

SANFORD GUIDE



THE SANFORD GUIDE

To Antimicrobial Therapy

2022

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52nd Edition

The data provided are intended to serve as a general guide to antibacterial usefulness based on treatment guidelines and recommendations, in vitro activity, predominant patterns of susceptibility or resistance and/or demonstrated clinical effectiveness. Variability in resistance patterns due to regional differences or as a consequent of clinical setting (e.g., community-onset vs. ICU-acquired infection) should be taken into account when using this table because activities of certain agents can differ significantly from what is shown in the table, which are by necessity based on aggregate information. We have revised and expanded the color / symbol key to provide a more descriptive categorization of the table data.

+= Active: Agent is a potential alternative agent (active in vitro, possesses class activity comparable to known effective agents or a therapeutically interchangeable agents and hence likely to be clinically effective, but second line due to overly broad spectrum, toxicity, limited clinical experience, or paucity of direct evidence of effectiveness)

± = **Variable:** Variable activity such that the agent, although clinically effective in some settings or types of infections is not reliably effective in others, or should be used in combination with another agent, and/or its efficacy is limited by resistance which has been associated with treatment failure

0 = Not recommended: Agent is a poor alternative to other agents because resistance is likely to be present or occur, due to poor drug penetration to site of infection or an unfavorable toxicity profile, or limited, anecdotal or no clinical data to support effectiveness

[illegible]

TABLE 4A (2)

	Penicillins												Carbapenems					Fluoroquinolone								Parenteral Cephalosporins																			
	Penicillin G	Penicillin VK	Nafcillin	Oxacillin	Cloxacillin	Flucloxacillin	Dicloxacillin	Ampicillin	Amoxicillin	Amox-Clav	Amp-Sub	Pip-Tazo	Doripenem	Ertapenem	Imp-clastatin	Imp-cla-rele	Meropenem	Mero-Vabor	Aztreonam	Ciprofloxacin	Delafloxacin	Ofloxacin	Levofloxacin	Moxifloxacin	Norfloxacin	Prulifloxacin	Gemifloxacin	Gatifloxacin	Cefazolin	Cefotetan	Cefoxitin	Cefuroxime	Cefotaxime	Ceftizoxime	Ceftriaxone	Ceftazidime	Cefepime	Ceftaz-Avibac	Ceftaroline	Ceftobiprole	Ceftol-Tazo	Cefiderocol			
Aerobic gram-pos cocci (continued)																																													
Strep. gp C, F, G	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	±	+	±	±	±	±	0	±	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	
Strep. pneumoniae	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	±	+	±	±	±	0	±	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	
Viridans Strep.	±	±	±	±	±	±	±	±	±	±	±	±	+	+	+	+	+	+	0	0	+	0	+	+	0	0	+	+	+	+	+	++	+	+	++	±	±	±	+	+	+	+	+	0	
Aerobic gram-pos bacilli																																													
Arcanobacter. sp	+	+	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	0	+	0	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0		
C. diphtheriae	++	++	0	0	0	0	0	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C. jeikeium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L. monocytogenes	+	0	0	0	0	0	0	++	+	+	+	+	0	0	0	0	±	±	0	0	+	0	+	+	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nocardia sp.	0	0	0	0	0	0	0	0	0	±	0	0	0	0	++	++	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	±	0	0	0	0	0	0	0	0	0
Aerobic GNB - Enteric																																													
Aeromonas sp.	0	0	0	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	0	0	0	0	+	+	+	+	+	+	0	0	0	0	0	
C. jejuni	0	0	0	0	0	0	0	0	+	0	0	+	+	+	+	+	+	+	0	+	+	+	+	+	0	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C. freundii	0	0	0	0	0	0	0	0	0	0	0	±	+	+	+	+	++	+	±	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	++	+	0	0	+	+		
C. koseri	0	0	0	0	0	0	0	0	0	0	0	++	+	+	+	+	++	+	±	+	+	+	+	+	+	+	+	+	+	0	0	0	0	±	±	±	++	+	+	+	+	+	+		
E./K. aerogenes	0	0	0	0	0	0	0	0	0	0	0	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	+	+	0	0	+	+			
E. cloacae	0	0	0	0	0	0	0	0	0	0	0	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	+	+	0	0	+	+			
E. coli (S)	0	0	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	±	±	±	±	±	±	0	±	±	+	+	+	+	+	+	+	+	+	+	+	+	
E. coli, Klebs ESBL	0	0	0	0	0	0	0	0	0	0	0	0	+	+	++	+	++	+	0	±	±	±	±	±	±	±	±	±	0	±	±	0	0	0	0	0	0	0	+	0	0	+	+		
E. coli, Klebs KPC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	0	+			
E. coli, Klebs MBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	±	0	0	±	0	0	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	
Enterics CRE, NOS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0		
K. oxytoca	0	0	0	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
K. pneumoniae (S)	0	0	0	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Morganella sp.	0	0	0	0	0	0	0	0	0	0	0	+	+	+	±	±	+	+	+	+	+	+	+	0	+	+	0	0	0	+	+	0	+	+	+	++	+	+	+	+	+	+	+	+	
P. mirabilis	0	0	0	0	0	0	0	+	+	+	+	+	+	+	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
P. vulgaris	0	0	0	0	0	0	0	0	+	+	+	+	+	+	±	±	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	0	0	+	+	
Providencia sp.	0	0	0	0	0	0	0	0	0	0	0	+	++	++	±	±	++	+	+	+	+	+	+	+	+	+	+	0	0	0	+	+	0	+	+	+	+	+	+	0	0	+	+		

TABLE 4A (3)

	Penicillins										Carbapenems				Fluoroquinolone										Parenteral Cephalosporins																			
	Penicillin G	Penicillin VK	Nafcillin	Oxacillin	Cloxacillin	Flucloxacillin	Dicloxacillin	Ampicillin	Amoxicillin	Amox-Clav	Amp-Sulb	Pip-Tazo	Doripenem	Ertapenem	Imp-cla-stein	Imp-cla-efee	Meropenem	Mero-Vabor	Aztreonam	Ciprofloxacin	Delafloxacin	Ofloxacin	Levofloxacin	Moxifloxacin	Norfloxacin	Prulifloxacin	Gemifloxacin	Gatifloxacin	Cefazolin	Cefotetan	Cefoxitin	Cefuroxime	Cefotaxime	Ceftizoxime	Ceftriaxone	Ceftaz-Avibac	Ceftaroline	Ceftobiprole	Ceftriaxone	Cefiderocol				
Aerobic GNB - Enteric (continued)																																												
Salmonella sp.	0	0	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	+	0	0	0	0	+	+	+	+	+	+	0	0	0	0	
Serratia sp.	0	0	0	0	0	0	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	+	0	+	0	0	+	+	+	+	+	+	0	0	+	+	
Shigella sp.	0	0	0	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	++	+	+	++	+	0	++	+	+	+	0	0	0	0	+	+	+	+	+	+	0	0	0	0	
Y. enterocolitica	0	0	0	0	0	0	0	0	±	±	+	+	+	0	+	+	+	+	+	++	+	+	++	+	0	++	0	+	0	±	±	±	++	+	++	±	++	0	0	0	0	0	0	
Aerobic GNB - Non-enteric																																												
Bartonella sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B. pertussis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B. burgdorferi	+	0	0	0	0	0	0	++	++	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	++	0	0	0	0	0	0	0	
Brucella sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capnocytophaga	±	±	0	0	0	0	0	±	±	++	+	++	+	0	+	+	+	+	0	±	0	±	±	0	0	±	0	0	0	0	0	0	0	+	0	+	+	+	+	+	0	0	0	
C. burnetii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ehrlichia, Anaplas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Eikenella sp	±	±	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	+	0	+	0	+	+	0	+	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	
F. tularensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	0	0	0	0	++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H. ducreyi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	+	0	0	++	0	0	0	0	0	0	0	0	0	++	0	0	0	0	0	0	0	
H. influenzae	0	0	0	0	0	0	0	±	-	++	++	+	+	+	+	+	+	+	+	+	+	+	++	++	0	+	+	+	0	+	+	+	+	++	+	++	+	+	+	+	+	+	0	
Kingella sp.	+	+	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	0	+	+	+	++	++	0	0	+	0	0	+	+	+	+	+	++	+	+	+	+	+	+	+	+	0	
K. granulomatis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	0	0	0	++	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	
Legionella sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	+	++	++	++	0	++	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptospira sp.	++	0	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	0	0	0	0	0	++	0	++	0	+	+	0	0	0	0	0	
M. catarrhalis	0	0	0	0	0	0	0	0	0	++	+	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	0	+	+	±	+	+	+	+	+	+	+	+	+	+	+	0	
N. meningitidis	+	0	0	0	0	0	0	++	++	0	0	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	++	+	+	+	0	0	0	0	
P. multocida	++	++	0	0	0	0	0	++	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	0	+	+	+	0	0	0	0	+	+	+	+	0	+	0	+	+	+	+	0	
R. rickettsii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	±	±	±	0	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
V. cholera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
V. parahaemolyticus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	+	0	0	0	0	0	0	0	0	+	+	+	0	0	0	0	0	0	

TABLE 4A (4)

	Penicillins											Carbapenems					Fluoroquinolone							Parenteral Cephalosporins																				
	Penicillin G	Penicillin VK	Nafcillin	Oxacillin	Cloxacillin	Flucloxacillin	Dicloxacillin	Ampicillin	Amoxicillin	Amox-Clav	Amp-Sulb	Pip-Tazo	Doripenem	Ertapenem	Imp-cilastatin	Imp-cila-rele	Meropenem	Merop-Vabor	Aztreonam	Ciprofloxacin	Delafloxacin	Ofloxacin	Levofloxacin	Moxifloxacin	Norfloxacin	Prulifloxacin	Gemifloxacin	Gatifloxacin	Cefazolin	Cefotetan	Cefoxitin	Cefuroxime	Cefotaxime	Ceftizoxime	Ceftriaxone	Ceftazidime	Cefepime	Ceftaz-Avibac	Ceftaroline	Ceftibiprole	Ceftol-Tazo	Ceftiderocol		
Aerobic GNB - Non-enteric (continued)																																												
V. vulnificus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	+	0	0	0	0	0	0	+	+	+	+	+	+	0	0	0	0		
Y. pestis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aerobic GNB non-fermenter																																												
A. baumannii	0	0	0	0	0	0	0	0	0	0	±	±	±	0	+	±	±	±	±	0	±	0	±	+	±	0	±	0	0	0	0	0	0	0	0	±	±	±	±	0	0	±	+	
B. cepacia	0	0	0	0	0	0	0	0	0	0	0	0	±	0	±	±	±	±	±	0	0	0	0	±	0	0	0	0	0	0	0	0	0	0	0	±	±	±	+	0	0	±	±	
P. aeruginosa	0	0	0	0	0	0	0	0	0	0	0	+	+	0	+	+	+	+	+	+	+	0	+	0	0	+	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	+	+	
S. maltophilia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	±	0	0	0	0	0	0	0	0	0	0	0	±	0	±	0	0	0	0	+	
Aerobic - cell wall-deficient																																												
C. trachomatis	0	0	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	++	++	+	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlamydomphila sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	0	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
M. pneumoniae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	++	++	0	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U. urealyticum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Anaerobic GNB																																												
B. fragilis	0	0	0	0	0	0	0	0	0	++	+	++	+	++	++	+	++	+	0	0	+	0	0	+	0	0	0	0	0	0	0	0	±	±	0	0	+	0	0	0	0	0	+	0
F. necrophorum	±	±	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	+	0	+	0	0	0	0	0	0	0
P. melaninogenica	±	±	0	0	0	0	0	±	±	+	+	+	+	+	+	+	+	0	0	0	0	±	+	+	0	0	0	0	0	0	+	+	+	0	0	0	0	0	0	0	0	0	+	0
Anaerobic gram-positive																																												
Actinomyces sp.	++	++	0	0	0	0	0	++	++	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	+	0	0	0	0	0	0
Clostridium sp.	++	+	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	0	0	0	0	0	0	0	0	+	+	0	+	+	+	+	0	0	0	0	0	0	
P. acnes	++	+	0	0	0	0	0	+	+	+	+	+	+	+	+	+	+	+	0	±	0	±	±	±	0	±	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0
Peptostreptococci	++	++	0	0	0	0	0	++	++	+	+	+	+	+	+	+	+	+	0	0	+	0	+	+	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0

TABLE 4A (6)

	Oral Cephalosporins										Aminoglyco			Macrolides		Tetracyclines					Glyco/Lipo			Ox-lid	Poly		Other																									
	Cefadroxil	Cephalexin	Cefaclor	Cefprozil	Cefurox-Axe	Cefixime	Ceftibuten	Cepodoxime	Cefdinir	Ceftiofen	Gentamicin	Tobramycin	Amikacin	Piazomicin	Chloramphen	Clindamycin	Erythromycin	Azithromycin	Clarithromycin	Telithromycin	Doxycycline	Eravacycline	Mincocycline	Omadacycline	Tetracycline	Tigecycline	Daptomycin	Vancomycin	Teicoplanin	Telavancin	Ortavancin	Dalbavancin	Linezolid	Tedizolid	Polymyxin B	Colistin	Lefamulin	Fusidic Acid	Rif (Comb)	TMP-SMX	Nitrofurantoin	Fosfomycin (IV)	Fosfomycin (po)	Metronidazole	Quinu-Dalfo, Pristina							
Aerobic GNB - Enteric																																																				
Aeromonas sp.	0	0	0	0	0	0	0	0	0	0	+	+	+	0	+	0	0	0	0	0	+	+	+	+	0	+	0	0	0	0	0	0	0	0	+	+	0	0	0	+	0	0	0	0	0	0	0					
C. jejuni	0	0	0	0	0	0	0	0	0	0	+	+	+	0	0	0	++	++	+	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
C. freundii	0	0	0	0	0	+	+	+	+	0	+	+	+	+	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	++	++	+	+	0	0	0	0				
C. koseri	0	0	0	0	0	+	+	+	+	0	+	+	+	+	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	++	++	+	+	0	0	0	0				
E. aerogenes	0	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	0	0	0	0				
E. cloacae	0	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	+	0	0	0	0				
E. coli (S)	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	0	0	+	0	0	+	+	+	+	+	+	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	+	0	0	0	0				
E. coli, Klebs ESBL	0	0	0	0	0	0	0	0	0	0	+	+	+	++	+	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	0	0	0	0				
E. coli, Klebs KPC	0	0	0	0	0	0	0	0	0	0	+	+	+	++	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	0	0	0	0				
E. coli, Klebs MBL	0	0	0	0	0	0	0	0	0	0	+	+	+	++	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	+	+	+	+	0	0	0	0			
Enterics CRE, NOS	0	0	0	0	0	0	0	0	0	0	+	+	+	++	0	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	0	0	0	0				
K. oxytoca	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	0	0	0	0	0	0	+	+	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	+	0	0	0	0			
K. pneumoniae (S)	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	0	0	0	0	0	0	+	+	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	+	+	+	+	+	0	0	0	0			
Morganella sp.	0	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
P. mirabilis	+	+	+	+	+	+	+	+	+	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	0	0			
P. vulgaris	0	0	0	0	0	+	+	+	+	0	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	0	0	
Providencia sp.	0	0	0	0	0	+	+	+	+	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	0	0	
Salmonella sp.	0	0	0	0	0	+	+	+	+	0	+	+	+	0	+	0	0	+	0	0	0	+	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	0	0		
Serratia sp.	0	0	0	0	0	+	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	0	+	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	0	0	0	0	0	
Shigella sp.	0	0	0	0	0	+	+	+	+	0	+	+	+	0	+	0	0	+	0	0	0	+	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0
Y. enterocolitica	0	0	0	0	0	+	+	0	0	0	+	+	+	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	
Aerobic GNB - Non-enteric																																																				
Bartonella sp.	0	0	0	0	0	0	0	0	0	0	++	0	0	0	0	0	0	+	++	++	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0		
B. pertussis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	++	++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	
B. burgdorferi	0	0	0	0	++	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Brucella sp.	0	0	0	0	0	0	0	0	0	0	+	0	0	0	+	0	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	0	0	0	

TABLE 4A (7)

	Oral Cephalosporins										Aminoglyco			Macrolides		Tetracyclines					Glyco/Lipo				Ox-lid	Poly		Other																				
	Cefadroxil	Cephalexin	Cefaclor	Cefprozil	Cefurox-Axe	Cefixime	Ceftibuten	Cefpodoxime	Cefdinir	Cefditoren	Gentamicin	Tobramycin		Amikacin	Plazomicin	Chloramphen	Clindamycin	Erythromycin	Azithromycin	Clarithromycin	Telithromycin	Doxycycline	Eravacycline	Minoctycline	Omadacycline	Tetracycline		Tigecycline	Daptomycin	Vancomycin	Telcoplanin	Telavancin	Oritavancin	Dalbavancin	Linezolid	Tedizolid	polymyxin B	Colistin	Lefamulin	Fusidic Acid	Rif (comb)	TMP-SMX	Nitrofurantoin	Fosfomycin (IV)	Fosfomycin (po)	Metronidazole	Quinu-Dalfo, Pristina	
Aerobic GNB - Non-enteric (continued)																																																
Capnocytophaga	0	0	0	0	0	0	0	0	0	0	±	±	±	0	+	++	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0	0	0	
C. burnetii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	±	+	0	0	0	0	0	0		
Ehrlichia, Anaplas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0	0	0		
Eikenella sp	0	0	0	0	0	0	0	0	0	0	±	0	0	0	+	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
F. tularensis	0	0	0	0	0	0	0	0	0	0	++	+	0	0	+	0	0	0	0	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
H. ducreyi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
H. influenzae	0	0	±	+	+	+	+	+	+	+	0	0	0	0	+	0	0	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	+	0	0	+	0	+	0	0	0	0		
Kingella sp.	0	0	0	+	0	+	+	+	+	+	+	0	0	0	+	0	0	0	0	0	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	
K. granulomatis	0	0	0	0	0	0	0	0	0	0	+	0	0	0	+	++	++	+	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	0	0	0	0	
Legionella sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	++	++	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	0	0	0	0	0	0		
Leptospira sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	++	+	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
M. catarrhalis	0	0	±	+	±	+	+	+	+	+	0	0	0	0	0	0	+	+	+	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	+	0	0	0	0	0	0	
N. meningitidis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
P. multocida	0	0	0	0	+	+	0	+	+	0	±	±	+	0	0	0	0	+	0	0	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	
R. rickettsii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	±	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
V. cholera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
V. parahaemolyticus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	+	0	0	+	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
V. vulnificus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Y. pestis	0	0	0	0	0	0	0	0	0	0	+	0	0	0	+	0	0	0	0	0	+	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0
Aerobic GNB non-fermenter																																																
A. baumannii	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0	0	0	0	+	±	+	±	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	±	0	0	0	0	0	0	0
B. cepacia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	0	0	0	0	0	0	0	±	0	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	
P. aeruginosa	0	0	0	0	0	0	0	0	0	0	+	+	+	±	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	0	±	±	0	0	0	0
S. maltophilia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+	+	+	+	0	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	++	0	0	0	0	0	0	0

TABLE 4A (8)

	Oral Cephalosporins										Aminoglyco			Macrolides		Tetracyclines				Glyco/Lipo				Ox-lid	Poly	Other																									
	Cefadroxil	Cephalexin	Cefaclor	Cefprozil	Cefurox-Axe	Cefixime	Ceftibuten	Cefpodoxime	Cefdinir	Cefditoren	Gentamicin	Tobramycin	Amikacin	Plazomicin	Chloramphen	Clindamycin	Erythromycin	Azithromycin	Clarithromycin	Telithromycin	Doxycycline	Eracacycline	Minocycline	Omadacycline	Tetracycline	Tigecycline	Daptomycin	Vancomycin	Teicoplanin	Telavancin	Oritavancin	Dalbavancin	Linezolid	Tedizolid	Polymyxin B	Colistin	Lefamulin	Fusidic Acid	Rif (comb)	TMP-SMX	Nitrofurantoin	Fosfomycin (IV)	Fosfomycin (po)	Metronidazole	Quinu-Dalfo, Pristina						
Aerobic - cell wall-deficient																																																			
C. trachomatis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	+	++	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Chlamydomphila sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	+	+	+	+	++	+	+	+	+	+	0	0	0	0	0	0	0	0	0	+	0	±	0	0	0	0	0	0	0	0					
M. pneumoniae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	±	±	±	±	++	+	++	+	++	+	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0				
U. urealyticum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	++	+	0	++	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Anaerobic GNB																																																			
B. fragilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	+	+	+	+	±	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0			
F. necrophorum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0			
P. melaninogenica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	±	±	0	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0			
Anaerobic gram-positive																																																			
Actinomyces sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	++	++	+	+	0	+	0	+	0	+	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Clostridium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	+	+	0	+	+	+	+	+	+	±	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	+	0	0				
P. acnes	+	0	0	+	+	0	0	0	0	0	0	0	0	0	0	±	±	±	±	0	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	±	0	0	0	0	0	0				
Peptostreptococci	+	+	+	+	+	+	+	+	0	0	0	0	0	0	+	+	±	±	±	0	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	0	+	0	±	0	0					

TABLE 4B - ANTIFUNGAL ACTIVITY SPECTRA

	Antifungal Drugs								
	Fluconazole	Itraconazole	Voriconazole	Posaconazole	Isavuconazonium sulfate	Anidulafungin	Caspofungin	Micafungin	Amphotericin B
Fungi									
Aspergillus fumigatus	0	±	++	+	++	±	±	±	+
Aspergillus terreus	0	±	++	+	++	±	±	±	0
Aspergillus flavus	0	±	++	+	++	±	±	±	+
Candida albicans	++	+	+	+	+	++	++	++	+
Candida auris	0	±	±	±	±	+	+	+	±
Candida dubliniensis	++	+	+	+	+	++	++	++	++
Candida glabrata	±	±	±	±	±	++	++	++	++
Candida guilliermondii	++	++	++	++	+	++	++	++	++
Candida krusei	0	0	+	+	+	++	++	++	++
Candida lusitanae	++	+	+	+	+	++	++	++	0
Candida parapsilosis	++	+	+	+	+	+	+	+	++
Candida tropicalis	++	+	+	+	+	++	++	++	++
Cryptococcus sp.	++	+	+	+	+	0	0	0	++
Dematiaceous molds	0	++	++	+	+	±	±	±	+
Fusarium sp.	0	±	±	±	±	0	0	0	±
Talaromyces marneffei	0	++	++	0	0	0	0	0	++
Mucormycosis	0	0	0	+	+	0	0	0	++
Scedo apiospermum	0	0	+	±	±	0	0	0	0
Scedo (Lomentospora) prolificans	0	0	0	0	0	0	0	0	0
Trichosporon spp.	±	+	+	+	+	0	0	0	+
Dimorphic Fungi									
Blastomyces	±	++	+	+	+	0	0	0	++
Coccidioides	++	++	+	+	+	0	0	0	++
Histoplasma	±	++	+	+	+	0	0	0	++
Sporothrix	±	++	+	+	+	0	0	0	++

TABLE 4C - ANTIVIRAL ACTIVITY SPECTRA

	Viruses														
	Adenovirus	BK Virus	SARS CoV-2	Cytomegalovirus	Hepatitis B	Hepatitis C	Herpes simplex	HPV	Influenza A	Influenza B	JC Virus / PML	RSV	Smallpox	Monkeypox	Varicella-zoster
Coronavirus															
Remdesivir	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hepatitis B															
Adefovir	NA	NA	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Emtricitabine	NA	NA	NA	NA	±	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Entecavir	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lamivudine	NA	NA	NA	NA	±	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Telbivudine	NA	NA	NA	NA	±	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tenofovir (TDF and TAF)	NA	NA	NA	NA	++	NA	±	NA	NA	NA	NA	NA	NA	NA	NA
Hepatitis C															
Daclatasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dasabuvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Elbasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Glecaprevir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Grazoprevir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interferon alfa, peg	NA	NA	NA	NA	++	+	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ledipasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ombitasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paritaprevir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pibrentasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ribavirin	±	NA	NA	NA	0	+	NA	NA	NA	NA	NA	±	NA	NA	NA
Simeprevir	NA	NA	NA	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sofosbuvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Velpatasvir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Voxilaprevir	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA
Influenza															
Amantadine	NA	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA	NA	NA	NA
Baloxavir	NA	NA	NA	NA	NA	NA	NA	NA	+	+	NA	NA	NA	NA	NA
Oseltamivir	NA	NA	NA	NA	NA	NA	NA	NA	++	++	NA	NA	NA	NA	NA
Peramivir	NA	NA	NA	NA	NA	NA	NA	NA	+	+	NA	NA	NA	NA	NA
Rimantadine	NA	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA	NA	NA	NA
Zanamivir	NA	NA	NA	NA	NA	NA	NA	NA	++	++	NA	NA	NA	NA	NA
Herpes, CMV, VZV, misc.															
Acyclovir	NA	NA	NA	0	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	+
Cidofovir	+	+	NA	++	NA	NA	+	NA	NA	NA	+	NA	+	+	+
Famciclovir	NA	NA	NA	0	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	+
Foscarnet	NA	NA	NA	++	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	+
Ganciclovir	±	NA	NA	++	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	+
Letermovir	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Valacyclovir	NA	NA	NA	0	NA	NA	++	NA	NA	NA	NA	NA	NA	NA	++
Valganciclovir	±	NA	NA	++	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	+
Pox Viruses															
Tecovirimat	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	+	+	NA
Topical Agents															
Imiquimod	NA	NA	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA
Penciclovir	NA	NA	NA	0	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	0
Podofilox	NA	NA	NA	NA	NA	NA	NA	++	NA	NA	NA	NA	NA	NA	NA
Sinecatechins	NA	NA	NA	NA	NA	NA	NA	+	NA	NA	NA	NA	NA	NA	NA
Trifluoridine	NA	NA	NA	NA	NA	NA	+	NA	NA	NA	NA	NA	NA	NA	NA