberculocidal disinfectant.
4. Reject specimens that may have leaked during transport.
5. Once work is completed with the specimen, disinfect work area in the BSC with tuberculocidal disinfectant.
6. Perform hand hygiene once gloves have been doffed.
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|  | **Histology - Frozen Sections:**1. Wear N95 mask or PAPR hood.
2. Wear laboratory coat or gown and gloves.
3. Follow [HI 1.12 Intraoperative Consultation, Frozen Sections](http://khan.childrensmn.org/references/labsop/his/cytproc/hi-1.12-frozen-sections.pdf); Special Infectious Risk section.
4. Do not use propellant to flash-freeze tissue.
5. Wipe all exposed surfaces of instrumentation with tuberculocidal disinfectant.
6. Perform hand hygiene once gloves have been doffed.
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|  | **Autopsy:**1. Wear N95 mask or PAPR hood in addition to appropriate personal protective equipment when performing an autopsy on a patient with suspect or confirmed TB.
2. Ensure the bone dust vacuum is in place to provide removal and collection of bone dust generated by the use of the bone saw.
3. Due to the probability of the presence of infectious aerosols, the autopsy rooms are at negative pressure with respect to the adjacent areas, with at least 12 air exchanges per hour and room air exhausted directly to the outside of the building.
4. Do not remove N95 mask or PAPR hood until sufficient time has elapsed after the completion of the procedure for effective removal of airborne particles by the ventilation system which is ½ hour.
5. Wipe all exposed surfaces and instrumentation with tuberculocidal disinfectant.
6. Perform hand hygiene once gloves have been doffed.
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| **Exposure** | Report exposures to TB to a direct supervisor immediately. * + Complete/follow the action steps in the [Blood and Body Fluid Exposure Packet](https://starnet.childrenshc.org/departments/InfectionControl/pdf/blood-or-body-fluid-exposure-packet-healthcare-worker-exposure-%28hospital-based-locations%29.pdf).
		- If necessary, wash the exposed area with soap and water for at least 10 minutes
		- Complete an [Employee Incident Report Form](https://starnet.childrenshc.org/forms/employeeincident/Index.php)
		- Contact EHS for further instructions
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| **Supporting Documents** | [1201.12 Airborne (Transmission-based) Precautions](http://khan.childrensmn.org/References/Policy/1200/1201.02-airborne-%28transmission-based%29-precautions.pdf)[1203.00 Tuberculosis (TB) Control Plan](https://starnet.childrenshc.org/references/Policy/1200/1203.00-tuberculosis-exposure-control-plan.pdf)[1228.00 Respiratory Protection Program](http://khan.childrensmn.org/manuals/policy/1200/051710.pdf)[MCVI 2.0 Specimen Management](http://khan.childrensmn.org/manuals/lab/sop/mcvi/specman/209725.pdf)[MCVI 3.1 Biohazard Containment](http://khan.childrensmn.org/manuals/lab/sop/mcvi/safety/209727.pdf)[HI 1.12 Intraoperative Consultation, Frozen Sections](http://khan.childrensmn.org/manuals/lab/sop/his/cytproc/194545.pdf)[A 1.01 Autopsy Protocol](http://khan.childrensmn.org/Manuals/Lab/SOP/HIS/AutProc/191065.pdf) |
| **References** | 1. CDC Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories. Jan 2012.
2. CLSI. Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline-Fourth Edition. CLSI document M29-A4. Wayne, PA: Clinical and Laboratory Standards Institute; 2014.
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| **Historical Record** | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1 | Carol Cram | Oct 1997 | Initial  |
|  | 2 | Carol Cram | July 1999 |  |
|  | 3 | Kerstin Halverson | 12/29/03 |  |
|  | 4 | Carol Buhl | 07/31/15 | Reformatted to CMS.Renumbered from 10.8.2.Updated Supporting Documents.Added References. |
|  | 5 | Carol Buhl & Laboratory Safety Committee | 06/28/17 | Added hyperlinks to 1201.12 & HI 1.12. |
|  | 6 | Andrew Fangel | 10/19/20 | Added TB exposure screening requirements.Clarified lab staff who are at risk of occupational TB exposure.Perform hand hygiene after working with known or suspected TB specimens. Clarified steps to take if exposed to TB.  |