Table 3J. Tests for Detecting Inducible Clindamycin Resistance in *Staphylococcus* spp., *Streptococcus pneumoniae*, and *Streptococcus* spp. β-Hemolytic Group[a,b]

Test	ICR			
Test method	**Disk Diffusion (D-zone test)**		**Broth Microdilution**	
Organism group (applies only to organisms resistant to erythromycin and susceptible or intermediate to clindamycin)	All *Staphylococcus* spp.	*S. pneumoniae* and β-hemolytic *Streptococcus* spp.	All *Staphylococcus* spp.[c]	*S. pneumoniae* and β-hemolytic *Streptococcus* spp.
Medium	MHA or blood agar purity plate used with MIC tests	MHA supplemented with sheep blood (5% v/v) or TSA supplemented with sheep blood (5% v/v)	CAMHB	CAMHB with LHB (2.5% to 5% v/v)
Antimicrobial concentration	15-µg erythromycin and 2-µg clindamycin disks spaced 15-26 mm apart (edge-to-edge)	15-µg erythromycin and 2-µg clindamycin disks spaced 12 mm apart (edge-to-edge)	4 µg/mL erythromycin and 0.5 µg/mL clindamycin in same well	1 µg/mL erythromycin and 0.5 µg/mL clindamycin in same well
Inoculum	Standard disk diffusion procedure or heavily inoculated area of purity plate	Standard disk diffusion procedure	Standard broth microdilution procedure	
Incubation conditions	35°C ± 2°C; ambient air	35°C ± 2°C; 5% CO_2	35°C ± 2°C; ambient air	
Incubation length	16-18 h	20-24 h	18-24 h	20-24 h
Results	Flattening of the zone of inhibition adjacent to the erythromycin disk (referred to as a D-zone) = ICR. Hazy growth within the zone of inhibition around clindamycin = clindamycin resistance, even if no D-zone is apparent.		Any growth = ICR. No growth = no ICR.	
Additional testing and reporting	Report isolates with ICR as "clindamycin resistant." The following comment may be included with the report: "This isolate is presumed to be resistant based on detection of ICR, as determined by testing clindamycin in combination with erythromycin."			
QC recommendations – routine[c]	*Staphylococcus aureus* ATCC®[d] 25923 for routine QC of erythromycin and clindamycin disks	*S. pneumoniae* ATCC® 49619 for routine QC of erythromycin and clindamycin disks	*S. aureus* ATCC® BAA-976™ or *S. aureus* ATCC® 29213 – no growth	*S. pneumoniae* ATCC® 49619 or *S. aureus* ATCC® BAA-976™ – no growth

Table 3J. (Continued)

Test	ICR	
Test method	**Disk Diffusion (D-zone test)**	**Broth Microdilution**
QC recommendations – lot/shipment[e]	Perform QC according to standard disk diffusion QC procedures per CLSI M02[1] (eg, daily or per IQCP).	*S. aureus* ATCC® BAA-977™ – growth
QC recommendations – supplemental[f]	*S. aureus* ATCC® BAA-976™ (D-zone test negative) *S. aureus* ATCC® BAA-977™ (D-zone test positive) Use of unsupplemented MHA is acceptable for these strains.	*S. aureus* ATCC® BAA-976™ (no growth) *S. aureus* ATCC® BAA-977™ (growth)

Abbreviations: AST, antimicrobial susceptibility testing; ATCC®, American Type Culture Collection; CAMHB, cation-adjusted Mueller-Hinton broth; CO_2, carbon dioxide; h, hour(s); ICR, inducible clindamycin resistance; IQCP, individualized quality control plan; LHB, lysed horse blood; MHA, Mueller-Hinton agar; MIC, minimal inhibitory concentration; QC, quality control; TSA, tryptic soy agar.

Footnotes

a. AST of β-hemolytic streptococci does not need to be performed routinely (see general comment [5] in Table 2H-1). When susceptibility testing is clinically indicated, test for ICR in strains that are erythromycin resistant and clindamycin susceptible or intermediate.

b. In accordance with current guidance from the American College of Obstetricians and Gynecologists,[2] colonizing isolates of group B streptococci from severe penicillin-allergic pregnant women should be tested for clindamycin (including ICR) (see comment [12] in Table 2H-1).[2] For isolates that test susceptible to clindamycin (with erythromycin induction), consider adding the following comment to the patient's report: "For intrapartum prophylaxis, this group B *Streptococcus* does not demonstrate ICR as determined by testing clindamycin in combination with erythromycin."

c. QC recommendations – routine

   Test negative (susceptible) QC strain:

   - With each new lot/shipment of testing materials
   - Daily if the test is performed less than once per week and/or an IQCP justifying less frequent QC has not been developed
   - Less frequent than daily if the test is performed at least once per week and an IQCP has been developed

d. ATCC® is a registered trademark of the American Type Culture Collection. Per ATCC® convention, the trademark symbol is used after "BAA" in each catalog number, in conjunction with the registered ATCC® name.

e. QC recommendations – lot/shipment

   Test positive (resistant) QC strain at minimum with each new lot/shipment of testing materials.

Table 3J
Tests for Inducible Clindamycin Resistance in *Staphylococcus* spp., *Streptococcus pneumoniae*, and *Streptococcus* spp. β-Hemolytic Group

Table 3J. (Continued)

f. QC recommendations – supplemental

- Supplemental QC strains can be used to assess a new test, for training personnel, and for competence assessment. It is not necessary to include supplemental QC strains in routine AST QC programs. See Appendix C, which describes use of QC strains.

References for Table 3J

1 CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 14th ed. CLSI standard M02. Clinical and Laboratory Standards Institute; 2024.

2 American College of Obstetricians and Gynecologists. Prevention of group B streptococcal early-onset disease in newborns: ACOG Committee Opinion, Number 797. *Obstet Gynecol*. 2020;135(2):e51-e72. doi:10.1097/AOG.0000000000003668