

<u>Classification</u>	<u>Antibiotic</u>	<u>Gram Positive Cocci (GPC)</u>			<u>Gram Neg (rods = GNR)</u>			<u>Anaerobes</u>	<u>Atypicals</u>	
		Cluster = <u>Staph</u>	<u>Streptococcus</u> β↓ & α-hemolytic↓	<u>Enterococcus</u>	<u>Resp</u> (cocci)	<u>Enteric</u> GI flora	<u>Non-enteric</u>	<i>Bacteroides,</i> <i>Clostridium</i> (<i>non-difficile</i>) <i>Peptostrep.</i>	<i>Mycoplasma</i> <i>Legionella</i> <i>Chlamydia</i> (pneumonia)	
<u>Beta-Lactams</u> <u>Penicillins</u>	General Spectrum of Activity →	MSSA only	Group A / B	<i>pneumo,</i> Viridans	<i>faecalis</i> only	<i>H. flu,</i> <i>M. cat</i>	<i>E. coli,</i> <i>Klebsiella</i>	<i>Pseudomonas</i>		
Natural	Penicillin G IV/ PenVK PO	+/-	++	+	+	0	0	0	+	0
Anti-Staphylococcal	Oxacillin/Nafcillin IV, Dicloxacillin PO	++	++	+	0	0	0	0	0	0
Aminopenicillins	Amp/Amoxicillin IV/PO	0	++	+	++	+R	+/-	0	+	0
Anti-Pseudomonal	Piperacillin/Ticarcillin IV	0	+	+	+	+	+	++R	+	0
Beta-Lactamase Inhibitor added	Clavulanate IV/PO, sulbactam tazobactam, vaborbactam IV	Increase by +				Inc by +	Increase by +		Increase by +	
<u>Cephalosporins</u> 1 st Generation	Cefazolin IV/ Cephalexin PO	++	++	+/-	0	+/-	+	0	0	0
2 nd Generation	Cefuroxime IV/PO	+	++	+	0	+	+	0	+/-	0
Cephameycins	Cefoxitin/Cefotetan IV	0	+	0	0	+	+	0	+	0
3 rd Generation (PO in between 2 nd and 3 rd gen)	Ceftriaxone/Cefotaxime IV	+	++	++	0	++	++R	0	+/-	0
	Ceftazidime IV (+ Avibactam for Carb-Resistant Enterics)	0	+	0	0	++	++R	++R	0	0
4 th Generation	Cefepime IV	+	++	++	0	++	++	++R	0	0
Novel	Ceftolozane-tazo/Cefiderocol	0	+	+	0	++	++	++	+/-	0
<u>Carbapenems</u>	Imipenem, Meropenem IV (+rele/vaborbactam for CRE)	+	+	+	+/-	++	++	++R	++	0
	Ertapenem IV	+	++	++	0	++	++	0	++	0
<u>Monobactam</u>	Aztreonam IV	0	0	0	0	++	++R	+	0	0
<u>Non β-Lactams</u>	Includes	MRSA			Both sp.					
<u>Aminoglycosides</u> (Use in combo)	Gentamicin, tobramycin, amikacin, plazomicin IV	Synergy Only	0	0	Synergy Only (gent)	+	++	++	0	0
<u>Polymyxins</u>	Polymyxin B/Colistin IV	0	0	0	0	++	++	++	0	0
<u>Sulfonamides</u>	TMP-SMX IV/PO	+	+/-	+/-	0	+	+	0	0	0
<u>Tetracyclines</u>	Doxycycline IV/PO	+	+/-	+	+	++	+/-	0	+/-	++
<u>Macrolides</u>	Azithromycin IV/PO	+/-	+	+	0	+	+/-	0	0	++
<u>Fluoroquinolones</u>	Ciprofloxacin IV/PO	+/-	+	+/-	+/-	++	+	+	0	++
	Levofloxacin IV/PO	+/-	++	++	+/-	++	+	+ 750mg	0	++
	Moxifloxacin IV/PO	+/-	++	++	+/-	++	+	0	+	++
	Delafloxacin IV/PO	++	++	++	+	++	++	+/+++	?	++
<u>Lincosamide</u>	Clindamycin IV/PO	+	+	+	0	0	0	0	+	0
<u>Miscellaneous</u>	Metronidazole IV/PO	0	0	0	0	0	0	0	++	0

++ Very Good, + OK, +/- Poor or variable, 0 = No activity, R = resistance developing, check locally – Scott Bergman, PharmD, BCIDP: Nebraska Medicine, 12-19

Although you will find exceptions, if an antibiotic works on *Pseudomonas* then it has good activity against enteric GNRs. If it works against enterics, then it will also have activity against the respiratory Gram negatives because they are easiest to kill. If it works on alpha-hemolytic Strep, it usually has activity against beta-hemolytic Strep for the same reason (but not always). The agents below all treat GPC (Staph and Strep) in skin infections

++ MRSA IV Agents	VRE =faecium	Pneumonia =lung conc.	Bacteremia =endocarditis	Intra- Abdom	Comments All are more potent than those listed above for serious MRSA (& other GPCs). Each has different advantages depending on site of infection
Vancomycin IV	No	+	++	Combo	Gold standard for resistant Gm (+), but cure rates still not good
Linezolid IV/PO	yes	++	+/-	Combo	Good for hospital pneumonia, but use caution long term and with SSRIs
Daptomycin IV	yes	0	++	Combo	6mg/kg daily for endocarditis, higher for VRE. inactivated by lung surfactant
Telavancin IV	No	+	++?	Combo	Combines vanco and dapto MOA; long-acting dalba- and oritavancin>7d skin
Ceftaroline IV	No	++	++?	-	5 th Gen Ceph with some respiratory & enteric Gram neg activity (like 2-3rd)
Tige & Erava IV Omacycline PO	yes	+	-	++ +	Also treat Anaerobes & many Gm negs including ESBLs, but no <i>Proteus</i> or <i>Pseudomonas</i> , Omada is more of a skin drug - role not entirely clear
Lefamulin IV/PO	yes	++	-?	-	Treats respiratory Gm negs and atypicals = community pneumonia pathogens

- This is meant as a quick teaching reference but it cannot replace a textbook combined with clinical judgment and proper assessment of each patient
- For additional basic information such as adverse effects, I highly recommend the book “Antibiotics Simplified” by J. Gallagher & C. MacDougall
- Table 4 of The Sanford Guide to Antimicrobial Therapy has a chart similar to this with more antibiotics against additional pathogens
- Table 9 has some useful pharmacologic features of antibiotics such as the half-life, peak serum concentrations and CSF penetration
- Refer to hospital specific antimicrobial susceptibility data for the most current, local resistant patterns. This chart reflects Omaha, NE www.nebraskamed.com/asp

