

## ACHA Guidelines

# Tuberculosis Screening and Targeted Testing of College and University Students

## Purpose

Screening and targeted testing for tuberculosis (TB) is a key strategy for controlling and preventing infection on college and university campuses. Early detection provides an opportunity to promote the health of affected individuals through prompt diagnosis and treatment while preventing potential spread to others.

Implementation of a screening and targeted testing program not only addresses this public health concern in campus communities but also contributes to the larger public health goal of reducing the burden of TB in the United States.

This document provides guidelines for screening the incoming student population, testing those at increased risk, and providing appropriate follow-up care for students diagnosed with latent TB infection (LTBI) or TB disease.

## Definitions

In this document, “screening” refers to the process of identifying persons at high risk for TB infection and disease. Screening is conducted through a questionnaire in which the student identifies any risk factors for TB infection and disease. “Testing” refers to the testing procedure for diagnosing LTBI, i.e., interferon gamma release assay (IGRA) or Mantoux tuberculin skin test (TST).

Risks for exposure to and/or infection with *M. tuberculosis* have been identified through epidemiological and population-based studies (see Table 1). A sample screening questionnaire, developed based on these risk factors, is provided in see Appendix B. The questionnaire is designed for use by institutions for the incoming student population to appropriately target students at risk for TB who would benefit from testing.

Refer to Table 2 for those factors that place an individual who is infected with TB at higher risk for progressing to

active disease. Typically, factors are identified in individuals by health care providers in the clinic setting. Those at risk for exposure should be tested and, if positive, treated.

## Whom to Screen

All incoming students should be screened for TB risk factors. Screening should be done using a standard questionnaire like the one provided in Appendix B. While all incoming students should be screened, only those students with identifiable risk factors for exposure to TB and/or for TB disease should be tested. Incoming students at 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, international students arriving from countries or territories with an increased incidence of TB should be tested because this subpopulation has been identified epidemiologically as having a higher incidence of LTBI and an increased risk for developing active TB disease.<sup>1</sup>

High-incidence areas are defined as countries or territories with an average annual incidence of TB disease of greater than or equal to 20 cases per 100,000 population. Most countries in Africa, Asia, Central America, Eastern Europe, and South America are included in this group. See Appendix A for a current list of low-incidence countries and territories, as identified by the World Health Organization (WHO) Global Health Observatory. Starting in 2022, the ACHA TB Workgroup adopted a moving average methodology to reflect trends in TB incidence.<sup>2</sup>

While national trends indicate a decline in the overall number of TB cases since 1993, active disease transmission continues to occur. It is important to focus on local epidemiology to identify trends in individual states or

<sup>1</sup> 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.

<sup>2</sup> The ACHA TB Workgroup consists of members of the ACHA Vaccine-Preventable Diseases Committee and Emerging Public Health Threats and Emergency Response Coalition. The subgroup adopted this methodology to address the countries that hover around the 20 cases per 100,000 threshold, which tend to come on and off the high-incidence list.

regions. The epidemiology of TB among foreign-born populations differs considerably from area to area. To tailor efforts to local needs, campus TB-control programs should develop epidemiologic profiles to identify groups of persons in their jurisdictions who are at higher risk for TB.

In 2009, approximately 60% of TB cases in the United States occurred in foreign-born individuals. For a list of high burden countries and their profiles, see WHO Tuberculosis Country Profiles at [www.who.int/tb/country/data/profiles/en/](http://www.who.int/tb/country/data/profiles/en/).

TABLE 1: Persons at Higher Risk for Exposure to and/or Infection with *M. tuberculosis*

- Close contacts of persons known or suspected to have active TB disease
- Foreign-born persons from areas that have a high incidence of active TB disease
- Persons who visit areas with a high prevalence of TB disease, especially if visits are frequent or prolonged
- Residents and employees of high-risk congregate settings (e.g., correctional facilities, long-term care facilities, and homeless shelters)
- Health care workers who serve clients who are at increased risk for active TB disease
- Populations defined locally as having an increased incidence of latent *M. tuberculosis* infection or active TB disease, possibly including medically underserved, low-income populations, or persons who abuse drugs or alcohol
- Infants, children, and adolescents exposed to adults who are at increased risk for latent tuberculosis infection or active 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 1.3. Persons at higher Risk for Exposure to and/or Infection with *M. tuberculosis*. 6th edition (2013). [https://www.cdc.gov/tb/education/corecurr/pdf/corecurr\\_all.pdf](https://www.cdc.gov/tb/education/corecurr/pdf/corecurr_all.pdf) Accessed March 21, 2022.

TABLE 2: Persons at Increased Risk for Progression of LTBI to 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 TB disease, including persons with fibrotic changes on chest radiograph consistent with prior TB 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 jejunioileal 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 TB Disease. 6th edition (2013). [https://www.cdc.gov/tb/education/corecurr/pdf/corecurr\\_all.pdf](https://www.cdc.gov/tb/education/corecurr/pdf/corecurr_all.pdf). Accessed March 21, 2022.

Continuing students should be tested only when their activities (e.g., volunteering, conducting research, mentoring, studying abroad, traveling, visiting relatives, employment) involve close contact with individuals in areas with increased incidence of TB whether domestically or internationally and therefore place the student at risk for a new infection, or to meet an academic program requirement. Sponsors of these programs or health care providers caring for these students prior to the activity should educate students of this risk and recommend testing 8 to 10 weeks after leaving the high-incidence area. While it would be welcomed, no evidence-based data exists that identifies the amount of time spent in each high-risk country that constitutes significant exposure. Students should discuss their specific travel circumstances with a health care provider who can determine the appropriate evaluation.<sup>3</sup>

TB screening of all health care personnel (HCP), including health profession students, includes a symptom evaluation and test (IGRA or TST) for those without documented prior TB disease or LTBI and an individual TB risk assessment to help guide decisions when interpreting test results.<sup>4</sup>

## When to Screen and Test

TB screening should occur by questionnaire prior to arrival on campus and in conjunction with verification of pre-matriculation immunization requirements. TB testing of high-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.

## How to Test

*Note: See [CDC's Dear Colleague letter on TB Tests and mRNA COVID-19 Vaccines](#), dated January 7, 2021.*

In most situations relevant to college health, the preferred method for testing for TB infection is an interferon- $\gamma$  release assay (IGRA) rather than a tuberculin skin test (TST). A TST is an acceptable

alternative, especially in situations where an IGRA is not available, too costly, or too burdensome. Importantly, it is **not** recommended to test for infection those persons at low risk for TB infection and disease progression. However, if testing of low-risk students is required for administrative reasons, such as health professions program requirements, despite guidelines to the contrary, a confirmatory test is recommended if the initial test result is positive. The confirmatory test may be either an IGRA or a TST. When such testing is performed, the person is considered infected only if both tests are positive.

## What to Do When the IGRA or TST Is Positive

Persons with a positive IGRA or TST must undergo chest radiography and medical examination to exclude active TB disease. For asymptomatic individuals, a posterior-anterior radiograph of the chest is the standard view used for the detection of TB-related chest abnormalities. In some cases, especially in children, a lateral view may be helpful. In some instances, a computerized tomography (CT) scan may provide additional information.<sup>5</sup> 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 LTBI is made using information gathered from the medical history, IGRA or TST result, chest radiograph, and physical examination.<sup>6</sup>

## Whether to Treat LTBI

From a public health perspective, treatment of LTBI is essential to controlling and eliminating TB disease in the United States.<sup>7</sup> In deciding whether to recommend treatment of LTBI to individual patients, the clinician should weigh the likelihood of infection, the likelihood of progression to TB disease if infected, and the benefit of therapy. See ISDA LTBI treatment evaluation paradigm in Figure 1, below, for more information in making this important decision.

<sup>3</sup> Centers for Disease Control and Prevention (CDC). Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care settings, 2005. MMWR December 2005; 54 (No. RR-17):4-5.

<sup>4</sup> 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;68:439-443. DOI: <http://dx.doi.org/10.15585/mmwr.mm6819a3>

<sup>5</sup> CDC. Core Curriculum on Tuberculosis, Sixth Edition, 2013. Chapter 4, p 82. [www.cdc.gov/tb/education/corecurr/pdf/corecurr\\_all.pdf](http://www.cdc.gov/tb/education/corecurr/pdf/corecurr_all.pdf). Accessed March 21, 2022.

<sup>6</sup> CDC. Latent Tuberculosis Infection: A Guide for Primary Health Care Providers. <https://www.cdc.gov/tb/publications/ltbi/default.htm>. Accessed March 21, 2022

<sup>7</sup> CDC. Core Curriculum on Tuberculosis, Sixth Edition, 2013. Chapter 5, p 111. [www.cdc.gov/tb/education/corecurr/pdf/corecurr\\_all.pdf](http://www.cdc.gov/tb/education/corecurr/pdf/corecurr_all.pdf). Accessed March 21, 2022.

Figure 1.

Risk of Infection ↑	Groups with Increased Likelihood of Infection with Mtb	Benefit of Therapy	LTBI Testing Strategy		
			Risk of Developing Tuberculosis if Infected →		
			Low	Intermediate (RR 1.3 -3)	High (RR 3-10)
	Household contact or recent exposure of an active case	Yes	Likely to be Infected Low to Intermediate Risk of Progression (TST ≥ 10mM)		Likely to be Infected High Risk of Progression (TST ≥ 5mM)
	Mycobacteriology laboratory personnel	Not demonstrated			
	Immigrants from high burden countries (>20 / 100,000)	Not demonstrated			
	Residents and employees of high risk congregate settings	Yes	Unlikely to be Infected (TST > 15mM)		
	None	Not demonstrated			
			Benefit of Therapy		
			Not demonstrated      Yes		

In developing a diagnostic approach for the evaluation of those with suspected LTBI, we recommend the clinician weigh the likelihood of infection, the likelihood of progression to TB if infected, and the benefit of therapy (Horsburgh, C.R., Jr., and E.J. Rubin. 2011. Clinical practice. Latent tuberculosis infection in the United States. The New England journal of medicine 364:1441-1448). Recommendations were formulated for each of the three groups illustrated above. These groups are concordant with current recommendations for the interpretation of the TST ( 2000. Targeted tuberculin testing and treatment of latent tuberculosis infection. American Thoracic Society. MMWR Recomm Rep 49:1-51).

Source: Lewinsohn, DM, 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, Pages e1–e33, <https://doi.org/10.1093/cid/ciw694>

## How to Treat LTBI

Short-course (3- to 4-month) rifamycin-based treatment regimens are preferred over longer-course (6–9 month) isoniazid monotherapy for treatment of LTBI because of their effectiveness, safety, and high treatment completion rates. These preferred regimens include

- 3 months of isoniazid plus rifapentine given once weekly (directly observed therapy)
- 4 months of rifampin given daily
- 3 months of isoniazid plus rifampin given daily

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.<sup>8</sup>

Once initiated, completion of treatment should be a high priority and should be supported by providing treatment plans and education in the student's primary language, ensuring confidentiality, offering incentives to mark treatment milestones, and case managing by a culturally competent health care provider to build trust and gain buy-in.

<sup>8</sup> Sterling TR, Njie G, Zenner D, et al. Guidelines for the Treatment of Latent Tuberculosis Infection: Recommendations from the National Tuberculosis Controllers Association and CDC, 2020. MMWR Recomm Rep 2020;69(No. RR-1):1–11. DOI: <http://dx.doi.org/10.15585/mmwr.rr6901a1>.

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. Students who have completed LTBI therapy, as well as those who elected not to take therapy, should be educated regarding signs and symptoms of TB disease and instructed to seek medical care immediately upon developing any of the signs or symptoms of TB.

## **Additional Resources**

*Use these resources in addition to any provided in the in addition to footnotes.*

ATS/CDC/IDSA. Treatment of Tuberculosis. MMWR June 2003; 52 (No. RR-11)  
<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5211a1.htm>

Francis J. Curry National Tuberculosis Center. TB Program Manual Template  
[www.currytbcenter.ucsf.edu/products/tuberculosis-program-manual-template](http://www.currytbcenter.ucsf.edu/products/tuberculosis-program-manual-template)

Heartland National Tuberculosis Center. Model Tuberculosis Prevention Program for College Campuses. 2nd ed. 2011  
[http://www.heartlandntbc.org/assets/products/model\\_tb\\_prevention\\_program\\_college\\_campuses.pdf](http://www.heartlandntbc.org/assets/products/model_tb_prevention_program_college_campuses.pdf)

## **ACHA TB Screening Guidelines Workgroup**

These guidelines were prepared originally by ACHA's Tuberculosis Guidelines Task Force and revised by the ACHA Emerging Public Health Threats and Emergency Response Coalition. A special thanks to the following coalition members who worked on this latest revision: Theyy S. Chai, MD; Susan Even, MD, FACHA; Sharon McMullen, RN, MPH, FACHA; and Craig Roberts, MS, PA-C, FACHA.



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## **APPENDIX A**

“Low Incidence” Areas with Estimated or Reported Tuberculosis Incidence, 2020

“Low Incidence” areas are defined as areas with reported or estimated incidence of <20 cases per 100,000 population.

Albania	Germany	Saint Kitts and Nevis
American Samoa	Greece	Saint Lucia
Andorra	Grenada	Saint Vincent and the Grenadines
Antigua and Barbuda	Hungary	Samoa
Aruba	Iceland	San Marino
Australia	Iran (Islamic Republic of)	Saudi Arabia
Austria	Ireland	Serbia
Bahamas	Israel	Seychelles
Bahrain	Italy	Sint Maarten (Dutch part)
Barbados	Jamaica	Slovakia
Belgium	Japan	Slovenia
Bermuda	Jordan	Spain
British Virgin Islands	Lebanon	Sweden
Canada	Luxembourg	Switzerland
Cayman Islands	Mauritius	Syrian Arab Republic
Chile	Monaco	Tonga
Cook Islands	Montenegro	Trinidad and Tobago
Costa Rica	Montserrat	Turkey
Croatia	Netherlands	Turks and Caicos Islands
Cuba	New Caledonia	United Arab Emirates
Curaçao	New Zealand	United Kingdom of Great Britain and Northern Ireland
Cyprus	North Macedonia	United States of America
Czechia	Norway	Wallis and Futuna Islands
Denmark	Oman	West Bank and Gaza Strip
Egypt	Poland	
Estonia	Portugal	
Finland	Puerto Rico	
France		

Source: World Health Organization Global Health Observatory, Tuberculosis Incidence 2020.

**APPENDIX B**

**Tool for Institutional Use**

**Part I: 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

Were you born in one of the countries or territories listed below that have a high incidence of active TB disease? (If yes, please CIRCLE the country, below.)  Yes  No

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

Source: World Health Organization Global Health Observatory, Tuberculosis Incidence 2020. Countries with incidence rates of  $\geq 20$  cases per 100,000 population.

Have you had frequent or prolonged visits\* to one or more of the countries or territories listed above with a high prevalence of TB disease? (If yes, CHECK the countries or territories, above)  Yes  No

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)?  Yes  No

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 latent *M. tuberculosis* infection or active TB disease: medically underserved, low-income, or abusing drugs or alcohol?  Yes  No

**If the answer is YES to any of the above questions, [insert your college/university name] requires that you receive TB testing as soon as possible but at least prior to the start of the subsequent semester).**

**If the answer to all the above questions is NO, no further testing or further action is required.**

\*The significance of the travel exposure should be discussed with a health care provider and evaluated.



