PURPOSE: To determine the presence or absence of bacterial pathogens in throat specimens.

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 and follow up action	1. Unlabeled/mislabeled swabs. 2. Specimen container label does not match patient identification on requisition. 3. Duplicate specimens obtained with same collection method within 24 hours. 4. Dry swabs.

Pathogens	Normal Flora
• *Streptococcus pyogenes* • *Arcanobacterium haemolyticum* • *Neisseria gonorrhoeae* – See MIC30450 • Yeast – See MIC32200 **NOTE: If gonorrhoeae culture is ordered on throat specimen, full throat culture along with gonorrhoeae culture will be performed**.	• Viridans streptococci • Non-hemolytic streptococci • *Streptococcus agalactiae* • *Staphylococcus* spp. • *Neisseria* spp. • *Moraxella catarrhalis* • Anaerobes • *Haemophilus* spp. • *Corynebacterium* spp. • Aerobic gram-negative bacilli

REAGENTS and/or MEDIA:

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

SUPPLIES:

- Disposable inoculation needles
- Biosafety cabinet
- Anaerobic jar, pack and indicator
- 35° ambient air incubator
- Glass test tubes
- Wooden sticks
- Sterile pipettes
- Vitek 2 and supplies

SPECIAL SAFETY PRECAUTIONS:

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

- 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. Universal precautions 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 Blood agar from the swab, ensuring all surfaces of the swab make contact with the agar.
2	Streak for isolated growth using a disposable inoculation needle:  Streak out to cover the whole plate.
3	Place plate in throat rack in CO_2 incubator to be set up in anaerobic jar by evening technologist. Incubate for 18-24 hours.

INTERPRETATION OF RESULTS:

Step	Action	
1	Remove culture plate after 18-24 hour incubation.	
2	Observe plate for beta hemolytic colonies.	
3	**If beta-hemolytic colonies are not seen:**	
	No beta-hemolytic colonies seen at 18-24 hours	• Record observations in the LIS. • Re-incubate plates anaerobically for an additional 24 hours.
	No beta-hemolytic colonies seen at 48 hours	• Record observations in the LIS. • Workup complete. GAS not isolated.

Please Note:

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

4	**If beta-hemolytic colonies are seen, perform Strep latex test for Group A:**	
	IF	**THEN**
	Group A Strep latex test is negative and clinical history does <u>not</u> indicate: • Sore throat or pharyngitis accompanied by a rash. • History of treatment failure. • History of recurrent/persistent pharyngitis.	• Record observations in LIS. • Workup complete. GAS not isolated.
	Group A Strep latex test is negative and clinical history does indicate: • Sore throat or pharyngitis accompanied by a rash. • History of treatment failure. • History of recurrent/persistent pharyngitis.	• Record observations in LIS. • Perform gram stain on beta hemolytic colony. • If gram-stain results are Gram-positive bacilli, perform Vitek GP card to screen for *Arcanobacterium haemolyticum.*
	IF	**THEN**
	Group A Streptococcus latex testing is positive and clinical history does <u>not</u> indicate: • History of penicillin allergy. • Recurrent pharyngitis. • Treatment failure. • Current therapy with erythromycin/clarithromycin/ azithromycin/clindamycin. • If requested by physician.	• Record observations in LIS. • Susceptibility testing not performed.
	Group A Streptococcus latex testing is positive and clinical history does indicate: • History of penicillin allergy. • Recurrent pharyngitis. • Treatment failure. • Current therapy with erythromycin/clarithromycin/ azithromycin/clindamycin. • If requested by physician.	• Record observations in LIS. • Perform susceptibility testing as per ASTM.

REPORTING RESULTS:

IF	REPORT
No beta hemolytic colonies isolated at 48 hours and significant clinical history is not provided.	• Report: **"No Group A streptococcus isolated"**
No beta hemolytic colonies isolated at 48 hours and significant clinical history is provided.	• Report: **"No Group A streptococcus isolated"**
Strep latex testing positive for Group A and susceptibility testing not required.	• Choose key A on STRA keypad to add isolate: **"Streptococcus pyogenes (Group A)"** • List quantitation as **"Isolated"** • The following canned susceptibility comment will be added: **"This organism is predictably susceptible to penicillin and resistant to TMP-SMX. Susceptibility to erythromycin and clindamycin is variable"**
Strep latex testing positive for Group A and susceptibility testing is required.	• Choose key B 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.
Streptococcus latex testing negative for Group A and *Arcanobacterium haemolyticum* isolated.	• Report: **"No Group A streptococcus isolated."** • Report: **"Arcanobacterium haemolyticum"** • List quantitation as **"Isolated"** • 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:

- Clinical Microbiology Procedures Handbook, 4th edition, ASM Press, 2016
- 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, ASM Press, Washington, D.C.

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	22 Nov 2017	Initial Release	L. Steven
2.0	30 Nov 2018	Updated to include new Vitek 2 instrument	L. Steven