

If a conflict arises between a Clinical Payment and Coding Policy (“CPCP”) and any plan document under which a member is entitled to Covered Services, the plan document will govern. If a conflict arises between a CPCP and any provider contract pursuant to which a provider participates in and/or provides Covered Services to eligible member(s) and/or plans, the provider contract will govern. “Plan documents” include, but are not limited to, Certificates of Health Care Benefits, benefit booklets, Summary Plan Descriptions, and other coverage documents. BCBSNM may use reasonable discretion interpreting and applying this policy to services being delivered in a particular case. BCBSNM has full and final discretionary authority for their interpretation and application to the extent provided under any applicable plan documents.

Providers are responsible for submission of accurate documentation of services performed. Providers are expected to submit claims for services rendered using valid code combinations from Health Insurance Portability and Accountability Act (“HIPAA”) approved code sets. Claims should be coded appropriately according to industry standard coding guidelines including, but not limited to: Uniform Billing (“UB”) Editor, American Medical Association (“AMA”), Current Procedural Terminology (“CPT®”), CPT® Assistant, Healthcare Common Procedure Coding System (“HCPCS”), ICD-10 CM and PCS, National Drug Codes (“NDC”), Diagnosis Related Group (“DRG”) guidelines, Centers for Medicare and Medicaid Services (“CMS”) National Correct Coding Initiative (“NCCI”) Policy Manual, CCI table edits and other CMS guidelines.

Claims are subject to the code edit protocols for services/procedures billed. Claim submissions are subject to claim review including but not limited to, any terms of benefit coverage, provider contract language, medical policies, clinical payment and coding policies as well as coding software logic. Upon request, the provider is urged to submit any additional documentation.

## Testing for Diagnosis of Active or Latent Tuberculosis

**Policy Number: CPCPLAB027**

**Version 1.0**

**Enterprise Clinical Payment and Coding Policy Committee Approval Date: July 5, 2023**

**Plan Effective Date: September 1, 2023**

### Description

BCBSNM has implemented certain lab management reimbursement criteria. Not all requirements apply to each product. Providers are urged to review Plan documents for eligible coverage for services rendered.

### Reimbursement Information:

1. To diagnose or screen for latent tuberculosis (TB) infection, an interferon gamma release assay (IGRA) **may be reimbursable** in:
  - a. Individuals who are at risk for infection with *Mycobacterium tuberculosis* (Mtb);

- b. Individuals who are unlikely to be infected with Mtb when screening is obliged by law.
2. For all suspected TB infections, the following tests **may be reimbursable**:
  - a. Acid fast bacilli (AFB) smear/stain
  - b. Culture and culture-based drug susceptibility testing of *Mycobacteria* spp.
3. Direct probe or amplified probe nucleic acid-based testing, including PCR, **may be reimbursable** for the following:
  - a. *Mycobacteria* spp
  - b. *M. tuberculosis*
  - c. *M. avium intracellulare*
4. For patients whose sputum is AFB smear positive or Hologic Amplified MTD positive, molecular-based drug susceptibility testing **may be reimbursable** when **one** of the following criteria is met:
  - a. The individual has been treated for TB in the past.
  - b. The individual was born in or has lived for at least 1 year in a foreign country with at least a moderate TB incidence ( $\geq 20$  per 100,000) or a high primary multi-drug resistant (MDR)-TB prevalence ( $\geq 2\%$ ).
  - c. The individual is a contact of an individual with MDR-TB;
  - d. The individual is HIV infected.
5. Repeat drug susceptibility testing **may be reimbursable** in the following situations:
  - a. For individuals whose sputum cultures remain positive after 3 months of treatment.
  - b. When there is bacteriological reversion from negative to positive.
6. In patients with pleural effusion, pericardial effusion, or ascites and suspected TB infection, cell counts, protein, glucose, and lactate dehydrogenase (LDH) concentrations of cerebrospinal, pleural, peritoneal, pericardial, and other fluids **may be reimbursable**.
7. In HIV-infected individuals with CD4 cell counts  $\leq 100$  cells/microL who have signs and symptoms of tuberculosis, urine-based detection of mycobacterial cell wall glycolipid lipoarabinomannan (LAM) **may be reimbursable**.
8. Interferon gamma release assay (IGRA) **is not reimbursable** for patients with active tuberculosis.
9. Simultaneous ordering of any combination of direct probe, amplified probe, and/or quantification for the same organism in a single encounter **is not reimbursable**.
10. Quantitative nucleic acid testing for *Mycobacterium* spp, *M. tuberculosis*, and *M. avium intracellulare* **is not reimbursable**.
11. Testing of adenosine deaminase (ADA) and interferon-gamma (IFN-  $\gamma$ ) levels in cerebrospinal, pleural, peritoneal, pericardial, and other fluids for the diagnosis of extrapulmonary TB **are not reimbursable**.

12. Testing of serum protein biomarkers or panels of biomarkers for the detection and diagnosis of TB are not reimbursable.

## Procedure Codes

The following is not an all-encompassing code list. The inclusion of a code does not guarantee it is a covered service or eligible for reimbursement.

Codes
81099, 82945, 83520, 83615, 84157, 84311, 86480, 86481, 87070, 87077, 87116, 87149, 87150, 87153, 87181, 87184, 87185, 87186, 87187, 87188, 87190, 87206, 87550, 87551, 87552, 87555, 87556, 87557, 87560, 87561, 87562

## References:

AAP. (2021). *Red Book® 2021-2024: Report of the Committee on Infectious Diseases, 32nd Edition*. <https://redbook.solutions.aap.org/Book.aspx?bookid=2591>

Adams, S., Ehrlich, R., Baatjies, R., Dendukuri, N., Wang, Z., & Dheda, K. (2019). Evaluating Latent Tuberculosis Infection Test Performance Using Latent Class Analysis in a TB and HIV Endemic Setting. *Int J Environ Res Public Health*, 16(16). <https://doi.org/10.3390/ijerph16162912>

ATS. (2000). Targeted tuberculin testing and treatment of latent tuberculosis infection. . *Am J Respir Crit Care Med*, 161(4 Pt 2), S221-247. [https://doi.org/10.1164/ajrccm.161.supplement\\_3.ats600](https://doi.org/10.1164/ajrccm.161.supplement_3.ats600)

Auguste, P., Tsertsvadze, A., Pink, J., Court, R., McCarthy, N., Sutcliffe, P., & Clarke, A. (2017). Comparing interferon-gamma release assays with tuberculin skin test for identifying latent tuberculosis infection that progresses to active tuberculosis: systematic review and meta-analysis. *BMC Infect Dis*, 17(1), 200. <https://doi.org/10.1186/s12879-017-2301-4>

Barry, C. E., 3rd, Boshoff, H. I., Dartois, V., Dick, T., Ehrt, S., Flynn, J., Schnappinger, D., Wilkinson, R. J., & Young, D. (2009). The spectrum of latent tuberculosis: rethinking the biology and intervention strategies. *Nat Rev Microbiol*, 7(12), 845-855. <https://doi.org/10.1038/nrmicro2236>

Bernardo, J. (2022, June 23). *Diagnosis of pulmonary tuberculosis in adults*. UpToDate, Inc. <https://www.uptodate.com/contents/diagnosis-of-pulmonary-tuberculosis-in-adults>

Bibbins-Domingo, K., Grossman, D. C., Curry, S. J., Bauman, L., Davidson, K. W., Epling, J. W., Jr., Garcia, F. A., Herzstein, J., Kemper, A. R., Krist, A. H., Kurth, A. E., Landefeld, C. S., Mangione, C. M., Phillips, W. R., Phipps, M. G., & Pignone, M. P. (2016). Screening for Latent Tuberculosis Infection in Adults: US Preventive Services Task Force Recommendation Statement. *Jama*, 316(9), 962-969. <https://doi.org/10.1001/jama.2016.11046>

Bourgi, K., Patel, J., Samuel, L., Kieca, A., Johnson, L., & Alangaden, G. (2017). Clinical Impact of Nucleic Acid Amplification Testing in the Diagnosis of Mycobacterium Tuberculosis: A 10-Year Longitudinal Study. *Open Forum Infect Dis*, 4(2), ofx045. <https://doi.org/10.1093/ofid/ofx045>

- CDC. (2009). Updated guidelines for the use of nucleic acid amplification tests in the diagnosis of tuberculosis. *MMWR Morb Mortal Wkly Rep*, 58(1), 7-10.
- Cheng, V. C., Yew, W. W., & Yuen, K. Y. (2005). Molecular diagnostics in tuberculosis. *Eur J Clin Microbiol Infect Dis*, 24(11), 711-720. <https://doi.org/10.1007/s10096-005-0039-1>
- Cruciani, M., Scarparo, C., Malena, M., Bosco, O., Serpelloni, G., & Mengoli, C. (2004). Meta-analysis of BACTEC MGIT 960 and BACTEC 460 TB, with or without solid media, for detection of mycobacteria. *J Clin Microbiol*, 42(5), 2321-2325. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC404614/>
- Daniel, T. M. (1980). The immunology of tuberculosis. *Clin Chest Med*, 1(2), 189-201.
- De Groote, M. A., Sterling, D. G., Hraha, T., Russell, T. M., Green, L. S., Wall, K., Kraemer, S., Ostroff, R., Janjic, N., & Ochsner, U. A. (2017). Discovery and Validation of a Six-Marker Serum Protein Signature for the Diagnosis of Active Pulmonary Tuberculosis. *J Clin Microbiol*, 55(10), 3057-3071. <https://doi.org/10.1128/jcm.00467-17>
- Dheda, K., Gumbo, T., Gandhi, N. R., Murray, M., Theron, G., Udwadia, Z., Migliori, G. B., & Warren, R. (2014). Global control of tuberculosis: from extensively drug-resistant to untreatable tuberculosis. *Lancet Respir Med*, 2(4), 321-338. [https://doi.org/10.1016/s2213-2600\(14\)70031-1](https://doi.org/10.1016/s2213-2600(14)70031-1)
- Dheda, K., Schwander, S. K., Zhu, B., van Zyl-Smit, R. N., & Zhang, Y. (2010). The immunology of tuberculosis: from bench to bedside. *Respirology*, 15(3), 433-450. <https://doi.org/10.1111/j.1440-1843.2010.01739.x>
- Diel, R., Loddenkemper, R., & Nienhaus, A. (2012). Predictive value of interferon-gamma release assays and tuberculin skin testing for progression from latent TB infection to disease state: a meta-analysis. *Chest*, 142(1), 63-75. <https://doi.org/10.1378/chest.11-3157>
- Domínguez, J., Boettger, E. C., Cirillo, D., Cobelens, F., Eisenach, K. D., Gagneux, S., Hillemann, D., Horsburgh, R., Molina-Moya, B., Niemann, S., Tortoli, E., Whitelaw, A., Lange, C., for the, T., & networks, R.-T. (2016). Clinical implications of molecular drug resistance testing for Mycobacterium tuberculosis: a TBNET/RESIST-TB consensus statement. *The International Journal of Tuberculosis and Lung Disease*, 20(1), 24-42. <https://doi.org/10.5588/ijtld.15.0221>
- ERS/ECDC. (2017). ERS/ECDC Statement: European Union Standards for Tuberculosis Care - 2017 update <https://erj.ersjournals.com/content/erj/early/2018/04/05/13993003.02678-2017.full.pdf>
- Fenton, M. J., Vermeulen, M. W., Kim, S., Burdick, M., Strieter, R. M., & Kornfeld, H. (1997). Induction of gamma interferon production in human alveolar macrophages by Mycobacterium tuberculosis. *Infect Immun*, 65(12), 5149-5156.
- Francis, J., Seiler, R. J., Wilkie, I. W., O'Boyle, D., Lumsden, M. J., & Frost, A. J. (1978). The sensitivity and specificity of various tuberculin tests using bovine PPD and other tuberculins. *Vet Rec*, 103(19), 420-425.
- Gordin, F., & Slutkin, G. (1990). The validity of acid-fast smears in the diagnosis of pulmonary tuberculosis. *Arch Pathol Lab Med*, 114(10), 1025-1027.

Greco, S., Girardi, E., Navarra, A., & Saltini, C. (2006). Current evidence on diagnostic accuracy of commercially based nucleic acid amplification tests for the diagnosis of pulmonary tuberculosis. *Thorax*, *61*(9), 783-790. <https://doi.org/10.1136/thx.2005.054908>

Gupta-Wright, A., Corbett, E. L., van Oosterhout, J. J., Wilson, D., Grint, D., Alufandika-Moyo, M., Peters, J. A., Chiume, L., Flach, C., Lawn, S. D., & Fielding, K. (2018). Rapid urine-based screening for tuberculosis in HIV-positive patients admitted to hospital in Africa (STAMP): a pragmatic, multicentre, parallel-group, double-blind, randomised controlled trial. *Lancet*, *392*(10144), 292-301. [https://doi.org/10.1016/s0140-6736\(18\)31267-4](https://doi.org/10.1016/s0140-6736(18)31267-4)

Hacioglu, A., Borekci, S., Melikoglu, M., Ozguler, Y., Esatoglu, S. N., Ugurlu, S., Seyahi, E., Fresko, I., Hamuryudan, V., Ozdogan, H., Yurdakul, S., Hatemi, I., Celik, A. F., Ongen, H. G., & Hatemi, G. (2022). Screening for latent tuberculosis before starting TNF-alpha inhibitors in a population with high BCG vaccination rates. *Rheumatol Int*, *42*(8), 1443-1451. <https://doi.org/10.1007/s00296-021-04926-z>

Heemskerck, D., Caws, M., Marais, B., & Farrar, J. (2015). Clinical Manifestations. In *Tuberculosis in Adults and Children*. Springer. <https://doi.org/https://www.ncbi.nlm.nih.gov/books/NBK344404/>

Heyckendorf, J., Andres, S., Köser, C. U., Olaru, I. D., Schön, T., Sturegård, E., Beckert, P., Schleusener, V., Kohl, T. A., Hillemann, D., Moradigaravand, D., Parkhill, J., Peacock, S. J., Niemann, S., Lange, C., & Merker, M. (2018). What Is Resistance? Impact of Phenotypic versus Molecular Drug Resistance Testing on Therapy for Multi- and Extensively Drug-Resistant Tuberculosis. *Antimicrob Agents Chemother*, *62*(2). <https://doi.org/10.1128/aac.01550-17>  
Institute, C. a. L. S. (2018). Laboratory Detection and Identification of Mycobacteria, 2nd Edition. In *M48*. Wayne, PA: Clinical and Laboratory Standards Institute.

Jain, J., Jadhao, P., Banait, S., & Salunkhe, P. (2021). Diagnostic accuracy of GeneXpert MTB/RIF assay for detection of tubercular pleural effusion. *PLoS One*, *16*(6), e0251618. <https://doi.org/10.1371/journal.pone.0251618>

Kartheek, V., Bhilare, P., Hadgaonkar, S., Kothari, A., Shyam, A., Sancheti, P., & Aiyer, S. N. (2021). Gene Xpert/MTB RIF assay for spinal tuberculosis- sensitivity, specificity and clinical utility. *J Clin Orthop Trauma*, *16*, 233-238. <https://doi.org/10.1016/j.jcot.2021.02.006>

Katial, R. K., Hershey, J., Purohit-Seth, T., Belisle, J. T., Brennan, P. J., Spencer, J. S., & Engler, R. J. M. (2001). Cell-Mediated Immune Response to Tuberculosis Antigens: Comparison of Skin Testing and Measurement of In Vitro Gamma Interferon Production in Whole-Blood Culture. *Clin Diagn Lab Immunol*, *8*(2), 339-345. <https://doi.org/10.1128/cdli.8.2.339-345.2001>

Landry, J., & Menzies, D. (2008). Preventive chemotherapy. Where has it got us? Where to go next? *Int J Tuberc Lung Dis*, *12*(12), 1352-1364.

Lein, A. D., & Von Reyn, C. F. (1997). In vitro cellular and cytokine responses to mycobacterial antigens: application to diagnosis of tuberculosis infection and assessment of response to mycobacterial vaccines. *Am J Med Sci*, *313*(6), 364-371.

Lewinsohn, D. M., Leonard, M. K., LoBue, P. A., Cohn, D. L., Daley, C. L., Desmond, E., Keane, J., Lewinsohn, D. A., Loeffler, A. M., Mazurek, G. H., O'Brien, R. J., Pai, M., Richeldi, L., Salfinger, M., Shinnick, T. M., Sterling, T. R., Warshauer, D. M., & Woods, G. L. (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. *Clin Infect Dis*, 64(2), 111-115. <https://doi.org/10.1093/cid/ciw778>

Ling, D. I., Flores, L. L., Riley, L. W., & Pai, M. (2008). Commercial nucleic-acid amplification tests for diagnosis of pulmonary tuberculosis in respiratory specimens: meta-analysis and meta-regression. *PLoS One*, 3(2), e1536. <https://doi.org/10.1371/journal.pone.0001536>

Mase, S. R., Ramsay, A., Ng, V., Henry, M., Hopewell, P. C., Cunningham, J., Urbanczik, R., Perkins, M. D., Aziz, M. A., & Pai, M. (2007). Yield of serial sputum specimen examinations in the diagnosis of pulmonary tuberculosis: a systematic review. *Int J Tuberc Lung Dis*, 11(5), 485-495.

Menzies, D. (2022, March 7). *Use of interferon-gamma release assays for diagnosis of latent tuberculosis infection (tuberculosis screening) in adults*. <https://www.uptodate.com/contents/use-of-interferon-gamma-release-assays-for-diagnosis-of-latent-tuberculosis-infection-tuberculosis-screening-in-adults>

Menzies, D., Pai, M., & Comstock, G. (2007). Meta-analysis: new tests for the diagnosis of latent tuberculosis infection: areas of uncertainty and recommendations for research. *Ann Intern Med*, 146(5), 340-354.

Miller, J. M., Binnicker, M. J., Campbell, S., Carroll, K. C., Chapin, K. C., Gilligan, P. H., Gonzalez, M. D., Jerris, R. C., Kehl, S. C., Patel, R., Pritt, B. S., Richter, S. S., Robinson-Dunn, B., Schwartzman, J. D., Snyder, J. W., Telford, I. I. S., Theel, E. S., Thomson, J. R. B., Weinstein, M. P., & Yao, J. D. (2018). A Guide to Utilization of the Microbiology Laboratory for Diagnosis of Infectious Diseases: 2018 Update by the Infectious Diseases Society of America and the American Society for Microbiology. *Clinical Infectious Diseases*, ciy381-ciy381. <https://doi.org/10.1093/cid/ciy381>

Nahid, P., Mase, S. R., Migliori, G. B., Sotgiu, G., Bothamley, G. H., Brozek, J. L., Cattamanchi, A., Cegielski, J. P., Chen, L., Daley, C. L., Dalton, T. L., Duarte, R., Fregonese, F., Horsburgh, C. R., Ahmad Khan, F., Kheir, F., Lan, Z., Lardizabal, A., Lauzardo, M., . . . Seaworth, B. (2019). Treatment of Drug-Resistant Tuberculosis. An Official ATS/CDC/ERS/IDSA Clinical Practice Guideline. *Am J Respir Crit Care Med*, 200(10), e93-e142. <https://doi.org/10.1164/rccm.201909-1874ST>

Nakiyingi, L., Moodley, V. M., Manabe, Y. C., Nicol, M. P., Holshouser, M., Armstrong, D. T., Zemanay, W., Sikhondze, W., Mbabazi, O., Nonyane, B. A., Shah, M., Joloba, M. L., Alland, D., Ellner, J. J., & Dorman, S. E. (2014). Diagnostic accuracy of a rapid urine lipoarabinomannan test for tuberculosis in HIV-infected adults. *J Acquir Immune Defic Syndr*, 66(3), 270-279. <https://doi.org/10.1097/qai.000000000000151>

Nasiri, M. J., Pormohammad, A., Goudarzi, H., Mardani, M., Zamani, S., Migliori, G. B., & Sotgiu, G. (2019). Latent tuberculosis infection in transplant candidates: a systematic review and meta-analysis on TST and IGRA. *Infection*, 47(3), 353-361. <https://doi.org/10.1007/s15010-019-01285-7>

NICE. (2019, September 12). *Tuberculosis*. <https://www.nice.org.uk/guidance/ng33/chapter/Recommendations>

NIH. (2022, February 17). *Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV: Mycobacterium tuberculosis Infection and Disease*. <https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/mycobacterium-0>

NSTC. (2021, February 5). *Testing and Treatment of Latent Tuberculosis Infection in the United States: Clinical Recommendations*. [http://www.tbcontrollers.org/docs/resources/tb-infection/LTBI\\_Clinical\\_Recommendations\\_Version\\_002052021.pdf](http://www.tbcontrollers.org/docs/resources/tb-infection/LTBI_Clinical_Recommendations_Version_002052021.pdf)

Pai, M., Denkinger, C. M., Kik, S. V., Rangaka, M. X., Zwerling, A., Oxlade, O., Metcalfe, J. Z., Cattamanchi, A., Dowdy, D. W., Dheda, K., & Banaei, N. (2014). Gamma interferon release assays for detection of Mycobacterium tuberculosis infection. *Clin Microbiol Rev*, 27(1), 3-20. <https://doi.org/10.1128/cmr.00034-13>

Pai, M., Flores, L. L., Hubbard, A., Riley, L. W., & Colford, J. M., Jr. (2004). Nucleic acid amplification tests in the diagnosis of tuberculous pleuritis: a systematic review and meta-analysis. *BMC Infect Dis*, 4, 6. <https://doi.org/10.1186/1471-2334-4-6>

Pai, M., Nicol, M. P., & Boehme, C. C. (2016). Tuberculosis Diagnostics: State of the Art and Future Directions. *Microbiol Spectr*, 4(5). <https://doi.org/10.1128/microbiolspec.TBTB2-0019-2016>

Peto, H. M., Pratt, R. H., Harrington, T. A., LoBue, P. A., & Armstrong, L. R. (2009). Epidemiology of extrapulmonary tuberculosis in the United States, 1993-2006. *Clin Infect Dis*, 49(9), 1350-1357. <https://doi.org/10.1086/605559>

RBS. (2015). TB Breathalyser - TB Breath Test. <http://www.rapidbiosensor.com/tbbreathalyser>  
Ruan, Q., Zhang, S., Ai, J., Shao, L., & Zhang, W. (2016). Screening of latent tuberculosis infection by interferon-gamma release assays in rheumatic patients: a systemic review and meta-analysis. *Clin Rheumatol*, 35(2), 417-425. <https://doi.org/10.1007/s10067-014-2817-6>

Shah, M., Hanrahan, C., Wang, Z. Y., Dendukuri, N., Lawn, S. D., Denkinger, C. M., & Steingart, K. R. (2016). Lateral flow urine lipoarabinomannan assay for detecting active tuberculosis in HIV-positive adults. *Cochrane Database Syst Rev*(5), Cd011420. <https://doi.org/10.1002/14651858.CD011420.pub2>

Shah, M., Martinson, N. A., Chaisson, R. E., Martin, D. J., Variava, E., & Dorman, S. E. (2010). Quantitative analysis of a urine-based assay for detection of lipoarabinomannan in patients with tuberculosis. *J Clin Microbiol*, 48(8), 2972-2974. <https://doi.org/10.1128/jcm.00363-10>

Snider, D. E., Jr. (1982). The tuberculin skin test. *Am Rev Respir Dis*, 125(3 Pt 2), 108-118. <https://doi.org/10.1164/arrd.1982.125.3P2.108>

Steingart, K. R., Henry, M., Ng, V., Hopewell, P. C., Ramsay, A., Cunningham, J., Urbanczik, R., Perkins, M., Aziz, M. A., & Pai, M. (2006). Fluorescence versus conventional sputum smear microscopy for tuberculosis: a systematic review. *Lancet Infect Dis*, 6(9), 570-581. [https://doi.org/10.1016/s1473-3099\(06\)70578-3](https://doi.org/10.1016/s1473-3099(06)70578-3)

Steingart, K. R., Ng, V., Henry, M., Hopewell, P. C., Ramsay, A., Cunningham, J., Urbanczik, R., Perkins, M. D., Aziz, M. A., & Pai, M. (2006). Sputum processing methods to improve the

sensitivity of smear microscopy for tuberculosis: a systematic review. *Lancet Infect Dis*, 6(10), 664-674. [https://doi.org/10.1016/s1473-3099\(06\)70602-8](https://doi.org/10.1016/s1473-3099(06)70602-8)

Taylor, Z., Nolan, C. M., & Blumberg, H. M. (2005). Controlling tuberculosis in the United States. Recommendations from the American Thoracic Society, CDC, and the Infectious Diseases Society of America. *MMWR Recomm Rep*, 54(Rr-12), 1-81.

Ustinova, V. V., Smirnova, T. G., Sochivko, D. G., Varlamov, D. A., Larionova, E. E., Andreevskaya, S. N., Andrievskaya, I. Y., Kiseleva, E. A., Chernousova, L. N., & Ergeshov, A. (2019). New assay to diagnose and differentiate between Mycobacterium tuberculosis complex and nontuberculous mycobacteria. *Tuberculosis (Edinb)*, 114, 17-23. <https://doi.org/10.1016/j.tube.2018.10.004>

WHO. (2015a). Guidelines on the Management of Latent Tuberculosis Infection. In: World Health Organization.

WHO. (2015b). IMPLEMENTING TUBERCULOSIS DIAGNOSTICS. [https://apps.who.int/iris/bitstream/handle/10665/162712/9789241508612\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/162712/9789241508612_eng.pdf?sequence=1)

WHO. (2018). Latent TB Infection : Updated and consolidated guidelines for programmatic management. WHO. <https://apps.who.int/iris/bitstream/handle/10665/260233/9789241550239-eng.pdf?>

WHO. (2020). *Global tuberculosis report 2020*. World Health Organization. <https://apps.who.int/iris/bitstream/handle/10665/336069/9789240013131-eng.pdf>

WHO. (2021, July 7). *WHO consolidated guidelines on tuberculosis. Module 3: Diagnosis - Rapid diagnostics for tuberculosis detection, 2021 update*. World Health Organization. <https://www.who.int/publications/i/item/9789240029415>

Woods, G. L., Lin, S.-Y. G., & Desmond, E. P. (2015). Susceptibility Test Methods: Mycobacteria, Nocardia, and Other Actinomycetes. In *Manual of Clinical Microbiology, Eleventh Edition*. ASM. <https://doi.org/doi:10.1128/9781555817381.ch76>

Yajko, D. M., Nassos, P. S., Sanders, C. A., Madej, J. J., & Hadley, W. K. (1994). High predictive value of the acid-fast smear for Mycobacterium tuberculosis despite the high prevalence of Mycobacterium avium complex in respiratory specimens. *Clin Infect Dis*, 19(2), 334-336.

Zürcher, K., Ballif, M., Fenner, L., Borrell, S., Keller, P. M., Gnokoro, J., Marcy, O., Yotebieng, M., Diero, L., Carter, E. J., Rockwood, N., Wilkinson, R. J., Cox, H., Ezati, N., Abimiku, A. G., Collantes, J., Avihingsanon, A., Kawkitinarong, K., Reinhard, M., . . . Egger, M. (2019). Drug susceptibility testing and mortality in patients treated for tuberculosis in high-burden countries: a multicentre cohort study. *Lancet Infect Dis*, 19(3), 298-307. [https://doi.org/10.1016/s1473-3099\(18\)30673-x](https://doi.org/10.1016/s1473-3099(18)30673-x)



7/5/2023	Document updated with literature review. The following changes were made to Reimbursement Information: #2 and #3 were combined and now reads: For all suspected TB infections, the following tests may be reimbursable: Acid fast bacilli (AFB) smear/stain; Culture and culture-based drug susceptibility testing of Mycobacteria spp. Add #4 For patients whose sputum is AFB smear positive of Hologic Amplified MTD positive, molecular-based drug susceptibility testing may be reimbursable when one of the following criteria is met: a. The individual has been treated for TB in the past. b. The individual was born in or has lived for at least 1 year in a foreign country with at least a moderate TB incidence ( $\geq 20$ per 100,000) or a high primary multi-drug resistant (MDR)-TB prevalence ( $\geq 2\%$ ). c. The individual is a contact of an individual with MDR-TB; d. The individual is HIV infected. Other revisions made for clarity. References updated.
11/1/2022	New policy