

2005-2006 Field Guide to Antibiotic Therapy

INTRODUCTION

Proper antibiotic selection requires a knowledge of host factors (e.g., immune function, comorbid diseases, and age); pharmacologic factors (e.g., pharmacokinetics, pharmacodynamics, adverse effects, and drug interactions); and microbial factors (e.g., resistance patterns and pathogenicity). The accompanying chart can serve as a quick reference to general therapeutic use of antibiotics for selected organisms. One must be careful not to use this or any other generalized reference in the absence of sound clinical judgment, as it cannot account for all host, drug, and microbial factors in each specific clinical scenario. In particular, an antibiotic may be listed as having activity against an organism in general but may be ineffective in certain clinical settings. For example, doxycycline is active against *Treponema pallidum*, but is not used for treatment of neu-

rosyphilis because of limited penetration into the central nervous system. Similarly, cefotaxime has activity against *Enterobacter*, but would rarely be used as monotherapy for serious infections, because of high rates of resistance and the emergence of resistance during therapy.

This chart is a compilation of data and recommendations presented in the primary literature, review articles, and textbooks that are well-recognized in the field of infectious diseases. Because many antibiotics have overlapping spectrums of activity, it is difficult to assign a drug of choice for each specific pathogen. Therefore, the table is divided into first-line, second-line, and third-line agents; a (+) to indicate some *in vitro* or clinical activity; and (i) for an investigational drug.

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This chart is designed to be a quick reference on antibiotic drugs and was based by the author on recommendations in review articles and textbooks. Drug Topics neither affirms nor denies the accuracy of the information contained herein.

No liability will be assumed for the use of the chart. Readers are strongly urged to consult the complete manufacturer's literature on the drugs in question.

KEY

- 1 = first-line agent for typical infections caused by this pathogen (e.g., strong *in vivo* efficacy data).
- 2 = second-line agent for typical infections caused by this pathogen (e.g., less documented clinical data, more toxicity, or higher cost compared to first-line agent).
- 3 = third-line agent for typical infections caused by this pathogen (e.g., lack of *in vivo* clinical data, emerging resistance patterns, toxicity risk, or high cost compared to alternatives).
- + = agent displaying *in vitro* or *in vivo* activity against this organism but not used clinically for specific infections caused by this pathogen.
- i = an investigational drug that has shown *in vitro* or *in vivo* activity against this organism but is not yet approved by the FDA.
- ‡ = anaerobe
- † = combination therapy with a penicillin and aminoglycoside recommended for enterococcal endocarditis.
- †‡ = this agent is not indicated for streptococcal otitis media.
- || = agent indicated only for urinary tract infections.
- § = combination of antipseudomonal beta-lactam plus aminoglycoside generally recommended for severe infections.
- # = multiple antibiotics plus antisecretory therapy recommended for gastrointestinal ulcers caused by this organism.
- ** = quinupristin/dalfopristin has not shown activity against *Enterococcus faecalis* and should be considered only for infections caused by *Enterococcus faecium*.
- * = resistance may be a problem; because of varying susceptibilities among geographic areas, susceptibility tests should be performed.
- †† = rifampin is to be used in conjunction with other anti-infective agents and not as a single agent except in the prophylactic therapy of *Haemophilus influenzae* and *Neisseria meningitidis*.
- ii = streptomycin is to be used in combination with other anti-infective agents for the treatment of streptococcal or enterococcal endocarditis, mycobacterial infections, plague, tularemia, and brucellosis.

ANTIBIOTIC TABLE

	PENICILLINS										CEPHALOSPORINS														
					ANTISTAPHYLOCOCCAL			EXTENDED SPECTRUM						1ST GENERATION				2ND GENERATION				CEPHAMYCINS	3RD GENERATION		
	amoxicillin (PO)	ampicillin (IV,PO)	penicillin G (IV)	penicillin V (PO)	dicloxacillin (PO)	nafcillin (IV,PO)	oxacillin (IV,PO)	amoxicillin/clavul (PO)	ampicillin/sulbac (IV)	piperacillin (IV)	piperacillin/tazobac (IV)	ticarcillin (IV)	ticarcillin/clavul (IV)	cefadroxil (PO)	cefazolin (IV)	cephalexin (PO)	cephradine (PO)	cefaclor (PO)	cefprozil (PO)	cefuroxime (IV)	cefuroxime axetil (PO)	loracarbef (PO)	cefoxitin (IV)	cefdinir (PO)	
Gram-positive cocci																									
<i>Enterococcus</i> *†	1	1	1	1				2	2	2	2	2	2												
<i>Enterococcus (VRE)</i> *																									
<i>Peptostreptococcus</i> sp.‡	1	1	1	1	3	3	3	2	2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2	
<i>Staphylococcus aureus</i> *					1	1	1	2	2		3		3	1	1	1	1	2	2	2	2	2	2	+	+
<i>Staphylococcus aureus</i> * (MRSA)																									
<i>Staphylococcus epidermidis</i> *					1	1	1	2	2		+		+	1	1	1	1	2	2	2	2	2	2	+	+
<i>Staphylococcus epidermidis</i> (MRSE)																									
<i>Staphylococcus saprophyticus</i>	+	+			+	+	+	2	2				2	2	2	2	+	+	+	+	+	2			
<i>Streptococcus agalactiae</i> (Grp. B)	1	1	1	1	+	+	+	2	+	+	+	+	+		2				2	2	2	2	2	+	+
<i>Streptococcus bovis</i> (Grp. D)	1	1	1	1	+	+	+	2	2	+	+	+	+	2	2	2	2								
<i>Streptococcus pneumoniae</i> *	1	1	1	1	+	+	+	2	2	+	+	+	+	2	2	2	2	2	2	2	2	2	2	+	2
<i>Streptococcus pneumoniae</i> (DRSP)																									
<i>Streptococcus pyogenes</i> (Grp. A)	1	1	1	1	+	+	+	2	2	+	+	+	+	2	2	2	2	2	2	2	2	2	2	+	3
Viridans group streptococcus	1	1	1	1	3	3	3	2	2	+	+	+	+	2	2	2	2	2		2	2	2	2	2	+
Gram-positive rods																									
<i>Actinomyces israelii</i> ‡	1	1	1	1				2	3	+	+														
<i>Bacillus anthracis</i>	2	2	2	+				+	+	+	+	+	+												
<i>Clostridium difficile</i> ‡																									
<i>Clostridium perfringens</i> ‡	+	+	1	+				1	1	+	2	+	2		+				+	+	+	+		1	
<i>Corynebacterium diphtheriae</i>			2																						
<i>Corynebacterium jeikeium</i>																									
<i>Listeria monocytogenes</i>	1	1	1	+				+	+	+	+	+	+												
<i>Nocardia asteroides</i>		+						+											+	+					
<i>Propionibacterium acnes</i> ‡	1	1	1	1										+									+		
Gram-negative cocci																									
<i>Neisseria gonorrhoeae</i>	1	1	1	1	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	
<i>Neisseria gonorrhoeae</i> (PRNG)					+	+	+	+	+		+	+	+				+	+	+	1	+	+	1		
<i>Neisseria meningitidis</i>	+	+	1	+	+	+	+	+	+	+	+	+	+	+				+	+	3	+	+	+		
Spirochetes																									
<i>Borrelia burgdorferi</i>	1		1	1															+	2					
<i>Borrelia recurrentis</i>			+																						

ANTIBIOTIC TABLE

CEPHALOSPORINS

	3RD GENERATION							4TH GENERATION	AMINOGLYCOSIDES				CARBAPENEMS			MACROLIDES/ KETOLIDES				MONOBACTAM	QUINOLONES			
	cefditoren (PO)	cefixime (PO)	cefotaxime (IV)	cefepodoxime (PO)	ceftazidime (IV)	ceftibuten ^{††} (PO)	ceftiozime (IV)	ceftriaxone (IV)	cefepime (IV)	amikacin (IV)	gentamicin (IV)	streptomycin <i>ii</i> (IV)	tobramycin (IV)	ertapenem (IV)	imipenem/cilastatin (IV)	meropenem (IV)	azithromycin (IV,PO)	clarithromycin (PO)	dirithromycin (PO)	erythromycin (IV,PO)	telithromycin (PO)	aztreonam (IV)	ciprofloxacin (IV,PO)	
Gram-positive cocci																								
<i>Enterococcus</i> * [†]										1	1			3	3		+		+	+			3	
<i>Enterococcus (VRE)</i> *																							+	
<i>Peptostreptococcus sp.</i> [†]		+	+	+	+		+	+	+				3	3	3	+	+		+	+		+		
<i>Staphylococcus aureus</i> *	2		+	+			+	+	+	+	+	+	3	3	3	3	3	3	3	3	+		3	
<i>Staphylococcus aureus</i> (MRSA)																								
<i>Staphylococcus epidermidis</i> *			+	+			+	+	+	+	+	+	+	+	+		+						3	
<i>Staphylococcus epidermidis</i> (MRSE)																								
<i>Staphylococcus saprophyticus</i>				+	+								+	+	+								3	
<i>Streptococcus agalactiae</i> (Grp. B)		+	+	3	+	+	+	+	+				+	+	+	3	3		2	+			+	
<i>Streptococcus bovis</i> (Grp. D)								+						3	3				2					
<i>Streptococcus pneumoniae</i> *	2	2	2	2	+	2	2	2	+				3	3	3	2	2	2	2	2			+	
<i>Streptococcus pneumoniae</i> (DRSP)													3	3	3					2				
<i>Streptococcus pyogenes</i> (Grp. A)	2	+	+	3	+	+	+	+	+				3	3	3	3	3	3	2	+		+		
Viridans group streptococcus	2	+	+	+	+		+	+	+				+	3	3				2	+		+	+	
Gram-positive rods																								
<i>Actinomyces israelii</i> [†]			1				+						+	+	+				2	+			+	
<i>Bacillus anthracis</i>											+			2	+	+	2	+					1	
<i>Clostridium difficile</i> [†]																								
<i>Clostridium perfringens</i> [†]			+		+		+	+	+				+	+	2	+	+		+				+	
<i>Corynebacterium diphtheriae</i>																+	+	+	1					
<i>Corynebacterium jeikeium</i>																							+	
<i>Listeria monocytogenes</i>										+			3	3	3		+	+	+				+	
<i>Nocardia asteroides</i>			+				+		2					2	2				+					
<i>Propionibacterium acnes</i> [†]													+	+	+		+	+	2	+			+	
Gram-negative cocci																								
<i>Neisseria gonorrhoeae</i>		1	+	+	+	+	+	2	+					+	+	2	+		2		+		2	
<i>Neisseria gonorrhoeae</i> (PRNG)		1	1	1	+	+	1	1	+					+	+	2	+		+		+		1	
<i>Neisseria meningitidis</i>		+	1	+	3	+	+	1	+					+	3	+	+		+		+		+	
Spirochetes																								
<i>Borrelia burgdorferi</i>							2									2	2	+	2	+				
<i>Borrelia recurrentis</i>																			2					

ANTIBIOTIC TABLE

	PENICILLINS										CEPHALOSPORINS															
					ANTISTAPHYLOCOCCAL			EXTENDED SPECTRUM			1ST GENERATION				2ND GENERATION				CEPHAMYCINS	3RD GENERATION						
	amoxicillin (PO)	ampicillin (IV,PO)	penicillin G (IV)	penicillin V (PO)	dicloxacillin (PO)	nafcillin (IV,PO)	oxacillin (IV,PO)	amoxicillin/clavul (PO)	ampicillin/sulbac (IV)	piperacillin (IV)	piperacillin/tazobac (IV)	ticarcillin (IV)	ticarcillin/clavul (IV)	cefadroxil (PO)	cefazolin (IV)	cephalexin (PO)	cephradine (PO)	cefaclor (PO)	cefprozil (PO)	cefuroxime (IV)	cefuroxime axetil (PO)	loracarbef (PO)	cefoxitin (IV)	cefdinir (PO)		
Spirochetes																										
<i>Leptospira interrogans</i>	1	1	1	1						+	+															
<i>Treponema pallidum</i>	+	+	1	+																						
Atypical organisms																										
<i>Chlamydia/Chlamydoiphila</i>																										
<i>Mycoplasma hominis</i>																										
<i>Mycoplasma pneumoniae</i>																										
<i>Ureaplasma urealyticum</i>																										
Gram-negative coccobacillary																										
<i>Acinetobacter sp.*</i>								2	2	2		2														
<i>Bartonella henselae</i>																										
<i>Bordetella pertussis</i>	+	2						3	3																	
Family rickettsiae																										
<i>Francisella tularensis</i>																										
<i>Moraxella catarrhalis</i>								1	2	+	+	+	+	+	+	+		2	2	2	2	2	+	2		
<i>Pasteurella multocida</i>	1	1	1	1				2	2	+	+	+	+	+		+			+	+	+	+				
Gram-negative rods																										
<i>Aeromonas hydrophila</i>								+	+	+	+	+	+					+		2	+			+		
<i>Alcaligenes xylooxidans</i>										2	2	2	2													
<i>Bacteroides fragilis</i> ‡								2	1	+	1	+	1											2		
<i>Brucella sp.</i>																										
<i>Burkholderia cepacia</i>											+															
<i>Campylobacter jejuni</i>								+				+														
<i>Citrobacter diversus</i>								+	+	2	2	+	2	+	+			+	+	+	+		+	+		
<i>Citrobacter freundii</i>									+	2	2	+	2							+	+	+				
<i>Eikenella corrodens</i>	1	1	1	1				1	1										+			+				
<i>Enterobacter sp.*</i>										3	3	3	3													
<i>Escherichia coli</i>	+	+						2	2	2	2	2	2	1	1	1	1	+	+	2	2	2	2	3		
<i>E. coli</i> (hospital-acquired)								2		1		1											1			
<i>Flavobacteriae</i>										+	+													+		
<i>Fusobacteriae</i> ‡			1	1				1	1	2	2	2	2	+		+			+	+	+	+		2		
<i>Gardnerella vaginalis</i>	+	+	+	+				+											+	+		+				

ANTIBIOTIC TABLE

		CEPHALOSPORINS																						
		3RD GENERATION							4TH GENERATION	AMINOGLYCOSIDES			CARBAPENEMS			MACROLIDES/ KETOLIDES			MONOBACTAM	QUINOLONES				
		cefditoren (PO)	cefixime (PO)	cefotaxime (IV)	cefepodoxime (PO)	ceftazidime (IV)	ceftibutent ± (PO)	ceftizoxime (IV)	ceftriaxone (IV)	cefepime (IV)	amikacin (IV)	gentamicin (IV)	streptomycin ii (IV)	tobramycin (IV)	ertapenem (IV)	imipenem/cilastatin (IV)	meropenem (IV)	azithromycin (IV,PO)	clarithromycin (PO)	dirithromycin (PO)	erythromycin (IV,PO)	telithromycin (PO)	aztreonam (IV)	ciprofloxacin (IV,PO)
Spirochetes																								
<i>Leptospira interrogans</i>				+				+																
<i>Treponema pallidum</i>									2									3	3		3			
Atypical organisms																								
<i>Chlamydia/Chlamydophila</i>																		1	1	2	2	2		+
<i>Mycoplasma hominis</i>																		1	2		2			+
<i>Mycoplasma pneumoniae</i>																		2	2	2	1	2		+
<i>Ureaplasma urealyticum</i>																		1	2		1	+		+
Gram-negative coccobacillary																								
<i>Acinetobacter sp.*</i>				2	+	2		2	2	2	1		1		1	1								2
<i>Bartonella henselae</i>																		2	2		1	+		3
<i>Bordetella pertussis</i>																		2	2	+	1	+		+
Family rickettsiae																								+
<i>Francisella tularensis</i>										+	1	1	+		+	+					+	+		3
<i>Moraxella catarrhalis</i>		2	2	+	2	+	2	+	+	+	+		+	+	+	3	1	1	+	+	+	2	+	2
<i>Pasteurella multocida</i>															+	+	+	2	+		+	+	+	+
Gram-negative rods																								
<i>Aeromonas hydrophila</i>				2	2	2		2	2	2	1		1	+	+	+							+	2
<i>Alcaligenes xylosoxidans</i>						2												1	1					3
<i>Bacteroides fragilis</i> [‡]				+				+	+					1	1	1								
<i>Brucella sp.</i>										+	1	1	+				+			+				3
<i>Burkholderia cepacia</i>						3										3	2							+
<i>Campylobacter jejuni</i>											+	+	+		+	+	2	2	+	2				1
<i>Citrobacter diversus</i>			+	2	+	2		2	2		+	2	2	3	3	3							3	1
<i>Citrobacter freundii</i>			+	2	+	2		2	2	2	+	2	2	3	3	3								2
<i>Eikenella corrodens</i>								2						+	+	+				2			+	+
<i>Enterobacter sp.*</i>			3	3	3	3	3	3	3	2	1		1	3	2	2								3
<i>Escherichia coli</i>		3	3	3	3	3	3	3	3	3	+	3	3	3	3	3								3
<i>E. coli</i> (hospital-acquired)				1	+	1		1	1	2	+	1	1	2	2	2								3
Flavobacteriae				+		+		+	+															+
Fusobacteriae [‡]				+	+	+		+	+	+				+	+	+								+
<i>Gardnerella vaginalis</i>						+		+						+	+						+			+

ANTIBIOTIC TABLE

	QUINOLONES								TETRACYCLINES			MISCELLANEOUS													
	gatifloxacin (IV,PO)	gemifloxacin (PO)	levofloxacin (IV,PO)	lomefloxacin (PO)	moxifloxacin (IV,PO)	norfloxacin (PO)	ofloxacin (IV,PO)	sparfloxacin (PO)	trovafloxacin (IV,PO)	doxycycline (IV,PO)	minocycline (PO)	tetracycline (PO)	chloramphenicol (IV)	clindamycin (IV,PO)	daptomycin (IV)	erythromycin/sulfisox (PO)	linezolid (IV,PO)	metronidazole (IV,PO)	nitrofurantoin II (PO)	polymyxins (colistin) (IV)	quinupristin/dalfopristin** (IV)	rifampin+ (IV,PO)	trimethoprim/sulfa (IV,PO)	vancomycin (IV,PO)	
Spirochetes																									
<i>Leptospira interrogans</i>										1	1	1													
<i>Treponema pallidum</i>										2	2	2	+			+									
Atypical organisms																									
<i>Chlamydia/Chlamydolphi</i>	2	2	2		2		1	2	+	1	1	1	3	+			+				+	+		2	
<i>Mycoplasma hominis</i>	+	+	2	+	+		2	+	+	1	1	1													
<i>Mycoplasma pneumoniae</i>	2	2	2		2		2	2	+	2	2	2	+				+				+				
<i>Ureaplasma urealyticum</i>	+	+	2	+	+		2	+	+	2	2	2	+												
Gram-negative coccobacillary																									
<i>Acinetobacter sp.*</i>	3	+	3	3	3	3	3	+	+	+	+	+												1	
<i>Bartonella henselae</i>										1	+	+	+										2	2	
<i>Bordetella pertussis</i>	+	+	+		+			+	+	3	3	3	+			+				+		+	+	2	
Family rickettsiae	+		+				+	+		1	1	1	2										+		
<i>Francisella tularensis</i>		2					+			2	2	2	2										+	+	
<i>Moraxella catarrhalis</i>	2		2	2	2	+	2	2	+	+	+	+	+			+	+				+	+	+	2	
<i>Pasteurella multocida</i>	+		+				+	+		2	2	2	+				+			+		+	+	3	
Gram-negative rods																									
<i>Aeromonas hydrophila</i>	2	+	2	+	2	+	2	+		+	+	+	+											1	
<i>Alcaligenes xylosoxidans</i>	+	+	+		+		+		+				+											2	
<i>Bacteroides fragilis</i> †	+	+			+			+	+	+	+	+	+	1			+	1			+				
<i>Brucella sp.</i>	+		+		+		2	+	+	1	+	+	+			+							2	2	
<i>Burkholderia cepacia</i>	+		+		+				+	+	+	+	+							+				1	
<i>Campylobacter jejuni</i>	1		1		1	1	1	1	+	2	2	2	+	+		+								2	
<i>Citrobacter diversus</i>	2	+	1	+	2	+	1	2	+	+	+	+	+						+						
<i>Citrobacter freundii</i>	2	+	1	+	2	+	1	2	+	+	+	+							+						
<i>Eikenella corrodens</i>	+		+				+	+		2	2	2												+	
<i>Enterobacter sp.*</i>	2	+	1	1	2	1	1	1	+	+	+	+	+							+				2	
<i>Escherichia coli</i>	2	+	2	2	2	2	2	2	+	+	+	+	+						3	+				1	
<i>E. coli</i> (hospital-acquired)	2	+	2	2	2	2	2	2	+				+											2	
Flavobacteriae						+		+	+		+			2									+	3	
Fusobacteriae†	+	+	+		+		+	+	+	+	+	+	+	1			+	1			+				
<i>Gardnerella vaginalis</i>		+	+				+	+	+				+	1				1			+			+	

ANTIBIOTIC TABLE

	PENICILLINS										CEPHALOSPORINS														
					ANTISTAPHYLOCOCCAL		EXTENDED SPECTRUM				1ST GENERATION				2ND GENERATION				CEPHAMYCINS	3RD GENERATION					
	amoxicillin (PO)	ampicillin (IV,PO)	penicillin G (IV)	penicillin V (PO)	dicloxacillin (PO)	nafcillin (IV,PO)	oxacillin (IV,PO)	amoxicillin/clavul (PO)	ampicillin/sulbac (IV)	piperacillin (IV)	piperacillin/tazobac (IV)	ticarcillin (IV)	ticarcillin/clavul (IV)	cefadroxil (PO)	cefazolin (IV)	cephalexin (PO)	cephradine (PO)	cefactor (PO)	cefprozil (PO)	cefuroxime (IV)	cefuroxime axetil (PO)	loracarbef (PO)	cefoxitin (IV)	ceftinir (PO)	
Gram-negative rods																									
<i>Haemophilus ducreyi</i>							3	3																	
<i>Haemophilus influenzae</i>	+	+					1	2	2	2	2	2						2	1	1	1	2	2	2	
<i>Helicobacter pylori</i> [#]	1																								
<i>Klebsiella pneumoniae</i> [*]							2	2	2	2	2	2	2	2	2	2	2	2	+	2	2	+	2	+	
<i>Legionella pneumophila</i>																									
<i>Morganella morganii</i> [*]								+	2	2	2	2											2		
<i>Prevotella melaninogenica</i> ⁺	1	1	1	1			2	2	+	3	+	3	+	+	+	+	+	+	+	+	+	+	1		
<i>Proteus mirabilis</i>	1	1					2	2	2	2	2	2	2	2	2	2	2	2	+	2	2	+	2	+	
<i>Proteus sp.</i> [*]							2	2	2	2	2	2											2	+	
<i>Providencia sp.</i> [*]								+	2	2	2	2							2	+			2		
<i>Pseudomonas aeruginosa</i> [†]									1	1	3	3													
<i>Salmonella sp.</i>	2	2					2	+	+	+	+	+		+			+		+	+		+	+		
<i>Salmonella typhi</i>														+						+	+			+	
<i>Serratia sp.</i> [*]									2	2	2	2											+		
<i>Shigella sp.</i>	+	1					2	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	
<i>Stenotrophomonas maltophilia</i>												2													
<i>Vibrio cholerae</i>																									
<i>Yersinia enterocolitica</i>							+	2	2	2	2	2							+					+	
<i>Yersinia pestis</i>																									

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	3RD GENERATION								4TH GENERATION	AMINOGLYCOSIDES				CARBAPENEMS			MACROLIDES/ KETOLIDES				MONOBACTAM	QUINOLONES	
	cefditoren (PO)	cefixime (PO)	cefotaxime (IV)	cefepodoxime (PO)	ceftazidime (IV)	ceftibuten†† (PO)	ceftizoxime (IV)	ceftriaxone (IV)	cefepime (IV)	amikacin (IV)	gentamicin (IV)	streptomycin ii (IV)	tobramycin (IV)	ertapenem (IV)	imipenem/cilastatin (IV)	meropenem (IV)	azithromycin (IV,PO)	clarithromycin (PO)	dirithromycin (PO)	erythromycin (IV,PO)	telithromycin (PO)	aztreonam (IV)	ciprofloxacin (IV,PO)
Gram-negative rods																							
<i>Haemophilus ducreyi</i>		2					1	+					+		+	1	1		2				2
<i>Haemophilus influenzae</i>	1	1	2	1	2	1	2	2	3	+	+		+	3	3	2	2	3		+	2	3	2
<i>Helicobacter pylori</i> #																+	1		+	+			
<i>Klebsiella pneumoniae</i> *	+	+	1	+	1	+	1	1	2	+	1		1	3	3	3						3	2
<i>Legionella pneumophila</i>																2	2	2	1	+			2
<i>Morganella morganii</i> *		+	1		1		1	1	2	+	2		2	3	3	3						3	2
<i>Prevotella melaninogenica</i> †		2	+	+	+		+	+					3	3	3						+		+
<i>Proteus mirabilis</i>	+	+	2	2	2	2	2	2	2	+	2		2	+	+	+						3	2
<i>Proteus sp.*</i>		1	1	+	1	+	1	1	2	+	2		2	3	3	3						3	2
<i>Providencia sp.*</i>			1	1	1	+	1	1	2	+	2		2	3	3	3						3	2
<i>Pseudomonas aeruginosa</i> ‡		+			1			1	3	2		1		2	1							3	2
<i>Salmonella sp.</i>	+	3	2	+	2	+	2	1	+	+	+		+	+	+	+						+	1
<i>Salmonella typhi</i>		+			+	+	+	1	+	+	+		+	+	+	+						+	1
<i>Serratia sp.*</i>		+	1	+	1		2	2	+	+	1		2	3	3	3						3	2
<i>Shigella sp.</i>			+	+	+	+	+	+	+	+	+		+	+	+	+						+	1
<i>Stenotrophomonas maltophilia</i>																							
<i>Vibrio cholerae</i>		+												3	3								2
<i>Yersinia enterocolitica</i>			1	+	+	+	1	1	+	+	1		1		+	+						+	2
<i>Yersinia pestis</i>							+			+	1	1	+										2

COMMON PATHOGENS BY DISEASE

MENINGITIS/BRAIN TISSUE

Bacteroides sp.
Escherichia coli
Haemophilus influenzae
Leptospira sp.
Listeria monocytogenes
Neisseria meningitidis
Nocardia asteroides
Staphylococcus aureus
Streptococcus agalactiae
Streptococcus bovis
Streptococcus pneumoniae
Streptococcus pyogenes
Treponema pallidum

ENDOCARDITIS/ BLOODSTREAM

Enterococci
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus bovis
Streptococcus pyogenes
Viridans streptococci

LIVER/PANCREAS

Bacteroides sp.
Enterobacteriaceae
Enterococci
Leptospira sp.

MOUTH

Actinomyces israelii
Anaerobic streptococci
Leptospira sp.
Treponema pallidum

UPPER RESPIRATORY TRACT

Haemophilus influenzae
Moraxella catarrhalis
Streptococcus pneumoniae
Streptococcus pyogenes

LOWER RESPIRATORY TRACT

Bordetella pertussis
Chlamydia pneumoniae

Haemophilus influenzae
Klebsiella pneumoniae
Legionella pneumophila
Mycobacterium tuberculosis
Mycoplasma pneumoniae
Streptococcus pneumoniae

HOSPITAL-ACQUIRED LUNG INFECTION

Acinetobacter sp.
Bacteroides sp.
Citrobacter sp.
Enterobacter sp.
Klebsiella pneumoniae

	QUINOLONES									TETRACYCLINES			MISCELLANEOUS												
	gatifloxacin (IV,PO)	gemifloxacin (PO)	levofloxacin (IV,PO)	lomefloxacin (PO)	moxifloxacin (IV,PO)	norfloxacin (PO)	ofloxacin (IV,PO)	sparfloxacin (PO)	trovafloxacin (IV,PO)	doxycycline (IV,PO)	minocycline (PO)	tetracycline (PO)	chloramphenicol (IV)	clindamycin (IV,PO)	daptomycin (IV)	erythromycin/sulfisox (PO)	linezolid (IV,PO)	metronidazole (IV,PO)	nitrofurantoin II (PO)	polymyxins (colistin) (IV)	quinupristin/dalfopristin** (IV)	rifampin++ (IV,PO)	trimethoprim/sulfa (IV,PO)	vancomycin (IV,PO)	
Gram-negative rods																									
<i>Haemophilus ducreyi</i>			3			+	3						+	+									+		
<i>Haemophilus influenzae</i>	2	2	2	3	2	+	2	2	+	+	+	+	3			1							+	2	
<i>Helicobacter pylori</i> [#]										+	+	1						1							
<i>Klebsiella pneumoniae</i> [*]	2	2	2	2	2	3	2	2	+	+	+	+	+					+		+				2	
<i>Legionella pneumophila</i>	2	2	2	2	2	2	+	2	2	+	3	3	3										+	+	
<i>Morganella morganii</i> [*]	2	+	2	+	2	+	2	+	+																2
<i>Prevotella melaninogenica</i> [‡]	+	+			+				+	3	3	3	+	1			+	1			+				
<i>Proteus mirabilis</i>	2	+	2	2	2	2	2	+	+				+												2
<i>Proteus sp.</i> [*]	2	+	2	2	2	2	2	+	+				+												2
<i>Providencia sp.</i> [*]	2	+	2	+	2	2	2	+	+																2
<i>Pseudomonas aeruginosa</i> ¹	3	+	3		+		3	+	+												+				
<i>Salmonella sp.</i>	+	+	+	+	+	1	+	+	+				3						+	+					2
<i>Salmonella typhi</i>		+	+			+	+						2												2
<i>Serratia sp.</i> [*]	+	+	2	+	+	+	2	+	+										+	+					2
<i>Shigella sp.</i>	+		+	+	+	1	+	+					+												2
<i>Stenotrophomonas maltophilia</i>	3		+		3		+	+	+		3												+	1	
<i>Vibrio cholerae</i>			+			2	2	+		1	1	1													2
<i>Yersinia enterocolitica</i>	+		+		+	+	2	+	+	3	3	3	+												1
<i>Yersinia pestis</i>			+			+	+			2	+	+	3												3

COMMON PATHOGENS BY DISEASE

Pseudomonas aeruginosa
Serratia sp.
Staphylococcus aureus

SKIN/SOFT TISSUE

Clostridia
Eikenella corrodens
Pasteurella multocida
Pseudomonas aeruginosa
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus pyogenes

BONE/JOINTS

Borrelia burgdorferi
Neisseria gonorrhoeae
Pseudomonas aeruginosa
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus pneumoniae

GENITAL

Bacteroides sp.
Chlamydia trachomatis
Enterococci
Mycoplasma hominis
Neisseria gonorrhoeae

Streptococcus sp.
Treponema pallidum
Ureaplasma urealyticum

PELVIC INFLAMMATORY DISEASE

Bacteroides sp.
Chlamydia trachomatis
Clostridium perfringens
Enterobacteriaceae
Mycoplasma hominis
Neisseria gonorrhoeae
Ureaplasma urealyticum

URINARY TRACT

Enterococci
Escherichia coli
Proteus mirabilis
Staphylococcus saprophyticus

INTRA-ABDOMINAL

Bacteroides sp.
Enterobacter sp.
Enterococci
Escherichia coli
Klebsiella sp.
Peptostreptococci
Proteus sp.