

# ANTIMICROBIAL AGENT CLASSES AND SUBCLASSES

## FOR USE WITH CLSI DOCUMENTS M2 AND M7

Beta-lactams: Class and Subclass Designation and Generic Name		
Antimicrobial Class	Antimicrobial Subclass	Agents Included; Generic Names
penicillins <sup>c</sup>	penicillin <sup>a</sup>	penicillin
	aminopenicillin <sup>a</sup>	amoxicillin ampicillin
	ureidopenicillin <sup>a</sup>	azlocillin mezlocillin piperacillin
	carboxypenicillin <sup>a</sup>	carbenicillin ticarcillin
	penicillinase-stable penicillins <sup>b</sup>	cloxacillin dicloxacillin methicillin nafcillin oxacillin
	amidinopenicillin	mecillinam
beta-lactam/beta-lactamase inhibitor combinations		amoxicillin-clavulanic acid ampicillin-sulbactam aztreonam-avibactam ceftaroline-avibactam ceftazidime-avibactam ceftolozane-tazobactam piperacillin-tazobactam ticarcillin-clavulanic acid
cephems (parenteral)	cephalosporin I <sup>c,e</sup>	cefazolin cephalothin cephapirin cephradine
	cephalosporin II <sup>c,e</sup>	cefamandole cefonicid cefuroxime (parenteral)

Beta-lactams (continued): Class and Subclass Designation and Generic Name		
Antimicrobial Class	Antimicrobial Subclass	Agents Included; Generic Names
Cephems (parenteral) (continued)	cephalosporin III <sup>c,e</sup>	cefoperazone cefotaxime ceftazidime ceftizoxime ceftriaxone
	cephalosporin IV <sup>c,e</sup>	cefepime
	Cephalosporins with anti-MRSA activity	ceftaroline ceftobiprole
	cephamycin <sup>d</sup>	cefmetazole cefotetan cefoxitin
	oxacephem	moxalactam
cephems (oral)	cephalosporin <sup>c</sup>	cefaclor cefadroxil cefdinir cefditoren cefetamet cefixime cefpodoxime cefprozil ceftibuten cefuroxime (oral) cephalexin cephradine
	carbacephem	loracarbef
monobactams <sup>c</sup>		aztreonam
penems	carbapenem	biapenem doripenem ertapenem imipenem meropenem razupenem
	penem	faropenem sulopenem

a. Penicillinase-labile; hydrolyzed by staphylococcal penicillinase.

b. Not hydrolyzed by staphylococcal penicillinase.

c. Cephalosporin I, II, III, and IV are sometimes referred to as 1st-, 2nd-, 3rd-, and 4th-generation cephalosporins, respectively. Cephalosporin III and IV are also referred to as "extended-spectrum cephalosporins". This does not imply activity against ESBL-producing gram-negative bacteria.

d. Although often referred to as a 2nd-generation cephalosporin, cephamycins are not included with the other cephalosporins with regard to reporting of ESBL-producing strains.

e. For all confirmed ESBL-producing strains, the test interpretation should be reported as resistant for this antimicrobial class or subclass.

Abbreviations: ESBL, extended-spectrum  $\beta$ -lactamase; MRSA, methicillin-resistant *Staphylococcus aureus*.

**Non-beta-lactams:  
Class and Subclass Designation and Generic Name**

Antimicrobial Class	Antimicrobial Subclass	Agents Included; Generic Names
aminocyclitols		spectinomycin
aminoglycosides		amikacin gentamicin kanamycin netilmicin plazomicin streptomycin tobramycin
ansamycins		rifampin
folate pathway inhibitors		iclaprim sulfonamides trimethoprim trimethoprim-sulfamethoxazole
fosfomycins		fosfomicin
glycopeptides	glycopeptide	vancomycin
	lipoglycopeptide	dalbavancin oritavancin ramoplanin teicoplanin telavancin
lincosamides		clindamycin
lipopeptides		daptomycin surotomycin
	polymyxins	colistin polymyxin B
macrocyclic		fidaxomicin
macrolides		azithromycin clarithromycin dirithromycin erythromycin
	ketolides	telithromycin
	fluoroketolide	solithromycin
nitrofurans		nitrofurantoin
nitroimidazoles		metronidazole tinidazole
oxazolidinones		linezolid tedizolid
phenicols		chloramphenicol
pseudomonic acid		mupirocin
oxazolidinones		linezolid tedizolid

**Non-beta-lactams (continued):  
Class and Subclass Designation and Generic Name**

<b>Antimicrobial Class</b>	<b>Antimicrobial Subclass</b>	<b>Agents Included; Generic Names</b>
phenicols		chloramphenicol
pseudomonic acid		mupirocin
quinolones	quinolone	cinoxacin garenoxacin nalidixic acid
	fluoroquinolone	besifloxacin ciprofloxacin clinafloxacin enoxacin finafloxacin fleroxacin gatifloxacin gemifloxacin grepafloxacin levofloxacin lomefloxacin moxifloxacin norfloxacin ofloxacin sparfloxacin trovafloxacin urifloxacin (purlifloxacin)
steroidal	fusidanes	Fusidic acid
streptogramins		linopristin-flopristin quinupristin-dalfopristin
tetracyclines		doxycycline erythromycin minocycline tetracycline
	glycyclines	tigecycline
	aminomethylcycline	omadacycline
thiazolide		nitazoxanide tizoxanide

## REFERENCES

*Performance Standards for Antimicrobial Susceptibility Testing; Informational Supplement*, M100. 2014. Clinical Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.

For more information, please consult the most current CLSI document.

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