ACHA Guidelines

Tuberculosis Risk Assessment and Management

Purpose and Introduction

The primary purposes of a tuberculosis (TB) screening program are to maintain a healthy, safe campus and surrounding community and to reduce the direct and indirect costs associated with a case of active TB disease on campus. Many campuses establish and follow policies designed to ensure the safety of students including the prevention of infectious diseases. Airborne spread makes TB a particularly concerning infection. Close proximity of people in classrooms, dining halls, and residence halls increases the risk of transmission on campus.

This American College Health Association (ACHA) Guideline is developed by the ACHA Vaccine-Preventable Diseases Committee (VPD) TB Workgroup¹ (TB Workgroup) and is designed to be a comprehensive resource for identifying and managing TB on college and university campuses. It covers the steps necessary for a college or university to develop a TB risk assessment program to minimize the risk of TB on campus, including TB screening and targeted testing. It also includes information about case management in the event there are cases of inactive TB infection or active TB disease on campus. TB case management includes clinical evaluation, treatment management, public health response, and patient education. Collaboration with local public health authorities (LPHAs) and consideration of state guidelines are necessary when managing a communicable disease case/outbreak.

At many colleges and universities, a TB risk assessment program is part of risk management and/or compliance program that can include vaccines and other health requirements. These programs can be managed through an electronic health record's immunization compliance function or other software. Implementation and management of TB risk assessment programs vary across colleges and universities, depending on state mandates, institutional policies, staffing, and technology.

Note that terminology related to TB is evolving and varies across different sources. In some references, the term "latent TB infection" (LTBI) is being replaced by alternative terms that some experts argue more accurately represent the distinct stages of the disease. The United States Centers for Disease Control and Prevention (CDC) uses "inactive TB" to describe the asymptomatic, noninfectious state and "active TB" to refer to the symptomatic, infectious state. The World Health Organization (WHO) employs the terms "TB infection" and "TB disease." The U.S. Preventive Services Task Force (USPSTF) continues to use "LTBI" in its guidelines, while ICD-10-CM codes refer to the condition as "latent tuberculosis." The ACHA TB Workgroup will monitor these changes closely and, for the time being, has adopted the terms "inactive TB infection" and "active TB disease."2,3

About Tuberculosis

TB is an infectious disease that is caused by bacteria and can be spread through the air when a person with active TB disease coughs, sneezes, or spits.⁴ TB remains a world-wide pandemic, with an estimated two billion people chronically infected and 10 million people a year becoming ill with active TB disease. TB is the ninth leading cause of death worldwide and the leading cause of death from a single infection.⁵ While TB disproportionately affects countries challenged by the sequelae of mass poverty, the United States has thousands of cases of active TB disease every year.⁶ Yet TB is a preventable and treatable illness. Global efforts are underway to reduce the devastating impact of this infection, utilizing evidence-based screening, testing, and treatment modalities. WHO has identified eradication of

¹ The ACHA VPD TB Workgroup includes members of the ACHA Vaccine-Preventable Diseases Committee. Participants are listed at the end of this document.

² <u>https://www.cdc.gov/tb/glossary/index.html</u>

³ https://www.ncbi.nlm.nih.gov/books/NBK579383/

⁴ <u>https://www.who.int/news-room/fact-</u>

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⁵ <u>https://www.who.int/news-room/fact-sheets/detail/tuberculosis</u>

⁶ https://www.cdc.gov/tb-surveillance-report-2023/summary/national.html

TB by 2030 as a prime Sustainable Development Goal⁷ and CDC supports a sustained effort to control TB within the U.S. CDC has identified inactive TB infection as a target for identification and treatment to have the greatest effect on eradicating TB domestically.⁸

TB is caused by *Mycobacterium tuberculosis*. TB typically affects the lungs, but it can also affect other parts of the body, such as the brain, the kidneys, or the spine. Not everyone infected with TB becomes sick. As a result, two TB-related conditions exist: inactive TB infection and active TB disease.⁹

In 2023, the U.S. population had an active TB disease incidence rate of about 3 cases per 100,000 people, with 9,633 cases reported. These numbers represented a 15.6% increase in case count and 15.0% increase in incidence rate compared with 2022. Active TB disease case numbers have increased for three years in a row. The active TB disease case count in 2023 is the highest reported since 2013, and the incidence rate is the highest since 2016.¹⁰

For CDC's TB definitions, visit https://www.cdc.gov/tb/glossary/index.html

Factors to Consider in Implementing a TB Risk Assessment Program

Before beginning a TB risk assessment and management program, institutions of higher education should consider the following:

- Who will oversee/direct the program?
- How will potential students be informed of the TB screening program?
- Is there existing capacity to collect, analyze, and act on screening results?
- Are additional resources (staff or computer software/hardware) required?
- Will components of the program be contracted/outsourced? If so, which?
- When screening results indicate higher risk, who will notify the students?
- Who will cover the cost of testing students?
- Who will write/submit the laboratory medical test order (if required)?

- Which tests will be accepted as valid for fulfilling the testing requirement?
- Will tests performed outside the U.S. be accepted?
- If a TB test is positive (indicating possible inactive TB infection), who will perform a medical evaluation and counseling appointment with the student?
- Who will cover the cost of additional testing (like a chest x-ray)?
- Does the state or local public health authority require reporting of a positive TB test? If so, who will report it?
- How will foreign-born students react if they learn the test result was reported to a public health authority? What can be done to educate them about this?
- How to manage students who test positive but decline treatment?
- Who will prescribe medication treatment?
- Who will cover the cost of treatment medications?
- Will students be referred to the local public health authority (LPHA)?
- Will campus staff oversee directly observed therapy (DOT)?
- How will you manage students who are noncompliant with DOT or other treatment?
- How will student records be maintained for the program? Will they be part of an electronic medical record or other clinical record?
- Will records be subject to FERPA (Family Education Rights and Privacy Act)?
- What educational materials will be given to students regarding the screening questionnaire, high risk status, testing options, positive test results, treatment options, symptoms of active TB disease?
- What documentation will be given to students who complete treatment for inactive TB infection?

⁷ <u>https://www.who.int/data/gho/data/themes/topics/sdg-target-3_3-communicable-diseases</u>

⁸ <u>https://www.cdc.gov/tb/about/inactive-tuberculosis.html</u>

⁹ https://www.cdc.gov/tb/about/index.html

¹⁰ https://www.cdc.gov/tb-surveillance-report-

^{2023/}summary/national.html#:~:text=TB%2Drelated%20deaths,for%20which%20data%20are%20available

These questions reflect many questions/considerations needed to launch a TB risk assessment and management program at your college or university. This Guideline and related <u>Frequently Asked Questions</u> document should provide the support you need in getting the process started.

Screening

In this document, "screening" for TB refers to the process of identifying persons at higher risk for inactive TB infection and active TB disease. Screening is conducted through an evidence-based questionnaire that identifies risk factors for exposure to TB, acquiring inactive TB infection and progression to active TB disease. The questionnaire can be offered electronically, via a form in a patient portal, or in hard copy. Questions are designed to gather relevant data about known TB exposure risks, including country of birth, countries of extended stays, and time spent living or working in higher risk settings, as well as data about conditions that increase the risk of progression to active TB disease, such as immunosuppressive conditions or treatments.

Whom to Screen

ACHA recommends that all incoming students should be screened for TB risk factors. Some universities apply the TB screening process to incoming students only. Others conduct targeted TB screening at other times, such as when a student travels abroad and returns to campus.

Screening should be done using a standard questionnaire like the one provided in **Appendix 1**. While all incoming students should be screened, only those students with identifiable risk factors for exposure to TB and/or for active TB disease should be tested. Incoming students who screen as low risk should not be tested for TB. Students with a documented previous positive test should not be retested but may benefit from a review of their situation with a college health provider.

The United States is primarily a low-incidence country, so most U.S.-born incoming students will not have risk factors for TB and will not need TB testing. However, students who have lived/spent time in countries or territories with an increased incidence of TB should be tested. This subpopulation has been identified epidemiologically as having a higher incidence of inactive TB infection and an increased risk for developing active TB disease.¹¹

Table 1 Persons at High Risk for Exposure to or Infection with *M. tuberculosis*

Persons at Higher Risk for Exposure to and/or Infection with *M. tuberculosis*

- Contacts of people known or presumed to have infectious TB disease
- People who were born in or who frequently travel to countries where TB disease is common, including Mexico, the Philippines, Vietnam, India, China, Haiti, Guatemala, or other countries with high rates of TB
- People who currently live or used to live in large group settings where TB is more common, such as homeless shelters, correctional facilities, or nursing homes
- Employees of high-risk congregate settings
- · Health care workers who serve patients with TB disease
- Populations defined locally as having an increased incidence of LTBI or TB disease, possibly including medically underserved populations, low-income populations, or persons who abuse drugs or alcohol
- Infants, children, and adolescents exposed to adults who are at increased risk for LTBI or TB disease

Source: Centers for Disease Control and Prevention (CDC), Division of Tuberculosis Elimination. Core Curriculum on Tuberculosis: What the Clinician Should Know: Chapter 1, Table 2.1. Persons at High Risk for Exposure to or Infection with *M. tuberculosis*. 7th edition (2021). <u>https://www.cdc.gov/tb/media/Core_Curriculum_TB_eBook.pdf</u>. Accessed April 8, 2025.

¹¹ Centers for Disease Control and Prevention (CDC). Controlling Tuberculosis in the United States: Recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. MMWR November 2005; 54 (No. RR-12):4-5.

Explanation of the High Incidence Country List

The ACHA TB Workgroup recommends that students who were born in one of the countries/territories with a TB incidence rate equal to or higher than 20 cases per 100,000 population or who have resided in or traveled to one or more of these countries/territories for a cumulative period of one to three months or more should be tested for TB. The TB Workgroup reviewed the literature and settled on using the incidence rate referenced by the Infectious Disease Society of American (ISDA)¹² of 20 cases per 100,000 population to define "high incidence" countries. Most countries in Africa, Asia, Central America, Eastern Europe, and South America are included in this group, as identified by the WHO Global Health Observatory.¹³

Complicating the use of incidence rates as a marker for risk is that in any given year a country could be just above or below the cutoff, and the incidence rate in a county could change from year to year. To smooth out some of the variation, the TB Workgroup adopted a method to use a three-year moving average of incidence rates to determine which countries should be deemed high risk (e.g., an incidence of at least 20 cases per 100,000 individuals, averaged over three years of data).

Use of this specific method as a cutoff should not be considered absolute. Some institutions may elect to use a different figure to reflect local conditions. For example, institutions that have diagnosed tuberculosis in students from countries deemed "low risk" may decide to include that country on its high-risk list. Also, for simplicity, some institutions may choose to screen all international students regardless of their country of origin. This strategy, however, would potentially include students with a very low risk for inactive TB infection, which could lead to false positive results, a situation that can be distressing to the student and create unnecessary administrative burden for the institution. A list of high incidence countries is included in Appendix 2 and is updated annually. The calculations of the three-year averages also are included as part of Appendix 2, as well as the year-over-year changes to the list.

When to Screen

TB screening of new students should occur by questionnaire prior to arrival on campus and in conjunction with verification of pre-matriculation immunization requirements. TB testing of higher-risk students should take place no sooner than six months prior to the start of the first term and should be completed by the second term registration. Students who travel to high incidence areas can be considered for screening when they return to campus. The risk of infection depends on the duration of travel, the level of contact with the local population, and other factors. Colleges and universities are advised to consult with their local public health departments and/or a travel health provider for guidance.

Managing Higher Risk Screening Results

Students identified by the screening questionnaire as higher risk for inactive TB infection or active TB disease should have testing either submitted prior to matriculation or completed during their first term on campus. Following up with higher-risk students through the clinical components of TB risk assessment and management program is vital to ensure appropriate and timely care. Tracking screening and testing results is also essential for quality assurance and quality improvement.

Students who are determined to be at higher risk and do not complete the recommended follow-up should be contacted. Clinical teams can maintain a recall list within the medical record to assist in ensuring students move through the program to completion or until they are no longer students.

Potential Harms to Students

Because positive tests will generally result in a recommendation to treat with medication, it is important to test *only* students who screen as high risk. Testing persons who are *not* higher risk for inactive TB infection (per evidence-based questionnaire) will result in confusion and higher risk of harm.

Students who are required to participate in a TB risk assessment and management program may experience stress, anxiety, delays in admission/matriculation, and additional costs as a result of the screening program. There are risks associated with medical tests (phlebotomy or injections), and risks associated with medication treatment, if indicated (allergic reactions and side effects including peripheral nerve injury or liver damage, as well as drug interactions). If testing for inactive TB infection is performed only for persons at higher risk, evidence indicates that the potential benefits of screening outweigh the potential risks.

¹² Lewinsohn, et.al., 2017. 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, *Clinical Infectious Diseases*. Volume 64. Issue 2, 15 January 2017, Page 113, <u>https://doi.org/10.1093/cid/ciw694</u>

¹³ <u>https://www.who.int/data/gho/data/themes/tuberculosis</u>

Targeted Testing and Clinical Evaluation

Targeted testing for TB is a strategy to diagnose and treat inactive TB infection among persons who are at risk for developing active TB disease. Treating inactive TB infection supports U.S. elimination goals through preventing active TB disease and stopping the spread of TB to others. (<u>https://www.cdc.gov/tb/hcp/testingdiagnosis/index.html</u>)

Students identified through the screening questionnaire as having a higher risk for inactive TB infection should be asked to undergo TB testing or submit a prior test result (only within six months of matriculation). Testing should not be performed on individuals with written documentation of a previous positive test result or who have completed treatment for active TB disease. In addition, people found to be low risk should not be tested as it increases the possibility of a false positive test result and may divert resources from those likely to convert to active TB disease. "CDC discourages a testing approach that is independent of a risk assessment." (https://www.cdc.gov/tb/hcp/testing-

diagnosis/index.html)

There are two types of TB tests available: TB blood tests (interferon gamma release assay [IGRA]) or TB skin tests (Mantoux tuberculin skin test [TST]). Only two IGRA blood tests are approved by the U.S. Food and Drug Administration (FDA): QuantiFERON-TB Gold Plus (QFT-Plus) and the T-SPOT.TB test (T-Spot).

In most situations relevant to college health, the preferred method for testing for inactive TB infection is the IGRA rather than the TST skin test, especially in individuals who received BCG vaccinations. A TST is an acceptable alternative in situations where an IGRA is not available, too costly, or too burdensome. Students opting for TST should be counseled about the possibility of a false positive in people who have received BCG vaccination. If students at higher risk for inactive TB infections were not tested by an FDA-approved IGRA test within six months prior to matriculation, it is recommended they be tested upon arrival to the U.S. (or before the second term registration).

Interpretation of blood test results vary based on risk of exposure (pre-test probability). See the CDC tables below:

TB Blood Test Result	Interpretation
Positive	<i>M. tuberculosis</i> infection likely.
Negative	 <i>M. tuberculosis</i> infection unlikely, but cannot be excluded, especially if 1. Patient has signs and symptoms consistent with TB disease. 2. Patient has a high risk for developing TB disease once infected with <i>M. tuberculosis</i> (e.g., the patient is immunosuppressed)
Indeterminate (QFT-Plus only) or Invalid (T-Spot only)	The test did not provide useful information about the likelihood of M. tuberculosis infection, repeating a TB blood test or performing a TST may be useful.
Borderline (T-Spot only)	Repeating a TB blood test or performing a TST may be useful.

Table 2 Interpretation of TB Blood Test Results¹⁴

¹⁴ <u>https://www.cdc.gov/tb/media/pdfs/Latent-TB-Infection-A-Guide-for-Primary-Health-Care-Providers.pdf</u> (page 10)

Table 3a Interpretation of Tuberculin Skin Test Reactions (5 or more millimeters)¹⁵

5 or more millimeters

A TST reaction of \geq **5 mm** of inducation is considered positive for:

- People living with HIV
- Recent contacts of people with infectious TB
- People with chest x-ray findings suggestive of previous TB disease
- People with organ transplants
- Other immunosuppressed patients (e.g., patients of prolonged therapy with corticosteroids equivalent to/treater than 15 mg per day of prednisone or those taking TNF-alpha antagonists)

Table 3b Interpretation of Tuberculin Skin Test Reactions (10 or more millimeters)¹⁶

10 or more millimeters

A TST reaction of ≥ 10 mm of inducation is considered positive for:

- People born in countries where TB disease is common, including Mexico, the Philippines, Vietnam, India, China, Haiti, and Guatemala
- People who abuse drugs
- Mycobacteriology laboratory workers
- People who live or work in high-risk congregate settings, (e.g., nursing homes, homeless shelters, or correctional facilities)
- People with certain medical conditions that place them at risk for TB (e.g., silicosis, diabetes mellitus, sever kidney disease, certain types of cancer, or certain intestinal conditions)
- People with low body weight (<90% of ideal body weight)
- Children younger than 5 years of age
- Infants, children, and adolescents exposed to adults in high-risk categories

See Appendix 3 for further clinical testing guidance.

Confirmatory Testing

ACHA recommends that students with a positive result from an FDA-approved IGRA or TST undergo chest radiography and medical examination to diagnose or rule out active TB disease. For asymptomatic individuals, a posterior-anterior (PA) radiograph of the chest is the standard view used for the detection of TB-related chest abnormalities. A two-view (PA and lateral) chest radiograph is recommended for people with active TB disease symptoms. In some instances, a computerized tomography (CT) scan may provide additional information. Any findings suggestive of active TB disease warrant further evaluation before treatment decisions can be made. In the absence of active TB disease, the diagnosis of inactive TB infection is made using information gathered from the medical history, IGRA or TST result, chest radiograph, and physical examination.

¹⁵ <u>https://www.cdc.gov/tb/media/pdfs/Latent-TB-Infection-A-Guide-for-Primary-Health-Care-Providers.pdf</u> (page 12)

¹⁶ <u>https://www.cdc.gov/tb/media/pdfs/Latent-TB-Infection-A-Guide-for-Primary-Health-Care-Providers.pdf</u> (page 12)

Timing of the PA radiograph is important, and requirements vary based on immune status. Prior to starting treatment for inactive TB infection, the chest radiograph must be performed within two years of starting treatment (if immunocompetent and asymptomatic) or within three months of starting treatment (if immunosuppressed and asymptomatic).

Clinical Evaluation

Students with positive testing results (and certain indeterminate results) could receive written educational material and a clinical evaluation. A pre-visit symptom screen checklist can be conducted via phone but may be done in person. Every effort should be made to ensure adequate communication, including the use of interpreter services if needed. The symptom screen checklist should consist of a brief set of evidence-based questions to assess the possibility of active TB disease.

If the symptom screen checklist suggests the possibility of active TB disease, this visit will be coordinated to provide appropriate infectious disease risk management. These visits should ideally include the use of a negative pressure room, if possible, due to the airborne nature of TB. Staff should wear appropriate personal protective equipment (PPE) for airborne disease transmission when in contact with the patient, and the patient should enter the building through an entrance with little traffic, if possible, to minimize the risk of disease transmission. If the symptom screen is negative, the visit will be scheduled without additional precautionary measures.

The clinician visit will include a directed history and physical examination with possible additional lab work (including HIV testing) and chest x-ray. Interpreter services should be available if requested or required. Written educational material should be provided; every effort should be made to have this material in the student's usual language of communication.

A follow-up clinician visit may be required to establish a diagnosis of inactive TB infection or active TB disease. If needed, the local health department will help coordinate sputum sample collection for analysis.

Students determined to have active TB disease will be referred to the local public health department and/or community specialists for management and must be isolated away from others as quickly as possible. Students with inactive TB infection can be managed at college/university health services or with a community provider. disease) is a reportable condition mandated in all U.S. states and must be reported to the public health department by law, within one working day. Inactive TB infection may be reportable in some states or localities. We encourage college health providers to determine applicable laws prior to initiating a TB risk assessment and management plan (see <u>www.cdc.gov/tb/php/case-</u> <u>reporting/latent-tb-infection.html</u>).

Treatment Management

Inactive TB Infection

From a public health perspective, treatment of inactive TB infection is essential to controlling active TB disease in the United States and preventing TB outbreaks.¹⁷ In deciding whether to recommend treatment of inactive TB infection to individual patients, the clinician should consider the likelihood of progression to active TB disease if untreated and the risks versus benefits of treatment. HIV status is an important factor in assessing the risk of progression. Clinicians should follow CDC treatment protocols and use best-practice guidelines, including utilizing resources such as CDC, UpToDate, Online TST/IGRA Interpreter, and BCG World Atlas.

Students with inactive TB infection should receive educational materials and a consultation regarding treatment options. Students may elect to decline or defer treatment for inactive TB infection. The health care provider should fully explain the risks and benefits of treatment to the student, including the risk of progression to disease and future conditions that might increase the risk of progression (e.g., immunosuppressive conditions or treatments) and document the conversation in the student's health record. Declining treatment for inactive TB infection should not result in any implications for the student. Clinicians may periodically reach out to the student during their time on campus to inquire about possible symptoms and to repeat the offer for inactive TB infection treatment. Students who elect treatment for inactive TB infection should be managed throughout their treatment course and then should be provided a treatment completion certificate (see Appendix 6).

Treatment of Inactive TB Infection

Treatment options for patients with inactive TB infection include short-course (3- to 4-month) rifamycin-based treatment regimens and longer-course (6–9 month) isoniazid monotherapy. Short-course regimens are preferred for treatment of inactive TB infection because

Active TB disease (including suspected active TB

¹⁷ CDC. Core Curriculum on Tuberculosis, Sixth Edition, 2021. Chapter 2, p 23. <u>Core Curriculum on Tuberculosis: What the Clinician</u> <u>Should Know</u>. Accessed March 3, 2025.

of their effectiveness, safety, and high treatment completion rates. These preferred regimens include:

- 3 months of isoniazid plus rifapentine given once weekly, on average 9 tablets per dose (considerations include pill burden and cost for this regimen)
- 4 months of rifampin given daily (usually 2 capsules per dose)
- 3 months of isoniazid plus rifampin given daily (2 tablets plus 1 capsule per dose)

Note: 6 or 9 months of isoniazid monotherapy is efficacious but has higher toxicity risk and lower treatment completion rates than shorter rifamycin-based regimens. Individual considerations, including comorbidities and medication interactions, should guide treatment decisions.

Once initiated, completion of treatment should be a high priority. Completion can be supported by providing

treatment plans and education in the student's primary language, ensuring confidentiality, scheduling monthly clinical monitoring, offering incentives to mark treatment milestones, and culturally competent care to build trust. Post-treatment follow-up should include providing the student with documentation of IGRA or TST results, chest radiograph results, and the dosage and duration of medication treatment completed. Students who are diagnosed with inactive TB infection, regardless of whether they have completed therapy, should be educated regarding signs and symptoms of active TB disease and instructed to seek medical care immediately upon developing any of the signs or symptoms of active TB disease.

Persons with inactive TB infection are at risk for developing active TB disease. Persons at higher risk for progression of TB infection to active TB disease are shown in **Table 4**.

TABLE 4: Persons at Increased Risk for Progression of Inactive TB Infection to Active TB Disease

- Persons infected with HIV
- Children younger than 5 years of age
- Persons who were recently infected with M. tuberculosis (within the past 2 years)
- Persons with a history of untreated or inadequately treated active TB disease, including persons with fibrotic changes on chest radiograph consistent with prior active disease
- Persons who are receiving immunosuppressive therapy such as tumor necrosis factor-alpha (TNF) antagonists, systemic corticosteroids equivalent to/greater than 15 mg of prednisone per day, or immunosuppressive drug therapy following organ transplantation
- Persons with silicosis, diabetes mellitus, chronic renal failure, leukemia, or cancer of the head, neck, or lung
- Persons who have had a gastrectomy or jejunoileal bypass
- Persons who weigh less than 90% of their ideal body weight
- Cigarette smokers and persons who abuse drugs and/or alcohol
- Populations defined locally as having an increased incidence of disease due to M. tuberculosis, including medically underserved, low-income populations.

Source: Centers for Disease Control and Prevention (CDC), Division of Tuberculosis Elimination. Core Curriculum on Tuberculosis: What the Clinician Should Know: Chapter 2, Table 2.6. Persons at Increased Risk for Progression of LTBI to active TB Disease. 6th edition (2013). <u>https://www.cdc.gov/tb/education/corecurr/pdf/corecurr_all.pdf</u>. Accessed March 21, 2022

Treatment of Active TB Disease

Treatment of patients with active TB disease is usually determined by an infectious disease provider working with the local public health department. Drug regimens for active TB disease vary, and medications are chosen based on drug-susceptibility results, existing medical conditions (e.g., HIV, diabetes, etc.), drug availability, and potential for drug-drug interactions. Active TB disease treatment duration varies depending on the regimen. The most common treatment regimen in the U.S. is known as RIPE or 4-drug therapy, which includes rifampin (RIF), isoniazid (INH), pyrazinamide (PZA), ethambutol (EMB), and vitamin B6. Treatment typically includes two-month initiation or intensive phase, and then four to seven months of continuation or maintenance phase, for a total of six to nine months of medication therapy. Note treatment can be extended if the patient remains positive for TB after two months of treatment.

The local public health department generally provides medications for directly observed therapy (DOT), which helps patients complete treatment correctly and may be an important part of the process for students with TB disease.

Case Management for TB Case(s) on Campus

Typically, the local public health department provides all medication and case management support for cases and will work closely with the provider/public health teams at the college/university in the management of the case. The college/university may be requested to assist with TB screening of the exposed students/staff and can be very involved with case management when it comes to the isolation of the patient, especially if the student is living in a residence hall and cannot isolate elsewhere. A student with active TB disease must be isolated away from others until no longer infectious, preferably in a space that has its own bathroom and ventilation system or one that does not recirculate air into other rooms/areas. The period of isolation depends on the severity of the case, and release from isolation requires three consecutive negative sputum smears and at least two weeks on medication therapy.

It is very important to protect the identity of the patient when interacting with campus colleagues. The Family Educational Rights and Privacy Act (FERPA) and Health Insurance Portability and Accountability Act (HIPAA) are the two main laws that protect patient confidentiality, but they also have provisions that allow sharing of information in a public health emergency with people that have a legitimate "need to know".¹⁸ State and local health authorities also have laws around reportable diseases, including active TB disease. Check with your legal department before communicating with other campus entities relating to care and support for students with active TB disease. If the student is living in a residence hall and isolation is necessary, you likely will

need to share information with certain individuals in residence life/housing and with the dean of students office. When sharing protected health information, all staff members privy to the information should receive appropriate training and education.

While the health department is monitoring the patient with active TB disease, the college or university's health services/providers also may assist with monitoring the student to ensure their medical/clinical needs are being met. Due to the length of time in isolation, this may begin with daily calls and then extend to weekly calls or ultimately as needed. Generally, team members, either clinical or non-clinical can connect with the student to ensure their needs are being met (see next section).

Public Health Response for Active TB Disease Case(s), Including **Contact/Exposure Investigation**

When available, a campus public health support team can provide non-clinical support to the student as well as support contact/exposure investigation. This includes providing resources to the case, such as how to access food and get academic support, as well as connecting the student to mental health and other college/university support systems. This team also works in close contact with the local public health department and with the medical/clinical teams.

Because TB is an airborne transmissible disease, identification of those exposed is critical in managing its spread. This is especially important in congregate settings such as residence halls and classrooms.¹⁹ A contact investigation "attempts to identify, locate, and refer contacts and those potentially exposed over time to medical evaluation."20 And because exposure to TB increases due to proximity to case, time, and ventilation of the room, the Concentric Circle Model²¹ can be a useful tool in identifying exposures and providing a framework to determine hierarchy of risk.

The Concentric Circle Model (Figure 1, below) is a method that helps to identify individuals who have been exposed over time to the case(s) and helps prioritize their risk. With the model, the patient is at the center (Ring 0). and Ring 1 individuals are the closest contacts with the highest duration and proximity of exposure, and the rings thereafter are those that have lower duration and proximity of exposure.

¹⁸ https://www.justice.gov/opcl/overview-privacy-act-1974-2020-edition/disclosures-third-parties

¹⁹ Wolman, et. al. The uncertainty, challenges, and variability in tuberculosis congregate setting investigations: The concentric circle model revisited, Journal of Clinical Tuberculosis and other Mycobacterial Diseases, Volume 13, December 2018, Pages 5-8 ²⁰ Wolman, et. al.

²¹ Wolman et. al.





Identifying contacts in the concentric circles model includes an analysis of the patient's living situation and the ventilation in the building, their classes and ventilation in their classrooms, and their extracurricular activities and the rooms in which they gather with others. The factors in assigning a contact to a ring relate to time spent with the case, the size of the room/classroom/work environment, the ventilation in the building, and the proximity of the individual to the case. The greater the number of hours of exposure, the closer the proximity to the case, and the size and ventilation of the room, the lower the ring number. It is important to work with the local public health department to determine the parameters for each ring.

Once the rings are determined, Ring One contacts are notified of their exposure and the need for testing (See **Appendix 5** for sample exposure notifications). Typically Ring One contacts are screened for symptoms and are tested; if negative, they are tested again 10 weeks after the last exposure to the case. Ring Two contacts are screened for symptoms. If a contact is symptomatic, they should be tested immediately, and others should be tested 10 weeks after the last exposure to the case. If there are positive test results in Rings One or Two, the public health department may recommend further screening and testing in Ring Three or Four. Testing protocols vary and health services personnel should work closely with the local public health department to determine the appropriate testing protocol.

The testing approach is up to the local and state health authorities, and sometimes the testing can be done at the state laboratory or sent to a reference laboratory. It is up to the college/university health services to determine if they want to be involved in the phlebotomy and testing process.

Patient education continues to be extremely important during this outreach and testing phase to fully educate patients about the complexities of TB, as well as to help

²² Wolman, et. al., adapted by the University of Oregon University Health Services. Used with permission by the author.

keep them informed and calm about the process. It also is important to work closely with the public health department, internal leadership, and legal teams when considering communications to the public about TB case(s) on campus.

Occupational Health Related to TB

Any patient with suspected active TB disease should be seen in a negative pressure exam room if available, and staff should wear appropriate airborne precaution personal protective equipment (PPE), including N-95 respirator masks, and face shields.

Exam rooms should be cleaned according to airborne cleaning procedures and allowed to sit with the door closed for a specific amount of time, depending on whether it is a negative pressure room and according to airborne cleaning procedures. The goal is to dilute and remove the contaminated air. If a negative pressure room is not available, a HEPA (high efficiency particulate air filtration) device may be used if available.²³

While staff wearing appropriate PPE with limited contact with the case need not be tested, staff who cared for student without appropriate PPE or who had extended contact with the case could be offered IGRA testing at baseline and again 10 weeks after last exposure to the case during case's infectious period.

Patient Education

Education is an integral part of every step of a TB screening program. Health services should provide educational materials via their patient portal via secure message. If possible, educational materials should be provided in a variety of languages to ensure adequate communication and comprehension. When unable to provide written translated educational materials, schools should provide interpreter services if needed to ensure adequate communication and comprehension of important health information.

Reducing Stigma

Patients with TB may experience stigma due to many factors, including the likely concern about disruptions to daily life. Patients with inactive TB infection may have friends and family who are concerned that they are infectious. Patients with active TB disease may worry that they have an incurable disease. TB patients may worry about exposing others, including elderly relatives, children, and immuno-compromised individuals. Some students worry that they won't be able to register for or participate in classes. There are many other worries as well.

It's important for providers and others caring for patients with TB to connect with these students on a personal level and reassure them that they are not alone. Emphasize that inactive TB infection is not infectious to others and usually does not make a person feel sick and that both inactive TB infection and active TB disease are treatable with antibiotics. Stress the importance of completing treatment and encourage close contacts to go through targeted testing. A treatment completion certificate can go a long way in helping these patients feel more confident once they have completed treatment. (See **Appendix 6**: Example of Treatment Completion).

ACHA Vaccine-Preventable Diseases Committee TB Workgroup

This ACHA Guideline was prepared by ACHA's TB Workgroup, a subgroup of the Vaccine-Preventable Diseases Committee. Members of the TB Workgroup include: Thevy S. Chai, MD; Sarah Doss, MD, MPH, Laura Evans, RN, BS; Barb Fluty, PA-C; Charlotte Katzin, RN, BSN; Angela Long, MS, MPH; Anu K. Murthy, MD; Craig Roberts PA-C, MS, FACHA; Annette Smiach, MSN, FNP-BC, CSN; and Kimberly Tilley, MD.

Special thanks to Justin Lewis and Megan Miller of the Oregon Health Sciences University School of Nursing for their help in putting together the "About Tuberculosis" section.



8455 Colesville Road, Suite 740 | Silver Spring, MD 20910 | (410) 859-1500 | www.acha.org

²³ https://www.cdc.gov/tb/publications/guidelines/infectioncontrol.htm

Appendix 1: Tuberculosis Screening Tool

Tuberculosis (TB) Screening Questionnaire (to be completed by incoming students)

Please answer the following questions:

- Have you ever had close contact with persons known or suspected to have active TB disease?
 □ Yes □ No
- 2. Were you born in one of the countries or territories listed below (Appendix 2) that have a high incidence of active TB disease? (If yes, please CIRCLE the country, below.)

 □ Yes □ No
- 3. Have you resided in or traveled to one or more of the countries or territories listed above for a cumulative period of one to three months or more? (If yes, CHECK the countries or territories, above)

 □ Yes □ No
- 4. Have you been a resident, volunteer, and/or employee of high-risk congregate settings (e.g., correctional facilities, long-term care facilities, and homeless shelters)?

 Q Yes Q No
- 5. Have you been a volunteer or health care worker who served clients who are at increased risk for active TB disease?

🗆 Yes 🗆 No

Have you ever been a member of any of the following groups that may have an increased incidence of inactive TB infection or active TB disease: medically underserved, low-income, or using drugs or alcohol □ Yes □ No

If you answered YES to any of the above questions, [insert your college/university name] [recommends or requires] that you receive TB testing prior to the start of your first enrolled term). The significance of any travel exposure should be reviewed with a health care provider. If the answer to all the above questions is NO, no further testing or further action is required.

Appendix 2: 2025 High-Incidence Country List

Countries with a 3-year average incidence >= 20 cases per 100k population, 2021-2023, n=129²⁴ Countries added in 2025: None; Countries subtracted in 2025: None

Afghanistan	Ghana	Northern Mariana Islands
Algeria	Greenland	Pakistan
Angola	Guam	Palau
Anguilla	Guatemala	Panama
Argentina	Guinea	Papua New Guinea
Armenia	Guinea-Bissau	Paraguay
Azerbaijan	Guyana	Peru
Bangladesh	Haiti	Philippines
Belarus	Honduras	Qatar
Belize	India	Romania
Benin	Indonesia	Russian Federation
Bhutan	Iraq	Rwanda
Bolivia (Plurinational State of)	Kazakhstan	Sao Tome and Principe
Bosnia and Herzegovina	Kenya	Senegal
Botswana	Kiribati	Sierra Leone
Brazil	Korea (Democratic People's Republic of)	Singapore
Brunei Darussalam	Korea (Republic of)	Solomon Islands
Burkina Faso	Kyrgyzstan	Somalia
Burundi	Lao People's Democratic Republic	South Africa
Cabo Verde	Lesotho	South Sudan
Cambodia	Liberia	Sri Lanka
Cameroon	Libya	Sudan
Central African Republic	Lithuania	Suriname
Chad	Madagascar	Tajikistan
China	Malawi	Tanzania (United Republic of)
China, Hong Kong SAR	Malaysia	Thailand
China, Macao SAR	Maldives	Timor-Leste
Colombia	Mali	Togo
Comoros	Marshall Islands	Tunisia
Congo	Mauritania	Turkmenistan
Congo (Democratic Republic of)	Mexico	Tuvalu
Cote d'Ivoire	Micronesia (Federated States of)	Uganda
Djibouti	Moldova (Republic of)	Ukraine
Dominican Republic	Mongolia	Uruguay
Ecuador	Morocco	Uzbekistan
El Salvador	Mozambique	Vanuatu
Equatorial Guinea	Myanmar	Venezuela (Bolivarian Republic of)
Eritrea	Namibia	Viet Nam
Eswatini	Nauru	Yemen
Ethiopia	Nepal	Zambia
Fiji	Nicaragua	Zimbabwe
Gabon	Niger	
Gambia	Nigeria	
Georgia	Niue	

²⁴ National Society of Tuberculosis Clinicians. Testing and treatment of latent tuberculosis infection in the United States: clinical recommendations. Smyrna, GA: National Tuberculosis Controllers Association, February 2021.

Appendix 3: CDC Clinical Testing Guidance

Clinical Testing Guidance for Tuberculosis: Interferon Gamma Release Assay

https://www.cdc.gov/tb/hcp/testing-diagnosis/interferon-gamma-release-assay.html

Clinical Testing Guidance for Tuberculosis: Tuberculin Skin Test

https://www.cdc.gov/tb/hcp/testing-diagnosis/tuberculin-skin-test.html

Appendix 4: Patient Education for TB Cases

Questions and Answers About Tuberculosis Booklet

Published by CDC, this booklet provides information on the diagnosis and treatment of TB and is intended for people with or at high risk for TB infection and TB disease. Available in multiple languages.

https://www.cdc.gov/tb/communication-resources/tb-questions-and-answers-booklet.html

Appendix 5: Exposure Notifications Sample(s)

Dear Student:

I am writing to let you know that someone you know or with whom you attend class has been diagnosed with tuberculosis (TB) disease. You have been exposed to this individual during their infectious period. This letter is to inform you about TB and the steps you need to take to determine if you have become infected. *Tuberculosis is a treatable disease. If you have become infected, we can treat you with antibiotics before you get sick.*

It's important that you be tested this week or next week, and again in 8-10 weeks. The timing is important, as we want to get a baseline test result then a test at 8-10 weeks post-exposure when results are more accurate. You will receive a call from a member of the health services staff to go through this information and answer any questions. You will be tested for TB using a blood test. The staff member will help you schedule a visit to health services. You may continue your daily activities if you don't have symptoms (e.g., no masking, no quarantine). If you develop symptoms before the testing dates, it's important to see a health care provider, either at health services or your primary care provider.

What is tuberculosis (TB) disease?

TB is caused by a bacterium called *Mycobacterium tuberculosis*. TB bacteria are spread from person to person through the air. When a person with active TB disease (of the lungs or throat) coughs, speaks, or sings, TB bacteria can get into the air. People nearby may breathe in these bacteria and become infected. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain. Not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: inactive TB infection and active TB disease. Inactive TB infection is not infectious and does not make a person feel sick. Active TB disease is infectious and causes symptoms. Both inactive TB infection and active TB disease are treatable with antibiotics. It's important to note that less than 10% of otherwise healthy people with inactive TB infection go on to develop active TB disease during their lifetime, with the highest risk being in the first two years after becoming infected.

Symptoms of active TB disease depend on where in the body the TB bacteria are growing. TB bacteria usually grow in the lungs (pulmonary TB). Active TB disease in the lungs may cause symptoms such as

- A bad cough that lasts three weeks or longer
- Pain in the chest
- Coughing up blood or sputum (phlegm from deep inside the lungs)
- Other symptoms of active TB disease include weakness or fatigue, weight loss, no appetite, chills, fever, and night sweats. Symptoms of active TB disease in other parts of the body depend on the area affected.

A member of the staff will be calling you soon, or feel free to call them. For more information, see: https://www.cdc.gov/tb/topic/basics/default.htm

Sincerely {Executive Director, Medical Director, other]

Appendix 6: Example of Inactive TB Treatment Completion

Note that there are several ways in which notice of treatment completion for inactive TB can be provided to a patient. Below is a wallet card example that the TB Workgroup developed. Other formats include a memo, a booklet insert, or a certificate.

Record of Tuberculosis Treatment Completion		
To Whom it May Concern:		
The following is a record of evaluation and treatment for inactive tuberculosis treatment completion. Based on the treatment below, this person is not infectious. He/she may always have a positive TB test, so there is no reason to repeat the test.		
Name: Date of birth:		
Tuberculin skin test (TST) date:		
Results (in millimeters of induration:		
TB blood test: Date: Type of test: Result:		
Chest radiograph: Date: Result:		
Date medication started: Date completed:		
Medication(s):		
Provider Information		
If you need any further information, please contact this office:		
Name:		
Phone number:		
Address:		
Signature of provider: Date:		
Note to patient: If any symptoms suggestive of tuberculosis develop lasting more than two weeks-such as a persistent cough, unexplained weight loss, fever, fatigue, or night sweats-prompt consultation with a health care provider is essential for further evaluation and guidance.		



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