

PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC31200 – GBS Screen	Policy Number: 15-122-V1
Program Name: Laboratory Services	
Applicable Domain: Lab, DI and Pharmacy Services	
Additional Domain(s): NA	
Effective Date: 20/05/2025	Next Review Date: 20/05/2027
Issuing Authority: Director, Laboratory and Diagnostic Imaging Services	Date Approved: 20/05/2025
Accreditation Canada Applicable Standard: NA	

**Uncontrolled When Printed**

**GUIDING PRINCIPLE:**

10-35% of women are asymptomatic carriers of Group B *Streptococcus* (*Streptococcus agalactiae*, GBS) in the genital and gastrointestinal tracts. GBS may be transmitted to the neonate at birth and remains a leading cause of serious illness and death in newborn populations.

**PURPOSE/RATIONALE:**

This standard operating procedure describes the screening for Group B *Streptococcus* (GBS) in vaginal/rectal specimens.

**SCOPE/APPLICABILITY:**

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

**SAMPLE INFORMATION:**

<b>Type</b>	Swab • Amie's with or without charcoal
<b>Source</b>	• Combined introital (vaginal and anorectal area) swab • Vaginal swabs are not the specimen of choice but will be processed
<b>Stability</b>	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"
<b>Storage Requirements</b>	Room temperature

**Disclaimer Message:** This is a **CONTROLLED** document for internal use only. Any documents appearing in paper form are not controlled and should be checked against the electronic file version prior to use.

<b>Criteria for rejection</b>	<ol style="list-style-type: none"> <li>1. Unlabeled/mislabeled swabs</li> <li>2. Specimen container label does not match patient identification on requisition</li> <li>3. Duplicate specimens obtained with same collection method within 24 hours</li> </ol>
-------------------------------	--

### REAGENTS and/or MEDIA:

- LIM Broth (LIM), StrepBSelect agar (GBS) and Blood agar (BA)
- Identification reagents: Strep latex test

### SUPPLIES:

- Disposable inoculation needles
- Wooden sticks
- Glass test tubes
- Sterile pipette

### EQUIPMENT:

- Biosafety cabinet
- 35° CO<sub>2</sub> incubator
- 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 MIC60040-Culture Media Quality Control procedure
- Refer to Test Manual for reagent quality control procedures

### PROCEDURE INSTRUCTIONS:

Step	Action
<b>Processing swabs for GBS screen</b>	
<b>1</b>	Place swab in LIM broth, break off leaving the swab in the broth medium and loosely recap. Leave broth in the rack in the BSC.

**Disclaimer Message:** This is a **CONTROLLED** document for internal use only. Any documents appearing in paper form are not controlled and should be checked against the electronic file version prior to use.

<b>2</b>	The evening technologist will incubate the rack of LIM broths in the CO <sub>2</sub> incubator before leaving for the evening.
<b>3</b>	<p>At 14:00, after 18 to 24 hours incubation, subculture the broth to StrepBSelect agar:</p> <ul style="list-style-type: none"> <li>Remove the required number of StrepBSelect plates from the refrigerator and bring to room temperature</li> <li>Saturate a sterile swab in the broth and rotate against the wall of the tube above the liquid to remove excess inoculum</li> <li>Inoculate StrepBSelect agar with the swab</li> <li>Ensure all surfaces of the swab make contact with the agar</li> <li>Streak for isolated growth using a disposable inoculation needle</li> </ul>
<b>4</b>	Label the GBS plate with: R (Date + 2 date).
<b>5</b>	<p>Incubate the media:</p> <ul style="list-style-type: none"> <li>Place GBS plate in the O<sub>2</sub> incubator on the "GBS SCREEN" section on the old cultures shelf</li> </ul>

### INTERPRETATION OF RESULTS:

Step	Action	
<b>1</b>	<ul style="list-style-type: none"> <li>Observe GBS plate at 38 to 48 hours</li> <li>Examine for blue colonies</li> </ul>	
<b>3</b>	<p>If no blue colonies are seen at 38 to 48 hours:</p> <ul style="list-style-type: none"> <li>Record observations in the LIS</li> <li>Workup complete</li> <li>GBS not isolated</li> </ul>	
<b>4</b>	<p>If blue colonies are seen at 38 to 48 hours:</p> <ul style="list-style-type: none"> <li>Record observations in the LIS</li> <li>Subculture colonies to BA plate if no isolated colonies are present</li> <li>If isolated colonies are present, perform Strep latex test for Group B</li> </ul>	
<b>5</b>	<b>IF</b>	<b>THEN</b>
	Strep B latex test NEGATIVE	<ul style="list-style-type: none"> <li>Record observations in the LIS</li> <li>Workup complete</li> <li>GBS not isolated</li> </ul>
	Strep B latex test POSITIVE	<ul style="list-style-type: none"> <li>Record observations in the LIS</li> <li>GBS isolated</li> </ul>
<b>6</b>	<b>IF</b>	<b>THEN</b>
	GBS isolated no penicillin allergy indicated in clinical history	<ul style="list-style-type: none"> <li>Choose key 4 on STRB keypad to add the organism <i>Streptococcus agalactiae</i></li> </ul>
	GBS isolated and clinical history indicates penicillin allergy	<ul style="list-style-type: none"> <li>Choose key 5 on the STRB keypad to add the organism <i>Streptococcus agalactiae</i></li> <li>Perform ST03</li> </ul>

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

**Disclaimer Message:** This is a **CONTROLLED** document for internal use only. Any documents appearing in paper form are not controlled and should be checked against the electronic file version prior to use.

## REPORTING INSTRUCTIONS:

IF	REPORT
No blue colonies	<ul style="list-style-type: none"> <li>Report: <b>"No Streptococcus agalactiae (Group B) isolated"</b></li> </ul>
Blue colonies, Strep B latex test NEGATIVE	<ul style="list-style-type: none"> <li>Report: <b>"No Streptococcus agalactiae (Group B) isolated"</b></li> </ul>
Blue colonies, Strep B latex test POSITIVE and no penicillin allergy indicated in clinical history	<ul style="list-style-type: none"> <li>List quantitation as <b>"Isolated"</b></li> <li>The following isolate comments will be added: <b>&amp;A336</b> and <b>&amp;IAPO</b></li> <li>A copy will automatically print to STH OBS (SOBS) or IRH IAC (IAC)</li> </ul>
Blue colonies, Strep B latex test POSITIVE and no penicillin allergy indicated in clinical history	<ul style="list-style-type: none"> <li>Verify Panel results and report as per ASTM</li> <li>Verify the organism ID Streptococcus agalactiae (Group B)</li> <li>List quantitation as <b>"Isolated"</b></li> <li>The following isolate comment will be added: <b>&amp;A336</b></li> <li>A copy will automatically print to STH OBS (SOBS) or IRH IAC (IAC)</li> </ul>

## LIMITATIONS:

1. If an inoculum contains a high density of *Streptococcus agalactiae*, the medium around the deposit may be coloured.
2. The colonies of some species, other than *Streptococcus agalactiae* (for example, *Streptococcus pyogenes*, *Streptococcus porcinus* and *Streptococcus gallolyticus*) may appear blue.
3. Prenatal GBS screening should be done between 35-37 weeks gestation as GBS colonization can be transient and colonization early in pregnancy is not predictive of early-onset GBS disease. Late third trimester colonization status has been used as a proxy of intrapartum colonization. The negative predictive value of GBS cultures performed  $\leq 5$  weeks before delivery is 95%-98%; however, the clinical utility decreases when a prenatal culture is performed more than five weeks before delivery because the negative predictive value declines.

## CROSS-REFERENCES:

- MIC60040-Culture Media Quality Control

## REFERENCES:

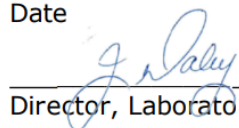
1. Leber, A. (2016). *Clinical microbiology procedures handbook*. (4<sup>th</sup>ed.) Washington, D.C.: ASM Press
2. Jorgensen, J. H., Pfaller, M. A., Carroll, K. C., Funke, G., Landry, M. L., Richter, S. S., Warnock, D. W. (2015). *Manual of clinical microbiology* (11<sup>th</sup>ed.). ASM Press
3. BioRad Laboratories. (2009/08). *StrepBSelect* package insert

**Disclaimer Message:** This is a **CONTROLLED** document for internal use only. Any documents appearing in paper form are not controlled and should be checked against the electronic file version prior to use.

## APPROVAL:

May 20, 2025

Date

  
Director, Laboratory and Diagnostic Imaging Services

## REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	15 May 17	Initial Release	L. Steven
2.0	22 Oct 18	Updated to include new chromogenic agar <i>StrepBSelect</i>	L. Steven
3.0	30 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
5.0	19 Dec 24	Updated to reflect removal of 24 hour read	L. Steven

**Disclaimer Message:** This is a **CONTROLLED** document for internal use only. Any documents appearing in paper form are not controlled and should be checked against the electronic file version prior to use.