

Table 1C. *Staphylococcus* spp.

Tier 1: Antimicrobial agents that are appropriate for routine, primary testing and reporting	Tier 2: Antimicrobial agents that are appropriate for routine, primary testing but may be reported following cascade reporting rules established at each institution	Tier 3: Antimicrobial agents that are appropriate for routine, primary testing in institutions that serve patients at high risk for MDROs but should only be reported following cascade reporting rules established at each institution	Tier 4: Antimicrobial agents that may warrant testing and reporting by clinician request if antimicrobial agents in other tiers are not optimal because of various factors
Azithromycin or clarithromycin or erythromycin ^a			
Clindamycin ^a			
Oxacillin ^{b,c,d,e,f} Cefoxitin ^{b,c,d,e} (surrogate for oxacillin)		Ceftaroline ^g	
Doxycycline Minocycline ^a Tetracycline			
Trimethoprim-sulfamethoxazole			
Vancomycin ^h			
	Penicillin ^{b,i}		
	Daptomycin ^{h,j}		
	Linezolid	Tedizolid ^g	
		Rifampin ^k	
		Lefamulin ^{a,g}	
			Ciprofloxacin or levofloxacin Moxifloxacin
			Dalbavancin ^{g,h}
			Oritavancin ^{g,h}
			Telavancin ^{g,h}
			Gentamicin ^l
Urine Only			
Nitrofurantoin			

Abbreviations: MDRO, multidrug-resistant organism; MIC, minimal inhibitory concentration; MRS, methicillin (oxacillin)-resistant staphylococci.

Table 1C. *Staphylococcus* spp. (Continued)

Footnotes

- a. Not routinely reported on organisms isolated from the urinary tract.
- b. Penicillin-susceptible staphylococci are susceptible to other β -lactam agents with established clinical efficacy for staphylococcal infections (including both penicillinase-labile and penicillinase-stable agents; see Glossary I). Penicillin-resistant staphylococci are resistant to penicillinase-labile penicillins.
- c. MRS are resistant to currently available β -lactam antimicrobial agents, with the exception of ceftaroline. Thus, susceptibility or resistance to a wide array of β -lactam antimicrobial agents may be deduced from testing only penicillin and either ceftiofur or oxacillin. Testing of other β -lactam agents, except ceftaroline, is not advised.
- d. If a penicillinase-stable penicillin is tested, oxacillin is the preferred agent, and results can be applied to the other penicillinase-stable penicillins (refer to Glossary I). Detection of methicillin (oxacillin) resistance in staphylococci is achieved by using specific methods, as described in Tables 2C and 3H.
- e. See oxacillin and ceftiofur comments in Table 2C for using ceftiofur as a surrogate test for oxacillin.
- f. For *S. aureus*, *S. lugdunensis*, and other *Staphylococcus* spp. (except ***S. coagulans***, *S. epidermidis*, *S. pseudintermedius*, and *S. schleiferi*), only MIC testing for oxacillin, not disk diffusion testing, is acceptable; see exceptions in Table 2C.
- g. For *S. aureus* only, including methicillin (oxacillin)-resistant *S. aureus*.
- h. MIC testing only; disk diffusion testing is unreliable.
- i. If penicillin is tested, confirm susceptible results before reporting (see Table 2C comment [9] and Table 3G).
- j. Not routinely reported on organisms isolated from the lower respiratory tract.
- k. **Rx:** Rifampin should not be used alone for antimicrobial therapy.
- l. For staphylococci that test susceptible, gentamicin is used only in combination with other active agents that test susceptible.

NOTE: Information in boldface type is new or modified since the previous edition.

Table 2C. Zone Diameter and MIC Breakpoints for *Staphylococcus* spp.

Testing Conditions		QC Recommendations
Medium:	Disk diffusion: MHA Broth dilution: CAMHB; CAMHB + 2% NaCl for oxacillin; CAMHB supplemented to 50 µg/mL calcium for daptomycin Agar dilution: MHA; MHA + 2% NaCl for oxacillin NOTE: Agar dilution has not been validated for daptomycin.	Refer to the following: <ul style="list-style-type: none">• Tables 4A-1 and 5A-1 that list acceptable QC ranges applicable for each method• Appendix I to develop a QC plan When a commercial test system is used for antimicrobial susceptibility testing, refer to the manufacturer's instructions for QC strains and QC ranges.
Inoculum:	Colony suspension, equivalent to a 0.5 McFarland standard	
Incubation:	35°C ± 2°C; ambient air Disk diffusion: 16–18 hours; 24 hours (for cefoxitin when testing <i>Staphylococcus</i> spp., except <i>S. aureus</i> , <i>S. coagulans</i> , <i>S. lugdunensis</i> , <i>S. pseudintermedius</i> , and <i>S. schleiferi</i>) Dilution methods: 16–20 hours; 24 hours for oxacillin and vancomycin Testing at temperatures above 35°C may not detect MRS.	

Refer to Tables 3G, 3H, 3I, 3J, and 3K for additional testing recommendations, reporting suggestions, and QC.

General Comments

- (1) Refer to Table 1C for antimicrobial agents that should be considered for testing and reporting by microbiology laboratories.
- (2) For disk diffusion, test a maximum of 12 disks on a 150-mm plate and no more than 6 disks on a 100-mm plate; disks should be placed no less than 24 mm apart, center to center (see CLSI M02¹). Each zone diameter should be clearly measurable; overlapping zones prevent accurate measurement. Measure the diameter of the zones of complete inhibition (as judged by the unaided eye), including the diameter of the disk (see CLSI M02QG²). Hold the Petri plate a few inches above a black background illuminated with reflected light. The zone margin should be considered the area showing no obvious, visible growth that can be detected with the unaided eye. Ignore faint growth of tiny colonies that can be detected only with a magnifying lens at the edge of the zone of inhibited growth. With trimethoprim and the sulfonamides, antagonists in the medium may allow some slight growth; therefore, disregard slight growth (20% or less of the lawn of growth) and measure the more obvious margin to determine the zone diameter. For linezolid, any discernible growth within the zone of inhibition is indicative of resistance to the respective agent.

Table 2C. *Staphylococcus* spp. (Continued)

- (3) *S. aureus* complex consists of the coagulase-positive species *S. aureus*, *S. argenteus*, and *S. schweitzeri* **and other species not listed.**^{3,4,5} **At this time, CLSI has not evaluated the methods described herein on species other than *S. aureus*.** If *S. argenteus* is identified by MALDI-TOF MS or sequencing, it is recommended that it be reported as “*S. aureus* complex (*S. argenteus*),” and *S. aureus* phenotypic testing method recommendations, breakpoints, and interpretive categories should be used. Human infections with *S. schweitzeri* have yet to be reported.⁶
- (4) For staphylococci when testing chloramphenicol, clindamycin, erythromycin, linezolid, tedizolid, and tetracycline by broth microdilution MIC, trailing growth can make end point determination difficult. In such cases, read the MIC at the lowest concentration where the trailing begins. Tiny buttons of growth should be ignored (see CLSI M07⁷). With trimethoprim and the sulfonamides, antagonists in the medium may allow some slight growth; therefore, read the end point at the concentration in which there is ≥ 80% reduction in growth compared with the control (see CLSI M07⁷).
- (5) Routine testing of urine isolates of *S. saprophyticus* is not advised, because infections respond to concentrations achieved in urine of antimicrobial agents commonly used to treat acute, uncomplicated UTIs (eg, nitrofurantoin, trimethoprim-sulfamethoxazole, or a fluoroquinolone).
- (6) Historically, **for *Staphylococcus aureus* and staphylococci other than *Staphylococcus aureus* (SOSA)** resistance to the penicillinase-stable penicillins (see Glossary I) has been referred to as “methicillin resistance” or “oxacillin resistance.” MRS are strains that express *mecA* (or its homologue, *mecC*) or another mechanism of resistance, such as changes in affinity of penicillin-binding proteins for oxacillin (eg, modified *S. aureus* strains).

Most methicillin (oxacillin) resistance is mediated by *mecA*, encoding PBP2a (also called PBP2'). Tests for *mecA* and PBP2a are the most definitive tests for detection of methicillin (oxacillin) resistance for *Staphylococcus* spp. Mechanisms of methicillin (oxacillin) resistance other than *mecA*, such as *mecC*, are rare.⁸ MICs for strains with *mecC* are typically cefoxitin resistant and oxacillin susceptible; *mecC* resistance cannot be detected by tests directed at *mecA* or PBP2a.

Isolates that test positive for *mecA*, *mecC*, or PBP2a or resistant by any of the recommended phenotypic methods should be reported as methicillin (oxacillin) resistant (see the table below and Appendix G).

MRS are resistant to currently available β-lactam agents, with the exception of ceftaroline (see comment 12). This is because most documented cases of MRS infections have responded poorly to β-lactam therapy or because convincing clinical data that document clinical efficacy for those agents have not been presented.

Detection of methicillin (oxacillin) resistance in staphylococci is achieved by using specific methods as listed in this table and further described in Table 3H.

Table 2C. *Staphylococcus* spp. (Continued)

Methods or Targets for Detection of Methicillin (Oxacillin)-Resistant <i>Staphylococcus</i> spp.								
Organism	Disk Diffusion		MIC		<i>mecA</i>	PBP2a	Oxacillin Salt Agar	
	Cefoxitin	Oxacillin	Cefoxitin	Oxacillin				
<i>S. aureus</i>	Yes (16–18 h)	No	Yes (16–20 h)	Yes (24 h)	Yes	Yes	Yes (24 h)	
SOSA <i>S. lugdunensis</i>	Yes (16–18 h)	No	Yes (16–20 h)	Yes (24 h)	Yes	Yes	No	
<i>S. epidermidis</i>	Yes (24 h)	Yes (16–18 h)	No	Yes (24 h)	Yes	Yes	No	
<i>S. pseudintermedius</i>	No	Yes (16–18 h)	No	Yes (24 h)	Yes	Yes	No	
<i>S. coagulans</i>	No	Yes (16–18 h)	No	Yes (24 h)	Yes	Yes	No	
<i>S. schleiferi</i>								
<i>Staphylococcus</i> spp. (not listed above or not identified to the species level)	Yes, with exceptions ^a (24 h)	No	No	Yes (24 h)	Yes	Yes	No	

Abbreviations: h, hour(s); MIC, minimal inhibitory concentration; PBP2a, penicillin-binding protein 2a; **SOSA, staphylococci other than *Staphylococcus aureus*.**

^a The cefoxitin disk diffusion test may not perform reliably for all species (eg, *S. haemolyticus*) that fall into the category of “*Staphylococcus* spp. (not listed above or not identified to the species level).”⁹

- (7) For tests for β -lactamase production, detection of methicillin (oxacillin) resistance using oxacillin salt agar, reduced susceptibility to vancomycin, ICR, and high-level mupirocin resistance, refer to Tables 3G, 3H, 3I, 3J, and 3K, respectively.

NOTE: Information in boldface type is new or modified since the previous edition.

Antimicrobial Agent	<i>Staphylococcus</i> spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
PENICILLINASE-LABILE PENICILLINS											
<p>(8) Penicillin-susceptible staphylococci are susceptible to other β-lactam agents with established clinical efficacy for staphylococcal infections (including both penicillinase-labile and penicillinase-stable agents; see Glossary I). Penicillin-resistant staphylococci are resistant to penicillinase-labile penicillins.</p> <p>(9) Penicillin should be used to test the susceptibility of all staphylococci to penicillinase-labile penicillins (see Glossary I). Penicillin-resistant strains of staphylococci produce β-lactamase. Perform a test(s) to detect β-lactamase production on staphylococci for which the penicillin MICs are ≤ 0.12 µg/mL or zone diameters ≥ 29 mm before reporting the isolate as penicillin susceptible. Rare isolates of staphylococci that contain genes for β-lactamase production may test negative for β-lactamase. Consequently, for serious infections requiring penicillin therapy, perform MIC tests and β-lactamase tests on initial and all subsequent isolates from the same patient. PCR testing for the blaZ -lactamase gene may be considered. See Table 3G.</p>											
Penicillin	All staphylococci	10 units	≥ 29	—	—	≤ 28	≤ 0.12		—	≥ 0.25	(10) For MRS, report penicillin as resistant or do not report.

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
PENICILLINASE-STABLE PENICILLINS											
<p>(11) Cefoxitin is tested as a surrogate for oxacillin for some species of <i>Staphylococcus</i> (see table in general comment [6]). Isolates that test resistant by cefoxitin or oxacillin should be reported as methicillin (oxacillin) resistant. If testing only cefoxitin, report as methicillin (oxacillin) susceptible or resistant based on the cefoxitin result.</p> <p>(12) Oxacillin (or cefoxitin) results can be applied to the other penicillinase-stable penicillins (cloxacillin, dicloxacillin, methicillin, and nafcillin). For agents with established clinical efficacy and considering site of infection and appropriate dosing, methicillin (oxacillin)-susceptible staphylococci can be considered susceptible to:</p> <ul style="list-style-type: none">• β-Lactam combination agents (amoxicillin-clavulanate, ampicillin-sulbactam, piperacillin-tazobactam)• Oral cepheims (cefaclor, cefdinir, cephalexin, cefpodoxime, cefprozil, cefuroxime, loracarbef)• Parenteral cepheims including cephalosporins I, II, III, and IV (cefamandole, cefazolin, cefepime, cefmetazole, cefonicid, cefoperazone, cefotaxime, cefotetan, ceftizoxime, ceftriaxone, cefuroxime, ceftaroline, moxalactam)• Carbapenems (doripenem, ertapenem, imipenem, meropenem) <p>MRS are resistant to currently available β-lactam antimicrobial agents, with the exception of ceftaroline. Thus, susceptibility or resistance to a wide array of β-lactam antimicrobial agents may be deduced from testing only penicillin and either cefoxitin or oxacillin. Testing of other β-lactam agents, except ceftaroline, is not advised. See general comment (6).</p> <p>Additional explanation on the use of cefoxitin for prediction of <i>mecA</i>-mediated methicillin (oxacillin) resistance can be found in CLSI M02¹ and CLSI M07.⁷</p>											
Oxacillin	<i>S. aureus</i> and <i>S. lugdunensis</i>	— 30 µg cefoxitin (surrogate test for oxacillin)	— ≥ 22 (cefoxitin)	— —	— —	— ≤ 21 (cefoxitin)	≤ 2 (oxacillin) ≤ 4 (cefoxitin)	— —	— —	≥ 4 (oxacillin) ≥ 8 (cefoxitin)	(13) For isolates of <i>S. aureus</i> that do not grow well on CAMHB or unsupplemented MHA (eg, small-colony variants), testing on other media (eg, BMHA) does not reliably detect <i>mecA</i> -mediated resistance. Testing for PBP2a using induced growth (ie, growth taken from the zone margin surrounding a cefoxitin disk on either BMHA or a blood agar plate after 24 h incubation in 5% CO ₂) or <i>mecA</i> should be done. See general comment (6) and comments (8), (11), and (12).

Table 2C
Staphylococcus spp.
 CLSI M02 and CLSI M07

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
PENICILLINASE-STABLE PENICILLINS (Continued)											
Oxacillin	S. epidermidis	1 µg oxacillin	≥ 18 (oxacillin)	—	—	≤ 17 (oxacillin)	≤ 0.5 (oxacillin)	—	—	≥ 1 (oxacillin)	See general comment (6) and comments (8), (11), and (12).
		30 µg cefoxitin (surrogate test for oxacillin)	≥ 25 (cefoxitin)	—	—	≤ 24 (cefoxitin)	—	—	—		
		S. pseudintermedius, S. coagulans, and S. schleiferi	1 µg oxacillin	≥ 18 (oxacillin)	—	—	≤ 17 (oxacillin)	≤ 0.5 (oxacillin)	—	—	≥ 1 (oxacillin)
	Staphylococcus spp., except: S. aureus S. lugdunensis S. epidermidis S. pseudintermedius S. coagulans S. schleiferi	30 µg cefoxitin (surrogate test for oxacillin)	≥ 25 (cefoxitin)	—	—	≤ 24 (cefoxitin)	≤ 0.5 (oxacillin)	—	—	≥ 1 (oxacillin)	See general comment (6) and comments (8), (11), and (12).
CEPHEMS (PARENTERAL)											
Ceftaroline	S. aureus, including MRSA	30 µg	≥ 25	20–24	—	≤ 19	≤ 1	2–4	—	≥ 8	
GLYCOPEPTIDES											
(14) MIC tests should be performed to determine the susceptibility of all isolates of staphylococci to vancomycin. The disk test does not differentiate vancomycin-susceptible isolates of S. aureus from vancomycin-intermediate isolates, nor does the test differentiate among vancomycin-susceptible, -intermediate, and -resistant isolates of Staphylococcus spp. other than S. aureus, all of which give similar size zones of inhibition.											

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
MACROLIDES											
(20) Not routinely reported on organisms isolated from the urinary tract.											
Azithromycin or clarithromycin or erythromycin	All staphylococci	15 µg	≥ 18	—	14–17	≤ 13	≤ 2	—	4	≥ 8	
		15 µg	≥ 18		14–17	≤ 13	≤ 2		4	≥ 8	
		15 µg	≥ 23		14–22	≤ 13	≤ 0.5		1–4	≥ 8	
Dirithromycin*		15 µg	≥ 19	—	16–18	≤ 15	≤ 2	—	4	≥ 8	
TETRACYCLINES											
(21) Isolates that test susceptible to tetracycline are considered susceptible to doxycycline and minocycline. Isolates that test intermediate or resistant to tetracycline should be tested against doxycycline or minocycline if those results are needed for treatment.											
Tetracycline	All staphylococci	30 µg	≥ 19	—	15–18	≤ 14	≤ 4	—	8	≥ 16	
Doxycycline		30 µg	≥ 16	—	13–15	≤ 12	≤ 4	—	8	≥ 16	
Minocycline		30 µg	≥ 19	—	15–18	≤ 14	≤ 4	—	8	≥ 16	See comment (20).
FLUOROQUINOLONES											
(22) Staphylococcus spp. may develop resistance during therapy with quinolones. Therefore, isolates that are initially susceptible may become resistant within a few days after initiation of therapy. Testing of repeat isolates may be warranted.											
Ciprofloxacin or levofloxacin	All staphylococci	5 µg	≥ 21	—	16–20	≤ 15	≤ 1	—	2	≥ 4	
		5 µg	≥ 19	—	16–18	≤ 15	≤ 1	—	2	≥ 4	
		5 µg	≥ 24	—	21–23	≤ 20	≤ 0.5	—	1	≥ 2	
Enoxacin* (U) ^a		10 µg	≥ 18	—	15–17	≤ 14	≤ 2	—	4	≥ 8	
Gatifloxacin*		5 µg	≥ 23	—	20–22	≤ 19	≤ 0.5	—	1	≥ 2	
Grepafloxacin*		5 µg	≥ 18	—	15–17	≤ 14	≤ 1	—	2	≥ 4	
Lomefloxacin*		10 µg	≥ 22	—	19–21	≤ 18	≤ 2	—	4	≥ 8	
Norfloxacin* (U) ^a		10 µg	≥ 17	—	13–16	≤ 12	≤ 4	—	8	≥ 16	
Ofloxacin*		5 µg	≥ 18	—	15–17	≤ 14	≤ 1	—	2	≥ 4	
Sparfloxacin*		5 µg	≥ 19	—	16–18	≤ 15	≤ 0.5	—	1	≥ 2	
Fleroxacin (Inv.)		5 µg	≥ 19	—	16–18	≤ 15	≤ 2	—	4	≥ 8	

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
GLYCOPEPTIDES (Continued)											
Vancomycin	S. aureus, including MRSA	—	—	—	—	—	≤ 2	—	4–8	≥ 16	(15) For S. aureus, vancomycin-susceptible isolates may become vancomycin intermediate during the course of prolonged therapy. (16) Send any S. aureus for which the vancomycin is ≥ 8 µg/mL to a referral laboratory. See Appendix A. Also refer to Table 3I for S. aureus, CLSI M02, ¹ and CLSI M07. ⁷
	SOSA	—	—	—	—	—	≤ 4	—	8–16	≥ 32	(17) Send any SOSA for which the vancomycin MIC is ≥ 32 µg/mL to a referral laboratory. See Appendix A. See also CLSI M02 ¹ and CLSI M07. ⁷
LIPOGLYCOPEPTIDES											
Dalbavancin	S. aureus, including MRSA	—	—	—	—	—	≤ 0.25	—	—	—	
Oritavancin		—	—	—	—	—	≤ 0.12	—	—	—	
Telavancin		—	—	—	—	—	≤ 0.12	—	—	—	
Teicoplanin (Inv.)	All staphylococci	—	—	—	—	—	≤ 8	—	16	≥ 32	
LIPOPEPTIDES											
Daptomycin	All staphylococci	—	—	—	—	—	≤ 1	—	—	—	(18) Not routinely reported on organisms isolated from the lower respiratory tract.
AMINOGLYCOSIDES											
(19) For staphylococci that test susceptible, gentamicin is used only in combination with other active agents that test susceptible.											
Gentamicin	All staphylococci	10 µg	≥ 15	—	13–14	≤ 12	≤ 4	—	8	≥ 16	

Table 2C
Staphylococcus spp.
CLSI M02 and CLSI M07

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
NITROFURANS											
Nitrofurantoin (U) ^a	All staphylococci	300 µg	≥ 17	—	15–16	≤ 14	≤ 32	—	64	≥ 128	
LINCOSAMIDES											
Clindamycin	All staphylococci	2 µg	≥ 21	—	15–20	≤ 14	≤ 0.5	—	1–2	≥ 4	(23) For isolates that test erythromycin resistant and clindamycin susceptible or intermediate, testing for ICR by disk diffusion using the D-zone test or by broth microdilution is required before reporting clindamycin (see Table 3J, CLSI M02, ¹ and CLSI M07 ⁷). See comment (20).
FOLATE PATHWAY ANTAGONISTS											
Trimethoprim-sulfamethoxazole	All staphylococci	1.25/23.75 µg	≥ 16	—	11–15	≤ 10	≤ 2/38	—	—	≥ 4/76	
Sulfonamides (U) ^a		250 or 300 µg	≥ 17	—	13–16	≤ 12	≤ 256	—	—	≥ 512	
Trimethoprim (U) ^a		5 µg	≥ 16	—	11–15	≤ 10	≤ 8	—	—	≥ 16	
PHENICOLS											
Chloramphenicol*	All staphylococci	30 µg	≥ 18	—	13–17	≤ 12	≤ 8	—	16	≥ 32	See comment (20).
ANSAMYCINS											
Rifampin	All staphylococci	5 µg	≥ 20	—	17–19	≤ 16	≤ 1	—	2	≥ 4	(24) Rx: Rifampin should not be used alone for antimicrobial therapy.

Table 2C
Staphylococcus spp.
CLSI M02 and CLSI M07

Table 2C. *Staphylococcus* spp. (Continued)

Antimicrobial Agent	Staphylococcus spp. Indications	Disk Content	Interpretive Categories and Zone Diameter Breakpoints, nearest whole mm				Interpretive Categories and MIC Breakpoints, µg/mL				Comments
			S	SDD	I	R	S	SDD	I	R	
STREPTOGRAMINS											
Quinupristin-dalfopristin*	S. aureus	15 µg	≥ 19	—	16–18	≤ 15	≤ 1	—	2	≥ 4	(25) Report only on MSSA.
OXAZOLIDINONES											
(26) S. aureus that test susceptible to linezolid are considered susceptible to tedizolid. Isolates that test resistant to linezolid should be tested against tedizolid if that result is needed for treatment.											
Linezolid	All staphylococci	30 µg	≥ 26	—	23–25	≤ 22	≤ 4	—	—	≥ 8	
Tedizolid	S. aureus, including MRSA	2 µg	≥ 19	—	16–18	≤ 15	≤ 0.5	—	1	≥ 2	
PLEUROMUTILINS											
Lefamulin	S. aureus, including MRSA	20 µg	≥ 23	—	—	—	≤ 0.25	—	—	—	See comment (20).

Abbreviations: BMHA, blood Mueller-Hinton agar; CAMHB, cation-adjusted Mueller-Hinton broth; CO₂, carbon dioxide; h, hour(s); I, intermediate; ICR, inducible clindamycin resistance; Inv., investigational agent; MALDI-TOF MS, matrix-assisted laser-desorption/ionization time-of-flight mass spectrometry; MHA, Mueller-Hinton agar; MIC, minimal inhibitory concentration; MRS, methicillin (oxacillin)-resistant staphylococci; MRSA, methicillin (oxacillin)-resistant *Staphylococcus aureus*; MSSA, methicillin (oxacillin)-susceptible *Staphylococcus aureus*; NaCl, sodium chloride; PBP2a, penicillin-binding protein 2a; PCR, polymerase chain reaction; QC, quality control; R, resistant; S, susceptible; SDD, susceptible-dose dependent; **SOSA, staphylococci other than *Staphylococcus aureus***; U, urine; UTI, urinary tract infection.

Symbol: *, designation for “Other” agents that are not included in Tables 1 but have established clinical breakpoints.

Footnote

- Report only on organisms isolated from the urinary tract.

References for Table 2C

- CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 14th ed. CLSI standard M02. Clinical and Laboratory Standards Institute; 2024.
- CLSI. *M02 Disk Diffusion Reading Guide*. 2nd ed. CLSI quick guide M02-Ed14-QG. Clinical and Laboratory Standards Institute; 2024.
- Schutte AHJ, Strepis N, Zandijk WHA, Bexkens ML, Bode LGM, Klaassen CHW. Characterization of *Staphylococcus roterodami* sp. nov., a new species within the *Staphylococcus aureus* complex isolated from a human foot infection. *Int J Syst Evol Microbiol*. 2021;71(9). doi:10.1099/ijsem.0.004996

Table 2C. *Staphylococcus* spp. (Continued)

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- 5 Akoua-Koffi C, Kacou N'Douba A, Djaman JA, Herrmann M, Schaumburg F, Niemann S. *Staphylococcus schweitzeri*—an emerging one health pathogen? *Microorganisms*. 2022;10(4):770. doi:10.3390/microorganisms10040770
- 6 Becker K, Schaumburg F, Kearns A, et al. Implications of identifying the recently defined members of the *Staphylococcus aureus* complex *S. argenteus* and *S. schweitzeri*: a position paper of members of the ESCMID Study Group for Staphylococci and Staphylococcal Diseases (ESGS). *Clin Microbiol Infect*. 2019;25(9):1064-1070. doi:10.1016/j.cmi.2019.02.028
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