

| PROGRAM Standard Operating Procedure – Laboratory Services | |
|--|-------------------|
| Title: MIC31300 – Throat Culture | Policy Number: |
| Program Name: Laboratory Services | |
| Applicable Domain: Lab, DI and Pharmacy Services | |
| Additional Domain(s): NA | |
| Effective Date: | Next Review Date: |
| Issuing Authority: Director, Laboratory and Diagnostic Imaging Services | Date Approved: |
| Accreditation Canada Applicable Standard: NA | |

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GUIDING PRINCIPLE:

Throat swabs, as well as pharyngeal and peritonsillar abscess swabs are submitted for the diagnosis of *Streptococcus pyogenes* pharyngitis or Group A Strep.

PURPOSE/RATIONALE:

This standard operating procedure describes the screening for Group A *Streptococcus* (GAS) in throat specimens.

SCOPE/APPLICABILITY:

This standard operating procedure applies to Medical Laboratory Technologists (MLTs) processing specimens for throat culture.

SAMPLE INFORMATION:

| | |
|-------------------------------|---|
| Type | Swab • Amie's with or without charcoal |
| Source | • Throat swab |
| Stability | If the sample is received in the laboratory and processed greater than 48 hours from collection: • Add specimen quality comment: "Delayed transport may adversely affect pathogen recovery" |
| Storage Requirements | Room temperature |
| Criteria for rejection | 1. Unlabeled/mislabeled swab 2. Specimen container label does not match patient identification on requisition 3. Duplicate specimens obtained with same collection method within 24 hours |

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REAGENTS and/or MEDIA:

- Blood agar (BA)
- Identification reagents: catalase and Strep latex test

SUPPLIES:

- Disposable inoculation needles
- Wooden sticks
- Glass test tubes
- Sterile pipettes
- Anaerobic jar, pack, and indicator

EQUIPMENT:

- Biosafety cabinet
- 35° ambient air incubator
- VITEK 2 and supplies

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials or cultures:

- Ensure that appropriate hand hygiene practices be used
- Lab gown must be worn when performing activities with potential pathogens
- Gloves must be worn when direct skin contact with infected materials is unavoidable
- Eye protection must be used when there is a known or potential risk of exposure of splashes
- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC)
- The use of needles, syringes and other sharp objects should be strictly limited

All patient specimens are assumed to be potentially infectious. Routine Practices must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

QUALITY CONTROL:

- Refer to Test Manual for reagent quality control procedures

PROCEDURE INSTRUCTIONS:

| Step | Action |
|--|--|
| Processing swabs for throat culture | |
| 1 | In the biosafety cabinet: <ul style="list-style-type: none">• Inoculate BA with the swab• Ensure all surfaces of the swab make contact with the agar• Streak for isolated growth using a disposable inoculation needle |
| 2 | Incubate the media: <ul style="list-style-type: none">• Place BA in the CO₂ incubator in throat rack to be set up in anaerobic jar by evening technologist |

INTERPRETATION OF RESULTS:

| Step | Action | | | | | | |
|--------------------------------|--|----|------|--------------------------------|---|--------------------------------|--|
| 1 | <ul style="list-style-type: none"> Observe BA plate at 48 hours Examine for large (>0.5 mm), beta hemolytic colonies resembling GAS | | | | | | |
| 2 | If no large, beta-hemolytic Streptococci colonies seen at 48 hours: <ul style="list-style-type: none"> Record observations in the LIS Workup complete GAS not isolated | | | | | | |
| 3 | If large, beta-hemolytic Streptococci colonies are seen at 48 hours: <ul style="list-style-type: none"> Record observations in the LIS Perform Strep latex test for Group A | | | | | | |
| 4 | <table> <tr> <th>IF</th><th>THEN</th></tr> <tr> <td>Strep A latex test NEGATIVE</td><td> <ul style="list-style-type: none"> Record observations in LIS Workup complete, GAS not isolated </td></tr> <tr> <td>Strep A latex test POSITIVE</td><td> <ul style="list-style-type: none"> Record observations in LIS GAS isolated </td></tr> </table> | IF | THEN | Strep A latex test NEGATIVE | <ul style="list-style-type: none"> Record observations in LIS Workup complete, GAS not isolated | Strep A latex test POSITIVE | <ul style="list-style-type: none"> Record observations in LIS GAS isolated |
| IF | THEN | | | | | | |
| Strep A latex test NEGATIVE | <ul style="list-style-type: none"> Record observations in LIS Workup complete, GAS not isolated | | | | | | |
| Strep A latex test POSITIVE | <ul style="list-style-type: none"> Record observations in LIS GAS isolated | | | | | | |

NOTE: Each Streptococcus grouping latex test should be tested with at least one extra grouping latex suspension as a negative control

REPORTING INSTRUCTIONS:

| IF | REPORT |
|---|--|
| GAS not isolated | <ul style="list-style-type: none"> Report: "No Streptococcus pyogenes (Group A) isolated" |
| GAS isolated and clinical history does not indicate: <ul style="list-style-type: none"> History of penicillin allergy Recurrent pharyngitis Treatment failure Current therapy with erythromycin or clindamycin If requested by physician | <ul style="list-style-type: none"> Choose key 4 on STRA keypad to add isolate: "Streptococcus pyogenes (Group A)" List quantitation as "Isolated" The following isolate comments will be added: &2109 and &A373 |
| GAS isolated and clinical history does indicate: <ul style="list-style-type: none"> History of penicillin allergy Recurrent pharyngitis Treatment failure Current therapy with erythromycin or clindamycin If requested by physician | <ul style="list-style-type: none"> Choose key 5 on STRA keypad to add isolate: "Streptococcus pyogenes (Group A)" List quantitation as "Isolated" VITEK AST-ST03 panel will be ordered Report susceptibility results as per ASTM |

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LIMITATIONS:

1. A negative throat culture does not eliminate the possibility of a throat infection. Inadequate specimen collection, improper specimen handling, low organism levels in the specimen or overgrowth with normal oral microorganisms may yield a false negative result.

CROSS-REFERENCES:

NA

REFERENCES:

1. Leber, A. (2016). *Clinical microbiology procedures handbook*. (4thed.) Washington, D.C.: ASM Press
2. Jorgensen J.H., Pfaller M.A., Carroll K.C., Funke G., Landry M.L., Richter S.S., Warnock D.W. (2015). *Manual of Clinical Microbiology*, 11th edition. Washington, D.C: ASM Press

APPROVAL:

Date

REVISION HISTORY:

| REVISION | DATE | Description of Change | REQUESTED BY |
|----------|-----------|---|--------------|
| 1.0 | 22 Nov 17 | Initial Release | L. Steven |
| 2.0 | 30 Nov 19 | Procedure reviewed | L. Steven |
| 3.0 | 31 Dec 21 | Procedure reviewed and added to NTHSSA policy template | L. Steven |
| 4.0 | 05 Jun 23 | Procedure reviewed and updated to add new VITEK AST-ST03 card | L. Steven |
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