

Tuberculosis Laboratory Diagnostics Summary	
AFB Smear	<ul style="list-style-type: none"> • Tests for the presence of any mycobacterium. • Results available within 24 hours. • Provides clue to potential infectivity. • Does not differentiate between live and dead mycobacterium. • Performed in most laboratories.
AFB Culture	<ul style="list-style-type: none"> • Gold standard for diagnosing TB. • Results typically available in 2-6 weeks. • Only detects live mycobacterium. • Performed at WAPHL, Harborview, SKC PHL, PAML, UW, and commercial labs.
Species Identification	<ul style="list-style-type: none"> • Performed <u>automatically</u> on positive cultures to determine the type of mycobacterium present. • WAPHL uses Nucleic Acid Amplification Test (NAAT) to identify MTBC or MAC.
GeneXpert PCR	<ul style="list-style-type: none"> • Detects MTBC and rpoB mutations. • Performed on decontaminated/concentrated samples (1x per new patient, second by request). Only sputum is validated for GeneXpert. • Performed after AFB smear, if ordered (more sensitive on smear positive specimens). • A positive GeneXpert is considered a diagnosed case of TB. • A negative GeneXpert does not rule out TB. • Results available in 24-48 hours. • Does not differentiate between live and dead mycobacterium. • Two methods for NAA testing include: <ul style="list-style-type: none"> ○ Real-Time Polymerase Chain Reaction (RT-PCR) performed at WAPHL. ○ Hsp65 Sequencing performed at UW for NTM.
Drug Sensitivity Testing	<ul style="list-style-type: none"> • First-line (SIRE and PZA) performed <u>automatically</u>, using MGIT instrument, on culture positive specimens. • Available within 30 days of culture positive result, or 17 days from receiving specimens for reference specimens. • Performed at Harborview, PAML, or WAPHL. • Second-line performed at WAPHL or CDC using plate or Agar Proportion Method, if first-line resistance detected (except PZA) or as requested.
Drug Resistance Mutation Detection	<ul style="list-style-type: none"> • Detects common mutations located within specific regions of TB DNA associated with drug resistance. • Performed when requested on NAAT or culture positive specimens. • Molecular Detection of Drug Resistance (MDDR) is performed at CDC for detecting mutations. • MDDR turnaround time is 5 weeks from date received at CDC (sequencing results usually within 1-2 weeks, and phenotypic DST up to 5 weeks). • Detected mutation does not always mean total resistance to the drug(s).
Genotyping	<ul style="list-style-type: none"> • Performed <u>automatically</u> on culture positive specimens. • Determines the strain of TB and whether it matches other strains of TB. • Performed by a CDC contracted lab in Michigan.
<p>Acronyms: Washington State Public Health Lab (WAPHL), Seattle and King County Public Health Lab (SKC PHL), Pathology Associates Medical Laboratory (PAML), University of Washington (UW), Non-tuberculosis mycobacteria (NTM), Centers for Disease Control (CDC), Streptomycin, Isoniazid, Rifampin, Ethambutol (SIRE), Pyrazinamide (PZA)</p>	

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.