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):	
Effective Date:	Next Review Date:
Issuing Authority: Director of Health Services	Date Approved:
Accreditation Canada Applicable Standard: N/A	

GUIDING PRINCIPLE:
Throat swabs, as well as pharyngeal, pharyngeal abscess, and peritonsillar abscess swabs are submitted for the diagnosis of *Streptococcus pyogenes* pharyngitis. Also called Group A *Streptococcus* (GAS), these beta-haemolytic streptococci are one of the most impressive of human pathogens. For patients who are found to have an infection with *Streptococcus pyogenes*, treatment with an antimicrobial agent is generally initiated in order to prevent the potential sequelae of rheumatic fever or glomerulonephritis. If no specific infection is suggested, it should be assumed that the specimen is for the diagnosis of *Streptococcus pyogenes* pharyngitis.

PURPOSE/RATIONALE:
To determine the presence or absence of Group A Streptococcus in throat specimens.

SCOPE/APPLICABILITY:
This 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

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

SPECIAL SAFETY PRECAUTIONS:

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

- Ensure that appropriate hang 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: • Inoculate BA with the swab • Ensure all surfaces of swab make contact with the agar • Streak for isolated growth using a disposable inoculation needle
2	Incubate the media: • Place BA in the CO_2 incubator in throat rack in CO_2 incubator to be set up in anaerobic jar by evening technologist • The evening technologist will place the rack in an anaerobic jar with anaerobic pouch and indicator. Label jar with day 2 date and place in the O_2 incubator

INTERPRETATION OF RESULTS:

Step	Action	
1	• Observe BA plate at 24 hours and 48 hours • Examine for beta hemolytic colonies resembling GAS	
2	**IF**	**THEN**
	No large colony, beta-hemolytic *Streptococcus* colonies seen at 18-24 hours (Large colonies are >0.5mm)	• Record observations in the LIS • Re-incubate plates anaerobically for an additional 24 hours
	No large colony, beta-hemolytic *Streptococcus* colonies seen at 48 hours (Large colonies are >0.5mm)	• Record observations in the LIS • Workup complete • GAS not isolated
	If large colony, beta-hemolytic *Streptococcus* colonies are seen at 24 or 38 hours (Large colonies are >0.5mm)	• Record observations in the LIS • Perform Strep latex test for Group A
	IF	**THEN**
	GAS isolated and clinical history does _NOT indicate: • History of penicillin allergy • Recurrent pharyngitis • Treatment failure • If requested by physician	• Susceptibility testing not performed
	GAS and clinical history does indicate: • History of penicillin allergy • Recurrent pharyngitis • Treatment failure • If requested by physician	• Perform susceptibility testing as per ASTM

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	• Report: **"No Streptococcus pyogenes (Group A) isolated"**
GAS isolated Susceptibility testing not required	• Choose key 2 on STRA keypad to add isolate: **"Streptococcus pyogenes (Group A)"** • List quantitation as **"Isolated"** • The following isolate comment will be added: **&A372**
GAS isolated Susceptibility testing is required	• Choose key 3 on STRA keypad to add isolate: **"Streptococcus pyogenes (Group A)"** • List quantitation as **"Isolated"** • KB susceptibility panel for *Streptococcus pyogenes* is ordered • Report susceptibility results as per ASTM

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.
2. A throat culture positive for *Streptococcus pyogenes* does not distinguish between infection and colonization.

REFERENCES:

1. Leber, A. (2016). *Clinical microbiology procedures handbook.* (4th ed.) 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:

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Date

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	22 Nov 17	Initial Release	L. Steven
2.0	30 Nov 18	Updated to include new Vitek 2 instrument	L. Steven
3.0	31 Dec 20	Procedure reviewed and added to NTHSSA policy template	L. Steven