Shared health Soins communs Manitoba

Laboratory: Clinical Microbiology

Test Name:

MYCOBACTERIA (ACID-FAST BACILLI [AFB]), CULTURE, RESPIRATORY (Sputum/Bronchial Alveolar Lavage (BAL)/Bronchial Washings)

Test Code: AFBR

Clinical Information:

Testing Indications:
Respiratory specimens submitted for acid-fast bacilli (AFB) detection are processed for the identification of *Mycobacteria* species [*Mycobacterium tuberculosis* and nontuberculous mycobacteria (NTM)].
The Canadian Tuberculosis Standards state that "testing for tuberculosis (TB) is indicated in everyone considered to be at high risk for TB disease or with signs and symptoms of TB".
Sputum specimens for AFB detection are one of the minimum evaluation criteria for patients suspected of nontuberculous mycobacteria.

Recommendations:
For the initial diagnostic samples of tuberculosis, at least three sputum samples of 5-10 mL (min. 3 mL) should be collected and submitted for testing by microscopy and culture, prior to the commencement of therapy. The samples may be collected on the same day, at least 1 hour apart.
For follow-up samples of known tuberculosis-positive patients, three sputum samples of 5-10 mL (min. 3 mL) should be collected 8-24 hours apart (with 1 early morning sample preferred). Follow-up samples should be submitted after two months of effective TB therapy to ensure the specimens are culture negative.
For nontuberculous mycobacteria, three early-morning sputum samples should be collected on separate days.
Induced sputum may be submitted when expectorated sputum cannot be collected. Bronchoscopy samples (BAL, Bronchial wash/brush), Endotracheal aspirates, and Transtracheal aspirates can be collected when expectorated or induced sputum are unavailable. 5-10 mL (min. of 3 mL) of sample should be submitted.
Shared Health Testing Process - Every AFB respiratory culture is evaluated by microscopy and culture. Smears are reported semi-quantitatively (Negative or 1+ to 4+). Cultures are incubated for 7 weeks and reported as soon as growth is detected.
All microscopy smear positive AFB samples receive nucleic acid amplification testing (NAAT). AFB smear negative samples require a microbiologist consult if a NAAT is required. The in-house NAAT detects *M. tuberculosis* and *Mycobacterium* sp. DNA.
M. tuberculosis are routinely referred to the National Reference Centre for Mycobacteriology-National Microbiology Laboratory (NRCM-NML) for susceptibility testing. Susceptibility testing for non-tuberculous mycobacteria may be requested by consultation with the Shared Health Microbiologist-on-call.

Patient Preparation Instructions:
Patients' sample collection should be conducted in accordance with Infection and Control Practices. The WRHA Acute Infection Prevention and Control Manual states that "when collecting specimens for suspected or active TB, specimens must be collected utilizing Airborne Precautions regardless of age".
Accurate patient identification must be made prior to sample collection. Patient identification should be done in accordance with site policy.
Samples and requisitions must be labeled/completed in accordance with the Shared Health Specimen Acceptance Policy.
Expectorated Sputum Collection Guidelines: "How to Collect a Sputum Sample" PB120-10-05E (English and French)
Induced sputum should be collected as recommended by the Respiratory Therapy Departments.
1. Using a nebulizer, have the patient inhale a large volume (approximately 25 mL) of 3% hypertonic saline. 2. Collect the induced sputum in a sterile container.

Collection Devices:

Preferred Device:	**1 - Sterile Specimen Container (100 mL)**
Alternate Device:	1 - Sterile Aspiration Trap - for Bronchial washings/aspirates

Bronchial brushes should be placed in a Sterile Specimen Container (100 mL) with up to 5 mL of saline.

Specimen Required:

Sputum, BAL, Bronchial wash/brush, Endotracheal aspirate, Tracheal aspirate - 5-10 mL (Adult and Pediatric)
Do not add preservatives or additives. Do not pool sputum samples.
Ensure induced sputum samples are labelled as "induced sputums". The induced specimens may appear watery but will be processed the same way as expectorated sputum samples when they are labelled accurately.

Referral:

Ensure samples that are being sent to a referral laboratory are packaged in accordance with Transport of Dangerous Goods recommendations for diagnostic samples.

Requisition: **_SH Microbiology - Provincial Requisition (R250-10-06)**

Reference Values:

Microscopy: No acid-fast bacilli observed.
Culture: No acid fast bacilli isolated after 7 weeks of incubation.
NAAT: Negative for *Mycobacterium tuberculosis* complex DNA and negative for *Mycobacteria* spp. DNA.

Availability:

Weekdays
Weekdays (Monday-Friday). Mycobacteriology cultures are only performed at the Health Sciences Centre in Winnipeg. AFB positive smears of specimens are phoned to the nursing unit immediately. Culture positive index cases of M. tuberculosis are phoned to the nursing unit immediately. Positive M. tuberculosis NAAT results of index cases are phoned to the nursing unit immediately.

See Also:

More Information:

Specimen Handling:
Respiratory samples should be refrigerated for storage.
Samples may be held at room temperature for less than 2 hours.