

Organism susceptibility to antibacterials: cephalosporins

The following table provides a general guide to clinical antimicrobial susceptibilities. The table is intended to assist empirical selection of antimicrobials in the absence of laboratory confirmation of susceptibility; it is not a substitute for management advice from clinical microbiologists or infectious diseases specialists. Consider these data in conjunction with the clinical condition of the patient, site of infection, knowledge of local susceptibility patterns (which may vary) and evidence-based guidelines. Use the narrowest spectrum antibiotic that is effective to limit the development of antimicrobial resistance. When in doubt seek specialist advice.

The designation of susceptibility used in the table is 75% (an organism is deemed susceptible if at least 3 out of 4 cultures tested are susceptible to that antibiotic).

Organism	Cephalosporins									
	Moderate spectrum				Broad spectrum					
	cefalexin, cefazolin	cefaclor, cefuroxime	cefoxitin	cefotaxime, ceftriaxone	cefepime	ceftaroline	ceftazidime	ceftazidime with avibactam	ceftolozane with tazobactam	
Gram-negative										
<i>Acinetobacter</i> spp.						1		1	v	
<i>Aeromonas</i> spp.				2		2	2			
<i>Burkholderia cepacia</i>					1	1	v,1	v,1		
<i>Burkholderia pseudomallei</i>						3				
<i>Campylobacter jejuni</i> and <i>coli</i>										
<i>Citrobacter freundii</i>				2		2	2			
<i>Enterobacter</i> spp.				v,2		2	2			
<i>Escherichia coli</i>										
<i>Haemophilus influenzae</i>										
<i>Klebsiella</i> spp.	v	v	v	v,2		v,2	v,2			
<i>Moraxella catarrhalis</i>										
<i>Morganella</i> spp.				2		2	2			
<i>Neisseria gonorrhoeae</i>										
<i>Neisseria meningitidis</i>										
<i>Pasteurella multocida</i>										
<i>Proteus mirabilis</i>										
<i>Proteus vulgaris</i>				2			2			
<i>Providencia</i> spp.				2			2			
<i>Pseudomonas aeruginosa</i>										
<i>Salmonella</i> spp.										
<i>Serratia</i> spp.				2			2			
<i>Shigella</i> spp.										
<i>Stenotrophomonas maltophilia</i>							v	v		
<i>Yersinia</i> spp.										
<div><div>1</div>likely susceptible but currently validated laboratory breakpoints not available</div> <div><div>2</div>use of broad-spectrum cephalosporins may result in emergence of resistance and treatment failure</div> <div><div>3</div>susceptible in vitro, insufficient or limited clinical data</div> <div><div>4</div>ceftriaxone used with amoxicillin for synergistic effect</div> <div><div>5</div>MRSA: implies resistance to all beta-lactams (except ceftaroline)</div> <div><div>6</div>can be used if susceptible to beta-lactam antibacterial</div> <div><div>7</div>resistant to cefaclor</div> <div><div>8</div>may be used with other agents</div>										
Legend										
	susceptible									
v	variable									
	resistant									
	no data available or antibacterial not recommended									

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	Moderate spectrum			Broad spectrum					
	cefalexin, cefazolin	cefaclor, cefuroxime	cefotaxim	cefotaxime, ceftriaxone	cefepime	ceftaroline	ceftazidime	ceftazidime with avibactam	ceftolozane with tazobactam
Gram-positive									
<i>Corynebacterium jeikeium</i>									
<i>Enterococcus faecalis</i>				4					
<i>Enterococcus faecium</i>									
<i>Listeria</i> spp.									
<i>Staphylococcus aureus</i>									
<i>Staphylococcus aureus</i> (MRSA) ⁵									
<i>Staphylococcus epidermidis</i>	6								
<i>Staphylococcus lugdunensis</i>									
<i>Staphylococcus saprophyticus</i>									
<i>Streptococcus</i> - group A, B, C, G									
<i>Streptococcus anginosus</i>									
<i>Streptococcus pneumoniae</i>									
Viridans streptococcus group		7							
Anaerobes									
<i>Actinomyces</i>									
<i>Bacteroides fragilis</i> group			v						
<i>Clostridioides difficile</i>									
<i>Clostridium perfringens</i>									
<i>Cutibacterium (Propionibacterium) acnes</i>	v								
<i>Fusobacteria</i> spp.						3			
<i>Peptostreptococcus</i> spp.						3			
<i>Prevotella melaninogenica</i>									
Miscellaneous									
<i>Chlamydia</i> , <i>Chlamydia</i> spp.									
<i>Legionella</i> spp.									
<i>Mycobacterium avium</i> complex									
<i>Mycobacterium tuberculosis</i>									
<i>Mycoplasma pneumoniae</i>									
<i>Nocardia</i> spp.				v,8	v,8				
¹ likely susceptible but currently validated laboratory breakpoints not available ² use of broad-spectrum cephalosporins may result in emergence of resistance and treatment failure ³ susceptible in vitro, insufficient or limited clinical data ⁴ ceftriaxone used with amoxicillin for synergistic effect ⁵ MRSA: implies resistance to all beta-lactams (except ceftaroline) ⁶ can be used if susceptible to beta-lactam antibacterial ⁷ resistant to cefaclor ⁸ may be used with other agents									
Legend									
	susceptible								
v	variable								
	resistant								
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