Staphylococcus saprophyticus (LTR81529)

Edit Approved By: Van der Walt, Peet (09/27/2023) **Revision: 5.00**

Organism

Staphylococcus saprophyticus

Clinical

This organism is associated with urinary tract infections, typically in sexually active younger females but also rarely in males, older females and children (often in association with indwelling urinary catheters or obstruction). It has been implicated in nongonococcal urethritis in males, prostatitis, and may be sexually transmitted. It has also been associated with bacteremia, septicemia, nosocomial pneumonia, and wound infections.

Usual susceptibility pattern

S. saprophyticus is usually susceptible to amoxicillin/clavulanate, first generation cephalosporins, quinolones, nitrofurantoin, and tetracyclines. It is generally susceptible to TMP-SMX although some resistance has been described. This organisms is resistant to fosfomycin.

Susceptibility method

VITEK2. Additional tests include disc diffusion and Etest method.

Disc diffusion		Mueller-Hinton agar incubated in ambient air at 35°C for 16-18 hours
Cefoxitin Screen disc		Mueller-Hinton agar incubated in ambient air at 35°C for 24 hours. Use 0.5 McFarland suspension in saline.
Etest	Oxacillin/ Cloxacillin	Mueller-Hinton agar with 2% NaCl incubated in ambient air at 35°C for 48 hours. Use 1.0 McFarland suspension in saline.
	Vancomycin	Mueller-Hinton agar incubated in ambient air at 35°C for 24 hours. Use 0.5 McFarland suspension in saline.
	Other	Mueller-Hinton agar incubated in ambient air at 35°C for 16-20 hours. Use 0.5 McFarland suspension in saline.

Staphylococcus saprophyticus, Continued

Susceptibility reporting

	Blood	Sterile Body Site	Urine (non-pregnant) See Note	Urine (pregnant) See Note	Comments
Ampicillin			✓	✓	Disc diffusion using **2 µg disc** Report as R if oxacillin R **See Special Considerations**
Cefazolin	✓	✓	✓	✓	Report same as ox/clox
Ciprofloxacin			✓		Do not report in patients < 18 y
Doxycycline		✓	✓		If tetra S - report doxy S If tetra I/R - do doxy disc Do not report if patient <8 y
Oxacillin/ Cloxacillin	✓	✓	✓	✓	Refer to *Staphylococcus Oxacillin Reporting Flowchart* (Doc ID: MIC - 37934)
Nitrofurantoin			✓	✓	
TMP-SMX		✓	✓	✓	Do not report if patient <2 months
Vancomycin	2	2			2nd line if ox/clox R If vancomycin ≥4 µg/mL see **Special Considerations**

Note

Urine specimens	Susceptibility testing not routinely performed, as urinary tract infections (UTI) due to this organism respond to concentrations achieved in urine of antibiotics routinely used to treat UTIs. Susceptibility testing may be performed at physician request or if patient pregnant as therapeutic options are limited.

IF …	THEN …
• pregnant • physician request	Perform susceptibility testing according to reporting chart
None of the above	Add comment: "Susceptibility testing is not routinely performed on Staphylococcus saprophyticus. If antibiotic therapy is indicated, they are normally susceptible to amoxicillin-clavulanate, cephalexin, trimethoprim-sulfamethoxazole, nitrofurantoin and fluoroquinolones." &A366

Staphylococcus saprophyticus, Continued

Special considerations

<table>
<tr><td><u>Ampicillin:</u></td><td>Use ampicillin 2 µg discs. Interpret using EUCAST disc diffusion breakpoints.

EUCAST breakpoints:
<table>
<tr><th>Zone</th><th>Interpretation</th></tr>
<tr><td>≤17</td><td>R</td></tr>
<tr><td>≥18</td><td>S</td></tr>
</table>
Add comment: “Interpretation is based upon EUCAST breakpoints.”#amp3</td></tr>
<tr><td><u>Vancomycin:</u></td><td>Isolates with VITEK2 MIC ≥4 µg/mL, confirm MIC by Etest and consult microbiologist.
<table>
<tr><th>IF vancomycin is…</th><th>THEN….</th></tr>
<tr><td>4 µg/mL
(confirmed by Etest)</td><td>• The clinical failure rate of vancomycin may be significant.
• Consult Technical Supervisor
• Add comment:
“This isolate tests at the upper limit of susceptibility to vancomycin. Careful follow up to assess clinical response is required, or an alternate agent should be considered. Expert consultation is suggested.”#va04</td></tr>
<tr><td>8-16 µg/mL
(confirmed by Etest)</td><td>• Consult Technical Supervisor
• Report vancomycin as I
• Add comment: “This isolate exhibits resistance to vancomycin.” #va11
• Notify Infection Control & MOH</td></tr>
<tr><td>≥ 32 µg/mL
(confirmed by Etest)</td><td>• Consult Technical Supervisor
• Report vancomycin as R
• Add comments:
“Preliminary tests indicate this organism may be resistant to vancomycin”#va12
“Referred to Public Health Laboratory, Alberta Precision Laboratories. for Van gene testing.” #va13
• Notify Infection Control & MOH
• Send to reference laboratory for Van gene testing.</td></tr>
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Interpretation

For Etest, report actual MIC result. For interpretation (S, I, or R) report according to the nearest higher doubling dilution **(Appendix 1)**.

Use **CLSI** interpretive document for **Staphylococcus spp.** using Coagulase Negative Staphylococcal breakpoints.

For oxacillin and cefoxitin – Use EUCAST breakpoints. Refer to *Staphylococcus Oxacillin Reporting Flowchart* (Doc ID: MIC - 37934)

For ampicillin – Refer to Special Considerations