Reporting and Interpretation of Results

Specimens are processed daily, five days (Monday – Friday) a week. The Arizona State Public Health Laboratory is closed all state recognized holidays.

Turn Around Times		
Test	**Turn Around Time**	**Comments/Explanation**
Positive Smears	24 Hours	Positive smears on all new patients are telephoned to the submitting agency.
Negative Smear Cultures	6 weeks	If no growth after 6 weeks, reported as "No Mycobacteria isolated" to the submitting agency.
Positive Smear Cultures	8 Weeks	If no growth after 8 weeks, reported as "No Mycobacteria isolated" to the submitting agency.
Negative or Positive Smear Cultures – Growth Detected	48 hours after detection of growth	Identification of the organism after detection of growth reported to the submitting agency.
Positive NAAT results	24 Hours	After test is approved by Tuberculosis Control, allow 24 hours for results to be telephoned to the submitting agency.
Results of direct drug susceptibilities	11 weeks	Timeframe consists of possibly up to 8 weeks for smear cultures to have growth, then allow three weeks for drug susceptibilities to be performed.

Smears are examined daily by fluorescent microscopy, using a fluorochrome stain. **The results of positive smears on all new patients are telephoned to the submitting agency within 24 hours.** Preliminary laboratory reports are prepared and sent out for all smear results.

Specimens are cultured onto both solid and liquid media. Cultures are examined for growth during a period of 6 weeks (on negative smears) and 8 weeks for positive smears, before being reported as "No Mycobacteria isolated". Cultures exhibiting typical colonial morphology are identified using High Performance Liquid Chromatography (HPLC). HPLC can be performed on cultures from both liquid and solid media. *Allow 48 hours after detection of growth for identification of the organism.* This method can be used to identify most known species of Mycobacteria.

Nucleic Acid Amplification (Cepheid GeneXpert MTB/RIF Molecular Assay) test is automatically performed on smear positive respiratory specimens from new patients on samples processed at the ASPHL. The Cephid GeneXpert MTB/RIF Molecular assay may also be performed on smear negative respiratory specimens from new patients upon approval from the Arizona Department of Health Services, TB Control section at (602) 364-0715. Submitters who process their own samples may also submit samples to the ASPHL for an NAAT (GeneXpert) with the approval of the TB Control Section. Once approval has been given, the submitter must send a fresh sample to be processed by the Arizona State Public Health Laboratory. If there is no other alternative but to use the sample processed by the submitter, the report will be qualified with a disclaimer. **Positive NAAT results are telephoned to the submitting agency within 24 hours.**

Drug Susceptibilities

Drug susceptibilities are performed only on *Mycobacterium tuberculosis (MTB)* and *Mycobacterium kansasii.* Isolates of MTB from initial diagnostic specimens are tested for susceptibility to first-line drugs, including INH, Rifampin, Ethambutol, and Pyrazinamide using the MGIT rapid test system. Resistance to any of the drugs tested by MGIT, are confirmed by the conventional agar proportion method, along with an additional second-line drug regimen. The agar proportion method includes the second-line drugs Ethionamide, Ofloxacin, and Capreomycin. Drug susceptibility testing of *M. kansasii* is performed only by agar proportion method.

Susceptibilities are performed every 3 months on specimens that remain positive for MTB and M. kansasii. **All susceptibility results are telephoned to the submitter**. Susceptibility testing should be requested on subsequent isolates when a regimen appears to be failing. The manifestations of a failing regimen are: lack of conversion of smear and culture to negative within 3 months for persons receiving regimens containing both isoniazid and rifampin; lack of conversion of smear and culture to negative after 5 months for those receiving other regimens (without both isoniazid and rifampin); smears and cultures showing a decrease in number of organisms or colonies followed by a persistent increase in numbers ("fail and rise").

Note: *When submitting MGIT samples for MTB drug susceptibility testing, indicate the date the MGIT instrument identified the sample as positive. Omitting this information will cause delays in susceptibility testing.*

The results of all specimens are reported by mail to the submitter. In addition, all positive results are reported to the Tuberculosis Elimination Section of the Bureau of Epidemiology and Disease Control, Arizona Department of Health Services.