

Clinics

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Persons who are at high risk for TB often receive care at public health and community clinics prior to diagnosis and treatment. Clinic funding does not generally allow for facility renovation or installation of enhanced ventilation. Another factor that can increase risk of TB exposure: Clinic teams do not always include personnel who are experienced in infection prevention and control, occupational health, or mechanical engineering.

To help reduce the risk of exposure to TB, clinics should have an overall infection prevention and control (IPC) plan in place that addresses TB IPC considerations based on the clinic's TB risk profile.

This chapter offers a basic view of TB IPC for clinics, including practical considerations and linkages to guidance and tools, using the IPC hierarchy of controls: administrative, environmental, and respiratory protection.

Administrative controls for clinics

Administrative control measures are often the most effective IPC activities to implement. They represent the first level of the IPC hierarchy of controls and are intended to reduce the risk of exposure to persons with infectious TB and other communicable diseases. The following discussions will focus on TB IPC but may also apply to other airborne infectious diseases of concern.

A facility's administrative IPC policies and procedures should reflect the site-specific TB risk, **recognizing that for many clinics within the United States (U.S.), the TB risk may be low and not all TB IPC measures will be applicable.**

For more details on administrative controls, see Chapter 1, *Administrative Controls*.

Administrative control **priorities for all healthcare facilities** to implement include:

- Assigning clinic responsibility for IPC (including TB IPC)
- Conducting a TB IPC facility risk assessment
- Developing a TB IPC plan (appropriate to the level of site-specific TB risk and services offered)
- Conducting baseline TB screening and evaluation of employees
- IPC training and education of employees, patients, clients, and visitors (including TB IPC)
- Using appropriate signage and support for respiratory hygiene (Figure 1)
- Applying triage (“fast-tracking”) and airborne precaution protocols
- Ensuring proper cleaning of equipment
- Collaborating with clinical and laboratory services
- Collaborating with local or state health departments for consultation and referrals, and to understand and align with regulatory requirements

FIGURE 1.



Source: Adapted from CDC
Cover Your Cough signage

TB IPC plan for clinics

Employers who fall within the scope of federal or state Occupational Safety and Health Administration (OSHA) TB compliance requirements must establish and comply with an effective written TB IPC plan.

- The information in the TB IPC plan must be specific to the facility and available to any employee who requests it.
- The effectiveness of the TB IPC plan (as part of a general IPC plan) should be evaluated annually and following any occupationally-acquired TB infection.
- Each facility must also ensure that the final IPC plan accurately reflects current TB risks, clinical practice, and the clinic's environmental controls.

Because regulations vary from county to county and from state to state, **each facility should review its local and state regulations before finalizing its TB IPC plan.**

- Refer to state and local regulations and contact the local OSHA office. For contact information, see *Resources*.

Based on the types of medical services offered, the clinic TB IPC plan should include the development and implementation of policies and procedures to ensure prompt identification, isolation, evaluation, and treatment of persons likely to have TB.

- If appropriate diagnostic testing and treatment for TB is not available within the clinic, policies and procedures for referral including contact information for TB clinical services, public health TB notification, and appropriate transfer of care with safe transport should be included in the IPC plan and readily available for clinic staff.
- For links to examples and templates of TB IPC plans, see Chapter 1, *Administrative Controls*.

See *Resources* for websites that contain general infection prevention information and IPC standards.

TB facility risk assessment and classification

Assessing a facility's risk for *M. tuberculosis* transmission is the first step in developing an IPC plan.

- A **comprehensive resource for conducting a TB risk assessment** can be found in the Centers for Disease Control and Prevention (CDC) 2005 *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings*.
 - Including a **TB IPC risk assessment within an annual IPC risk assessment of the facility** is helpful to determine if any lapses in TB control occurred within the preceding year.

Based on the types of medical services offered, the clinic TB IPC plan should include the development and implementation of policies and procedures to ensure prompt identification, isolation, evaluation, and treatment of persons likely to have TB.

- Appendix B in the CDC 2005 guidelines includes a **TB risk assessment worksheet** for healthcare and non-traditional facility-based settings. Updates are noted in the 2019 implementation companion document from the American College of Occupational and Environmental Medicine and the National Tuberculosis Controllers Association, Appendix 1. See *Resources*.
- **TB risk classification** for facilities can be categorized as **low risk, medium risk, or potential ongoing transmission**. The classification considers the general likelihood of TB exposure within the facility due either to exposure to persons with TB disease, potential contact with specimens containing *M. tuberculosis*, or evidence within the past year for person-to-person transmission of TB at the facility (Table 1).

TABLE 1: **Facility TB risk classification**

RISK CLASSIFICATION	DESCRIPTION
Low risk	<ul style="list-style-type: none"> ➤ Should be used for settings in which persons with TB disease are not expected to be encountered. ➤ Exposure to <i>M. tuberculosis</i> in these settings is unlikely.
Medium risk	<ul style="list-style-type: none"> ➤ Should be used for facilities or settings in which the risk assessment has determined that healthcare personnel (HCP) will possibly be exposed to persons with TB disease. ➤ Medium risk classification can also be used for settings in which healthcare or lab personnel will be working with or collecting clinical specimens and potentially come in contact with specimens that may contain <i>M. tuberculosis</i>.
Potential ongoing transmission	<ul style="list-style-type: none"> ➤ Should be temporarily assigned to any setting where there is evidence of person-to-person transmission of <i>M. tuberculosis</i> in the past year.

Source: *Core Curriculum on Tuberculosis: What the Clinician Should Know: Chapter 6, Tuberculosis Infection Control*, CDC, 2021.¹

- A reassessment of the clinic’s risk level should be part of the annual IPC plan review. This includes an analysis of any employee TB exposures with evidence of person-to-person transmission. Factors that may have contributed to TB exposures or transmission will be reviewed and interventions to prevent recurrence will be implemented.
- The TB risk assessment includes knowledge of local community and/or state incidence of TB. See *Resources* for annual CDC updates of state/city-level TB incidence, and list of state, big city, and territory TB program contacts from the National TB Coalition of America (NTCA; note 2023 name change from National TB Controllers Association).

TB screening program

An **employee TB screening program** should be included in a facility IPC plan. CDC defines this process as including an individual TB risk assessment, symptom evaluation, TB testing for latent TB infection (by either an interferon-gamma release assay [IGRA] or a TB skin test) for HCP without documented evidence of prior latent TB infection or TB disease, and additional workup for TB disease for HCP with positive TB test results or symptoms compatible with TB disease.²

The 2019 update² and 2020 implementation companion document⁵ to the 2005 CDC guidance³ contained notable changes for HCP TB screening, testing, and treatment. The changes were recommended based on findings from a systematic review that found a low percentage of HCP in the U.S. had a positive TB test at baseline and upon serial testing. CDC surveillance data (1995-2007) also documented that TB incidence among U.S. HCP was similar to the general U.S. population.⁴

Table 2 compares the 2005 and 2019 recommendations.

TABLE 2. **Summary of updates to TB screening, testing, and treatment recommendations** (adapted from CDC *Core Curriculum on Tuberculosis: What the Clinician Should Know, Chapter 6, TB Infection Control, 2021*)¹

	2005 RECOMMENDATIONS*	2019 RECOMMENDATIONS: Key Changes**
Screening	<ul style="list-style-type: none"> Recommended for all healthcare personnel pre-placement/upon hire Annual screening may be recommended based on risk assessment of healthcare facility and setting 	<ul style="list-style-type: none"> Individual baseline TB risk assessment (new) Annual TB screening no longer routinely recommended for most healthcare personnel unless occupational risk or ongoing exposure (new)
Post-exposure testing	<ul style="list-style-type: none"> Recommended IGRA or TB skin test for all healthcare personnel when an exposure is recognized If that test is negative, do another test 8-10 weeks after the last exposure 	<ul style="list-style-type: none"> No change
Treatment of positive TB test	<ul style="list-style-type: none"> Referral to determine whether latent TB infection (LTBI) treatment is indicated Treatment for LTBI should be considered in accordance with CDC guidelines 	<ul style="list-style-type: none"> Treatment is strongly encouraged for all healthcare personnel with untreated LTBI (new emphasis) Shorter course (3 to 4 month) treatments encouraged over the longer (6 or 9 month) regimens because they are easier to complete (new)
TB education	<ul style="list-style-type: none"> Recommended annually for all healthcare personnel The level and detail of training will vary based on job responsibilities and facility risk classification 	<ul style="list-style-type: none"> Annual education should include information about TB risk factors, the signs and symptoms of TB disease, and TB infection control policies and procedures (new emphasis)

* CDC 2005 *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings*³

** This column combines information from the 2019 *Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC*² and the companion 2020 document *Tuberculosis Screening, Testing, and Treatment of US Health Care Personnel: ACOEM and NTCA Joint Task Force on Implementation of the 2019 MMWR Recommendations*⁵

Key considerations for HCP TB screening guidance:

- Baseline pre-placement TB screening is recommended, but routine annual screening is not recommended for most HCP.
 - **If tuberculin skin tests (TST) are used, a two-step testing process at baseline is recommended.** A two-step test is used to detect individuals with TB infection acquired in the remote past who may now have diminished skin test reactivity. Two-step baseline testing avoids misinterpretation of a later repeat test that has a boosted reaction being mistakenly classified as a new infection.
 - **A two-step process is not required for programs using IGRA tests.**
 - Repeat screening or testing of HCP should be limited to situations required in the evaluation of a known TB exposure or sites with evidence of ongoing TB transmission.
 - Serial screening may be considered for groups of HCP with higher occupational risk for TB exposure (e.g., pulmonologists, respiratory therapists, laboratory staff handling respiratory specimens) particularly in higher-TB incidence areas or settings with recent or ongoing transmission concerns, but the decision to do so should be individualized to local TB risks. Consultation with the local or state TB health departments is highly encouraged.²
 - If a **positive result is found in a low-risk individual** who is asymptomatic, unlikely to be infected with TB, and at low risk for progression based on their individual risk assessment, a second test (either IGRA or TST) would be recommended. For more information on TB diagnostic testing (including in low-risk individuals), see the 2017 American Thoracic Society, Infectious Diseases Society of America, and CDC diagnostic guidelines.⁶ If both TB tests are positive, the result should be considered confirmed. **A new positive result post-TB exposure** would be accepted without repeat testing, and further clinical evaluation would be indicated.
- A stronger **emphasis on latent TB infection (LTBI) treatment for all HCP** is encouraged as part of the national strategy toward TB elimination. Poor to variable acceptance and completion of LTBI treatment has been noted among HCP.^{7,8,9} Shorter treatment regimens should support this process.
 - See *Resources* for a CDC website that provides information about shorter LTBI regimens.
 - HCP with untreated LTBI should receive a yearly symptom review and TB education.⁵

Individual TB risk assessment tools are available to support and simplify HCP assessment. See an example in Appendix A, *CDC Healthcare Personnel (HCP): Baseline Individual TB Risk Assessment*.

- See *Resources* for a CDC website that offers more information on the use of TB screening and testing of HCP, with specific guidance on the following topics:
 - HCP TB screening, testing, and education
 - Post-exposure screening and testing
 - TB blood testing (IGRAs)
 - TST and two-step testing
 - Individual TB risk assessment form

TB evaluation, infectiousness, and isolation

The clinical evaluation to determine the clinical suspicion for active TB disease and decisions for starting and stopping isolation based on transmission risks are beyond the scope of this manual. Further study and analysis of TB transmission factors and guidance on isolation are ongoing. For more information on TB evaluation, infectiousness, and isolation, see *Resources*.

Programs are also advised to monitor public health regulations that apply based on the clinic location (state, local, and U.S. territories TB jurisdictions).

Environmental controls for clinics

Environmental controls, the second level of the TB control hierarchy, can reduce TB transmission by decreasing the concentration of *M. tuberculosis* infectious particles in the air by exhausting them from the space or through germicidal inactivation.

For more details about specific environmental controls, see Chapter 2, *Environmental Controls* and Chapter 4, *Airborne Isolation Infection Rooms*.

Facility environmental controls description

To better understand and monitor the facility's IPC protective strategies, perform routine walkthroughs to check that environmental control systems are working as planned. **Describe the facility's ventilation system and use of any ultraviolet C-light (UVC, also referred to as ultraviolet germicidal irradiation [UVGI]) or room air cleaners (RACs).** The description should be part of the environmental controls section in the facility IPC plan and can also serve as a useful guide for clinic staff to understand the IPC measures in place.

Examples of environmental control system descriptions include:

- This clinic uses a single-pass air system (air is not recirculated, 100% of supply air comes directly from outdoors, and all air from these areas is exhausted) in the following areas where infectious TB patients receive care:

Room locations _____.

Alternate examples of systems may include:

- This clinic uses a recirculating central heating, cooling, and air-conditioning [HVAC] system with ___% of supply air provided directly from outdoors.
Note: If there is a combination of HVAC, RACs, and natural ventilation, include a description of each component and how it is used.
- This clinic uses ___% efficient (MERV ___ filter) in the central ventilation system (see Chapter 2, *Environmental Controls: Part 1 — Ventilation*, Appendix C, *MERV Parameters*).
- The fan setting on thermostats is maintained in the “on” position whenever the clinic is occupied for continuous air movement and filtration.

- Portable RACs with high efficiency particulate air (HEPA) or other high-efficiency filters are located in the following rooms/areas:
Room locations _____.
- Permanently-mounted RACs with HEPA or other high-efficiency filters are located in the following rooms/areas:
Room locations _____.
- Airborne infection isolation rooms (AIIRs) are available for isolating persons with presumptive or confirmed infectious TB:
Room locations _____.
- UVC is used in the following areas as an adjunct to ventilation and RACs:
Room locations _____.

Adjust and add any additional environmental control features that are in place at the facility.

If the results of a facility risk assessment or investigation after an incidence of TB transmission within the clinic suggest **major renovations of environmental control measures** are needed, consult with an engineer or other professional with expertise in IPC for healthcare settings. In some situations, simple, cost-effective interventions may be applied. See Chapter 2, *Environmental Controls* for more details and example case studies.

Considerations for TB risk-based environmental controls for clinics

General considerations for environmental control recommendations can be found in Table 3 for low-risk clinics and Table 4 for medium-risk clinics or those classified as having potential for ongoing TB transmission.

TABLE 3 Environmental controls for low-risk clinics

AREA	RECOMMENDATION	COMMENTS
General ventilation system	<ul style="list-style-type: none"> • Ventilation systems should ideally have MERV 8 filters (for supply air) or MERV 13 filters (for recirculated air), but if not feasible, use the most efficient filter compatible with the system that allows for the minimum airflow rate.^{10,11,12,13} • Generally, a minimum airflow rate of outside air per occupant is 15 CFM or 2 air changes per hour (ACH) of outside air, whichever is greater.¹⁴ 	<ul style="list-style-type: none"> • MERV 13 filters remove >50% of infectious particles in the size range of <i>M. tuberculosis</i> infectious particles.¹⁵
General waiting rooms	<ul style="list-style-type: none"> • 12 ACH (including 2 ACH supplied from outdoor air) is recommended for this area.^{3,13} • Use RACs with HEPA or other high-efficiency filters to increase effective ACH if needed.³ • Ultraviolet-C (UVC) may also be used in this area to supplement ventilation systems.³ • Air should flow from clean areas toward less clean areas.³ 	<ul style="list-style-type: none"> • In many waiting rooms, persons with potential TB disease have not yet been screened or diagnosed. Increasing the ACH will dilute potential infectious particles. • Airflow from staff areas (clean areas) toward areas that may be occupied by persons with TB (less clean areas) will help to protect clinic staff.
General exam rooms or interview rooms	<ul style="list-style-type: none"> • At least 6 ACH (including 2 ACH supplied from outdoor air) are recommended.¹³ • Ventilation systems should ideally have MERV 8 filters (for supply air) or MERV 13 filters (for recirculated air), but if not feasible, use the most efficient filter compatible with the system that allows for the minimum airflow rate.¹³ • Room should be at neutral or negative pressure relative to adjacent spaces.¹³ 	
Airborne infection isolation/exam room	<ul style="list-style-type: none"> • Probably not needed for low-risk facilities. The occasional person with presumptive or confirmed infectious TB can be masked and separated in a closed room with a RAC with HEPA or other high-efficiency filter or directed to a specified outdoor area. 	
Sputum induction	<ul style="list-style-type: none"> • Fully enclosed, ventilated sputum-induction booth is preferred.³ • If a sputum-induction booth is unavailable, any room used for sputum induction should meet all recommendations for an AIIR, including negative pressure, at least 12 ACH, and air exhausted directly outside or HEPA-filtered.³ • Negative pressure of the sputum-induction booth and room should be checked daily when in use.³ 	<ul style="list-style-type: none"> • CDC guidelines recommend a medium-risk category for facilities performing sputum induction on presumptive or confirmed persons with TB.³

TABLE 4 **Environmental controls for medium-risk clinics and clinics with potential ongoing transmission**

AREA	RECOMMENDATION	COMMENTS
General ventilation system	<ul style="list-style-type: none"> • Ventilation systems should ideally have MERV 8 filters (for supply air) or MERV 13 filters (for recirculated air), but if not feasible, use the most efficient filter compatible with the system that allows for the minimum airflow rate.¹⁰⁻¹³ • Generally, a minimum airflow rate of outside air per occupant is 15 CFM or 2 air changes per hour (ACH) of outside air, whichever is greater.¹⁴ 	<ul style="list-style-type: none"> • MERV 13 filters remove about >50% of infectious particles in the size range of <i>M. tuberculosis</i> infectious particles.¹⁵
General waiting rooms	<ul style="list-style-type: none"> • 12 ACH (including 2 ACH supplied from outdoor air) is recommended for this area.^{3,13} • Use RACs with HEPA or other high-efficiency filters to increase effective ACH if needed.³ • Ultraviolet-C (UVC) may also be used in this area to supplement ventilation systems.³ • Air should flow from clean areas toward less clean areas.³ 	<ul style="list-style-type: none"> • In many waiting rooms, persons with potential TB disease have not yet been screened or diagnosed. Increasing the ACH will dilute potential infectious particles. • Airflow from staff areas (clean areas) toward areas that may be occupied by persons with TB (less clean areas) will help to protect clinic staff.
Medium-risk waiting areas such as those in radiology or pulmonary Clinics	<ul style="list-style-type: none"> • 12 ACH (including 2 ACH supplied from outdoor air) is recommended for this area.¹³ • Use RACs with HEPA or other high-efficiency filters to increase effective ACH if needed.³ • UVC may also be used in this area to supplement ventilation systems.³ • Air should flow from clean areas toward less clean areas.³ • Room should be at negative pressure relative to adjacent spaces.¹³ • Air from this room should be exhausted or HEPA-filtered before recirculation.³ 	
General exam rooms or interview rooms	<ul style="list-style-type: none"> • At least 6 ACH (including 2 ACH supplied from outdoor air) are recommended.¹³ • Ventilation systems should ideally have MERV 8 filters (for supply air) or MERV 13 filters (for recirculated air), but if not feasible, use the most efficient filter compatible with the system that allows for the minimum airflow rate.¹³ • Room should be at neutral or negative pressure relative to adjacent spaces.¹³ 	

TABLE CONTINUES >

AREA	RECOMMENDATION	COMMENTS
Airborne infection isolation/ exam room (AIIR)	<ul style="list-style-type: none"> • Recommended for medium-risk clinics. • At least 12 ACH with 2 ACH of outdoor air recommended.¹³ • Air should be properly discharged outdoors or HEPA-filtered before recirculation.³ • Room should be under negative pressure.³ • Monitor negative pressure at least monthly, and daily when room is in use.³ 	<ul style="list-style-type: none"> • 12 ACH is the minimum ventilation rate recommended by CDC for new or renovated AIIRs. CDC allows 6 ACH for existing pre-1994 AIIRs but recommends that this be increased to 12 ACH “where feasible.” Note: 6 ACH may not satisfy local requirements.
Sputum induction	<ul style="list-style-type: none"> • Fully enclosed, ventilated sputum-induction booth is preferred.³ • If a sputum-induction booth is unavailable, any room used for sputum induction should meet all recommendations for an AIIR, including negative pressure, at least 12 ACH, and air exhausted directly outside or HEPA-filtered.³ • Check negative pressure of the sputum-induction booth and room daily when in use.³ 	<ul style="list-style-type: none"> • CDC guidelines recommend a medium-risk category for facilities performing sputum induction on persons with presumptive or confirmed TB.³

Environmental controls for high-risk procedures

Some clinics may provide services that include sputum induction or other cough-inducing procedures that are considered high-risk for aerosolization of *M. tuberculosis*. Use special precautions to prevent occupational exposure when these procedures are performed on a person with potential or confirmed infectious TB.

The clinic IPC plan should specify which special precautions are used to prevent and minimize occupational exposure when high-risk procedures are performed on persons with presumed or confirmed infectious TB. Table 5 lists the types of precautions that could be applied. A version of this table with descriptive language adjusted to reflect the circumstances and technical configuration of the specific clinic system can be included within the IPC plan.

TABLE 5 **IPC precautions for high-risk procedures for persons with presumptive or confirmed infectious TB**

HIGH-RISK PROCEDURES	IPC PRECAUTIONS
<p>Sputum induction or sputum collection</p> <p>Aerosol breathing treatments</p>	<p>Procedure(s) performed within:</p> <ul style="list-style-type: none"> ➤ Sputum-induction booth or tent with local exhaust ventilation; or ➤ AIIR with 12 air changes per hour (ACH)* exhausted directly outdoors away from operable windows, doors, and air intake grilles; otherwise, the exhausted air should be filtered; or ➤ Outdoors (sputum collection only) if booth/tent or AIIR not available
<p>Bronchoscopy, endoscopy</p> <p>Airway suctioning or intubation</p>	<ul style="list-style-type: none"> ➤ AIIR with 12 ACH* exhausted directly outdoors away from operable windows, doors, and air intake vents; otherwise, the exhausted air should be filtered using HEPA or higher efficiency filtration.
<p>HCP assisting with high-risk procedures will wear N-95 or equivalent respirators.</p>	

* 6 ACH for existing pre-1994 facilities

Respiratory protection for clinics

The third level of the TB control hierarchy is the use of personal respiratory protection equipment (PPE). Since the onset of the SARS-CoV2 pandemic in 2020, there has been a greater understanding of the role of PPE, including both N95 respirators and surgical (procedure) masks, as an adjunct IPC measure to administrative and environmental controls. Most healthcare clinics have respiratory PPE policies in place for use in circumstances in which airborne infectious disease transmission is of concern.

For more details on the use of PPE as a means of TB respiratory protection, see Chapter 3, *Personal Protective Equipment: Respirators and Surgical Masks*.

Surgical masks: Surgical masks are designed to reduce the spread of infectious particles exhaled by the persons wearing them. A person with presumptive or confirmed infectious TB should be given a surgical mask to wear (when outside of an AIIR) and educated on proper use.

Respirators: Clinic employees are required to wear NIOSH-certified N-95 or equivalent respirators that have been designed to filter out infectious particles as the wearer inhales. Use respirators when:

- In the presence of a person with presumptive or confirmed infectious TB disease (or other potential airborne infectious disease).

- Entering a room, including an AIIR, which has been occupied by an unmasked person with presumptive or confirmed infectious TB, prior to the time required for 99% of the airborne contaminants to be removed from the room. See Chapter 2, *Environmental Controls: Part 1 — Ventilation*, Appendix A, *Room Clearance Time Calculation Worksheet*.
- Transporting or accompanying a person with presumptive or confirmed infectious TB to other areas for tests or traveling together within an enclosed vehicle, even if that person is wearing a surgical mask.
- Performing high-risk procedures (e.g., sputum induction).

Respiratory protection program: If respirator use is required at the facility per the IPC plan, the facility must have a respiratory protection program with written standard operating procedures. Include information such as the types and sizes of respirators available, fit-testing policy, employee training plan, and program evaluation plan.

- HCP should be fit-tested to determine which respirator model and size fits the wearer best. Retesting is warranted if the HCP has significant changes in facial features (e.g., large shifts in weight or changes in facial hair) that may affect the respirator seal.

See *Resources* for websites that contain additional information and assistance for writing a respiratory protection program plan.






APPENDIX A:

CDC Healthcare Personnel (HCP): Baseline Individual TB Risk Assessment



Health Care Personnel (HCP) Baseline Individual TB Risk Assessment

HCP should be considered at increased risk for TB if any of the following statements are marked “Yes”:

	Temporary or permanent residence of ≥ 1 month in a country with a high TB rate	YES <input type="checkbox"/>
	Any country other than the United States, Canada, Australia, New Zealand, and those in Northern Europe or Western Europe	NO <input type="checkbox"/>
OR		
	Current or planned immunosuppression,	YES <input type="checkbox"/>
	including human immunodeficiency virus (HIV) infection, organ transplant recipient, treatment with a TNF-alpha antagonist (e.g., infliximab, etanercept, or other), chronic steroids (equivalent of prednisone ≥ 15 mg/day for ≥ 1 month) or other immunosuppressive medication	NO <input type="checkbox"/>
OR		
	Close contact with someone who has had infectious TB disease since the last TB test	YES <input type="checkbox"/>
		NO <input type="checkbox"/>

Abbreviations: HCP, health-care personnel; TB, tuberculosis; TNF, tumor necrosis factor.

Individual risk assessment information can be useful in interpreting TB test results (see Lewinsohn DM, Leonard MK, LoBue PA, et al. Official American Thoracic Society/Infectious Diseases Society of America/Centers for Disease Control and Prevention Clinical Practice Guidelines: Diagnosis of tuberculosis in adults and children. Clin Infect Dis 2017;64:111–5).

Adapted from: Risk assessment form developed by the California Department of Health, Tuberculosis Control Branch.

Sosa LE, Njie GJ, Lobato MN, et al. Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019. MMWR Morb Mortal Wkly Rep 2019;68:439–43. https://www.cdc.gov/mmwr/volumes/68/wr/mm6819a3.htm?s_cid=mm6819a3_w



Centers for Disease Control and Prevention
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

Accessed 11/28/2023: <https://www.cdc.gov/tb/topic/infectioncontrol/pdf/healthCareSettings-assessment.pdf>

Resources

Administrative controls

General resources

- *Cover Your Cough* signage in multiple languages – Centers for Disease Control and Prevention (CDC)
<https://www.cdc.gov/flu/prevent/actions-prevent-flu.htm>
- State and local regulations – Occupational Safety and Health Administration (OSHA) offices by state
<https://www.osha.gov/html/RAmap.html>
- List of state, big city, and territory TB program contacts – National TB Coalition of America (NTCA)
<https://www.tbcontrollers.org/community/statecityterritory/>
- TB data and statistics – CDC
<https://www.cdc.gov/tb/statistics/default.htm>
- Guidelines and resources for infection preventionists – Association for Professionals in Infection Control and Epidemiology (APIC), Sierra Chapter
<https://community.apic.org/sierra/resources/overview>
- Infection prevention and control resources – The Joint Commission
<https://www.jointcommission.org/resources/patient-safety-topics/infection-prevention-and-control/>

TB facility risk assessment and classification

- Comprehensive resource for conducting a TB risk assessment – CDC *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, 2005*
<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm>
 - TB risk assessment worksheet for healthcare and non-traditional facility-based settings (Appendix B)
https://www.cdc.gov/tb/publications/guidelines/pdf/appendixb_092706.pdf
 - Updates to CDC 2005 Appendix B based on CDC/NTCA 2019 TB screening, testing, and treatment recommendations (see below) provided in 2020 companion document, Appendix 1, from the American College of Occupational and Environmental Medicine and the National Tuberculosis Controllers Association
<http://links.lww.com/JOM/A780>

TB screening, evaluation, infectiousness, and isolation

- General: TB in healthcare settings resource page – CDC
<https://www.cdc.gov/tb/topic/infectioncontrol/default.htm>
- Concise coverage of principles of infectiousness, detection and diagnosis of TB disease, and discontinuation of airborne isolation within overview of TB IPC – CDC, *Core Curriculum on Tuberculosis: What the Clinician Should Know*, 7th edition, 2021, Chapter 6: Tuberculosis Infection Control
<https://www.cdc.gov/tb/education/corecurr/core-curr-tb.htm>
- TB screening and testing of healthcare personnel – CDC
<https://www.cdc.gov/tb/topic/testing/healthcareworkers.htm>
- *Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019*
<https://www.cdc.gov/mmwr/volumes/68/wr/pdfs/mm6819a3-H.pdf>
 - Companion implementation document: *Tuberculosis Screening, Testing, and Treatment of US Health Care Personnel: ACOEM and NTCA Joint Task Force on Implementation of the 2019 MMWR Recommendations* – American College of Occupational and Environmental Medicine, July 2020
https://acoem.org/acoem/media/PDF-Library/Publications/Tuberculosis_Screening,_Testing,_and_Treatment.pdf
- *Updated Guidelines for Using Interferon Gamma Release Assays to Detect Mycobacterium tuberculosis Infection – United States, 2010* – CDC
<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5905a1.htm>
- *Consensus Statement on the Use of Cepheid Xpert MTB/RIF® Assay in Making Decisions to Discontinue Airborne Infection Isolation in Healthcare Settings*; 2016 – NTCA and Association of Public Health Laboratories
http://www.tbcontrollers.org/docs/resources/NTCA_APHL_GeneXpert_Consensus_Statement_Final.pdf
- Shorter LTBI regimens – CDC *Treatment Regimens for Latent TB Infection*
<https://www.cdc.gov/tb/topic/treatment/ltbi.htm>
- Basic review of estimating the infectiousness of a person with TB and use of TST within the context of guidelines for TB IPC – CDC *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, 2005*. (Refer to other resources listed for updated information on the use of IGRAs, general diagnostic and treatment principles, and release from isolation.)
<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm>
- Updates on isolation policy guidance – NTCA
<https://www.tbcontrollers.org/>
- TB training, education, and medical consultation – CDC-supported TB Centers of Excellence
https://www.cdc.gov/tb/education/tb_coe/default.htm

Respiratory protection

Information and assistance for writing a respiratory protection program plan

- *Respiratory Protection in the Workplace: A Guide for Employers*; revised 2021 – California Department of Industrial Relations, Cal/OSHA
http://www.dir.ca.gov/dosh/dosh_publications/respiratory.pdf
- *Respiratory Protection eTool* – OSHA
<http://www.osha.gov/SLTC/etools/respiratory/oshfiles/writtenprogram1.html>

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