

**Document Name:**

MRSA Screen – Chromogenic Agar

**Approved By:**

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**Status:** **APPROVED**

**PURPOSE:**

To screen for Methicillin Resistant Staphylococcus aureus (MRSA) on admission, in MRO screens and from infected sites

**SAMPLE INFORMATION:**

<b>Type</b>	Swab <ul style="list-style-type: none"> <li>• Amie’s with or without charcoal</li> </ul>
<b>Source</b>	<ul style="list-style-type: none"> <li>• Bilateral nasal swab</li> <li>• Bilateral groin swab</li> <li>• Swab from infected site</li> </ul>
<b>Stability</b>	<p>If the sample is received in the laboratory and processed greater than 48 h from collection:</p> <ul style="list-style-type: none"> <li>• Add specimen quality comment “Delayed transport may have compromised the recovery of organism”</li> </ul>
<b>Storage Requirements</b>	Room temperature
<b>Criteria for rejection and follow up action</b>	<ol style="list-style-type: none"> <li>1. Unlabeled/mislabeled swabs</li> <li>2. Dry swabs</li> </ol>

**REAGENTS and/or MEDIA:**

- Denim Blue and Blood Agar
- Identification reagents: rapid staph

**SUPPLIES:**

- Wooden applicator sticks
- Disposable inoculation needles
- 35° ambient air incubator
- Biosafety cabinet

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

**SPECIAL SAFETY PRECAUTIONS:**

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.

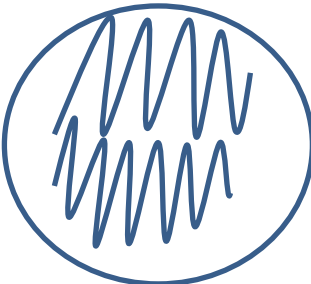
**QUALITY CONTROL:**

Refer to MIC60100 Non-Exempt Media Quality Control procedure

**PROCEDURE INSTRUCTIONS:**

Follow the steps in the table below:

\*Note: MRSA swabs are set up twice a day, Monday →Friday at noon and 5 pm. On weekends, they are set up once a day before 3 pm

Step	Action
1	In the biosafety cabinet, inoculate half Denim Blue agar from the swab
2	<p>Streak for confluent growth using a disposable inoculation needle</p>  <p>Streak out to cover half the plate</p>

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<b>3</b>	<p>Mark on Denim Blue plate:</p> <ul style="list-style-type: none"> <li>• “R” (for Read) followed by the date 24 hours from day of planting i.e.: July 1<sup>st</sup></li> <li>• Time of planting i.e.: noon</li> </ul> <p>Reason: Plates are read at approx. 18-24 hours after incubation</p>	
<b>4</b>	<p>Incubate plate in O<sub>2</sub> incubator at 35° for 18-24 hours in separate batches depending on time of incubation</p>	

**INTERPRETATION OF RESULTS:**

Follow the steps in the table below to interpret the MRSA culture

<b>ACTION</b>	
<ul style="list-style-type: none"> <li>• Remove cultures at 18-24 hours from O<sub>2</sub> incubator</li> <li>• Observe plates for denim blue colonies</li> </ul>	
<b>IF</b>	<b>THEN</b>
<p>No growth White colonies</p>	<ul style="list-style-type: none"> <li>• Log results into LIS</li> <li>• Report “No Methicillin Resistant Staph aureus</li> </ul>

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Light blue colonies	(MRSA) isolated”
Denim Blue colonies seen	<ul style="list-style-type: none"> <li>• If sufficient isolated colonies present, perform rapid staph directly off the Denim Blue plate.</li> <li>• If no isolated colonies or in doubt of the colour, subculture colonies to BA agar. Perform rapid staph off BA sub plate.</li> </ul>
<b>IF</b>	<b>THEN</b>
Rapid Staph POSITIVE Known history	<ul style="list-style-type: none"> <li>• Log results into LIS</li> <li>• Add organism: “Staphylococcus aureus”</li> <li>• Growth quantity: “Isolated”</li> <li>• Culture comment: “***Methicillin Resistant***, This organism is cloxacillin resistant and is resistant to all beta-lactam agents”</li> <li>• Go to Order Entry; copy report to Chief Medical Officer of Health (HPU) and Infection Control Nurse (SOHS) if in-patient</li> </ul>
<b>IF</b>	<b>THEN</b>
Rapid Staph POSITIVE First time isolated	<ul style="list-style-type: none"> <li>• Log results into LIS</li> <li>• Add organism: “Staphylococcus aureus”</li> <li>• Growth quantity: “Isolated”</li> <li>• Culture comment: “***Methicillin Resistant***, This organism is cloxacillin resistant and is resistant to all beta-lactam agents”</li> <li>• Go to Order Entry; copy report to the Chief Medical Officer of Health (HPU) and Infection Control Nurse (SOHS) if in-patient</li> <li>• In the patient demographics field click on ESO and add “MRSA Positive”</li> </ul>
Rapid Staph NEGATIVE	<ul style="list-style-type: none"> <li>• Log results into LIS</li> <li>• Report “No Methicillin Resistant Staph aureus (MRSA) isolated”</li> </ul>

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**LIMITATIONS:**

- Heavy inoculation may lead to a blue appearance (haze) in the main inoculum which should not be interpreted as a positive result.
- Some Bacillus species may produce an atypical, very dark navy blue coloured colony with a halo and crenated edge. Aerococcus species may also appear as dark navy blue colonies. If in doubt, subculture colonies to BA agar for further investigation.

**REFERENCES:**

- Clinical Microbiology Procedures Handbook, 4<sup>th</sup> 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, 11<sup>th</sup> edition, ASM Press, Washington, D.C.
- Oxoid Denim Blue agar package insert, May 2005

**REVISION HISTORY:**

VERSION	DATE	Description of Change	REQUESTED BY
1.0	22-Dec-16	Initial Release	L. Steven

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