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Mycobacterium Tuberculosis/Rifampin Resistance PCR

Effective 8/28/2019, a new tool for diagnosis of Mycobacterium tuberculosis complex (MTBC) and identification of rifampin (RIF) resistance from sputum samples will now be available in-house.

The Xpert MTB/RIF is a nucleic acid amplification assay that simultaneously detects MTBC and resistance to rifampin. The test may be performed on direct sputum samples from patients with suspected TB. Because results are generally available in a matter of hours, rather than weeks, decisions regarding therapy and isolation may occur more rapidly. Also, the ability to quickly detect drug resistant strains of tuberculosis will enable patients to get on appropriate therapy sooner, and will support infection control and public health responses.

Order: Mycobacterium tuberculosis PCR (MTB PCR). An AFB culture must be ordered simultaneously.

Specimen Requirements: Sputum, preferably first morning.

Test Performed: 24 hours a day/7 days a week. Turn around generally within 4-6 hours.

Reporting: MTBC will be reported as detected or not detected. If MTBC is detected, the results will also indicate:

- RIF Resistance Detected: High probability of resistance to RIF
- RIF Resistance Not detected: Probably susceptible to RIF
- RIF Resistance Indeterminate: Test could not accurately determine resistance to RIF

Regardless of the Xpert MTB/RIF result, patient specimens must also have mycobacterial culture to ensure isolates are available for drug susceptibility testing and genotyping.

Performance notes:

- 99.7% sensitive and 98.5% specific when compared to culture for smear positive sputum.
- 76.1% sensitive and 98.8% specific when compared to culture for smear negative sputum.

Knowing the AFB smear result in conjunction with a NAA test can better inform clinical decisions. For example, a negative NAA test on a smear positive specimen used in conjunction with patient history and clinical presentation, could contribute to ruling out active TB.

Please direct any questions to Dr. Karre, director of microbiology at (402)354-7842 or Jennifer Krifka, microbiology service leader at (402)354-3147.

References:

- Cepheid GeneXpert MTB/RIF package insert, March 2016.
- A New Tool to Diagnose Tuberculosis: The MTB/RIF assay. CDC fact sheet.
https://www.cdc.gov/tb/publications/factsheets/pdf/xpertmtb-rifassayfactsheet_final.pdf