

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 2-8 weeks • Only detects live mycobacterium • Performed at WAPHL, Harborview, SeaKing 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 DNA Probe (AccuProbe ID for MTBC, MAC, MGO, MKA, NTM) to identify the species
Nucleic Acid Amplification Test (NAAT)	<ul style="list-style-type: none"> • Detects TB and MAC DNA • Performed on decontaminated/concentrated samples (2x per new patient) • Performed after AFB smear, if ordered (more sensitive on smear positive specimens) • A positive NAAT is considered a confirmed case of TB • A negative NAAT does not rule out TB • Results available in 48-72 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
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 • 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 • 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 (sequencing results usually within 1-2 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 (SeaKing PHL), Pathology Associates Medical Laboratory (PAML), University of Washington (UW), Centers for Disease Control (CDC), Streptomycin, Isoniazid, Rifampin, Ethambutol (SIRE), Pyrazinamide (PZA)</p>	

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