

MAKE THE SWITCH: IV TO PO STEP DOWN

Advantages of Oral Therapy:

- Easier administration
- Increased patient comfort/mobility
- Cost effective
- Safety

Consider oral therapy when the patient:

- Continues to require antibiotic therapy
- Is clinically stable/improving
- Has a functional GI tract (tolerating and capable of absorbing oral drugs)
- Does not have an infection that should be treated with parenteral therapy (e.g., endocarditis, meningitis, osteomyelitis)

INJECTABLE ANTI-INFECTIVE	SUGGESTED ORAL STEP-DOWN THERAPY
Ampicillin/Sulbactam (Unasyn)	Amoxicillin/Clavulanate (Augmentin)
Azithromycin (Zithromax)	Same dose IV to PO
Aztreonam (Azactam)	Levofloxacin (Levaquin)
Cefazolin (Ancef)	Cephalexin (Keflex)
Cefotetan (Cefotan)	Cefuroxime (Ceftin)
Ceftriaxone (Rocephin)	Cefdinir (Omnicef) if pneumonia Cephalexin (Keflex) for all other indications
Clindamycin (Cleocin)	600 mg-900 mg IV Q 8 hr to 300 mg-450 mg PO Q 6 hr
Fluconazole (Diflucan)	Same dose IV to PO
Levofloxacin (Levaquin)	Same dose IV to PO
Metronidazole (Flagyl)	Same dose IV to PO
Nafcillin	Dicloxacillin

AUTOMATIC THERAPEUTIC SUBSTITUTIONS

ANTI-INFECTIVE	CHANGED TO
Amikacin (Amikin)	Gentamicin (or Tobramycin if Gentamicin resistant)
Amphotericin B (Fungizone) Amphotericin B Lipid Complex (Abelcet)	Amphotericin B Liposomal (Ambisome)
Ampicillin PO	Amoxicillin PO
Caspofungin (Cancidas)	Micafungin (Mycamine) + ID Consult Required
Cefaclor (Ceclor) Cefprozil (Cefzil)	Cefuroxime Axetil (Ceftin)
Cefadroxil (Duricef)	Cephalexin (Keflex)
Cefazolin (Ancef) Q 6 hours	Q 8 hours
Cefepime (Maxipime)	Ceftazidime (Fortaz)
Cefotaxime (Claforan) - Adults only	Ceftriaxone (Rocephin)
Cefoxitin (Mefoxin)	Cefotetan (Cefotan)
Cefpodoxime (Vantin) Ceftibuten (Cedax)	Cefdinir (Omnicef)
Clarithromycin XL (Biaxin XL) 1000 mg QDay	Clarithromycin (Biaxin) 500 mg BID
Clindamycin (Cleocin) 300 mg IV Q 6 hours 600-900 mg IV Q 6 hours	600 mg IV Q 8 hours 900 mg IV Q 8 hours
Doripenem (Doribax)	Meropenem (Merrem)
Erythromycin Base, Ethylsuccinate (EES), and PCE	Erythromycin (Ery-Tab)
All Fluoroquinolones	Levofloxacin (Levaquin)
Imipenem-cilastatin (Primaxin)	Meropenem (Merrem)
Metronidazole (Flagyl) 500 mg IV Q 6 hours	500 mg IV Q 8 hours
Oxacillin	Nafcillin
Penicillin G Sodium	Penicillin G Potassium
Ticarcillin-Clavulanate (Timentin)	Piperacillin-Tazobactam (Zosyn) extended infusion
Tobramycin	Gentamicin, if susceptible

RESTRICTED ANTI-INFECTIVES

Restricted to Pediatric Patients

- Cefotaxime (Claforan) - Auto-sub to ceftriaxone in adults

Restricted to Infectious Disease Specialists

- Ceftaroline (Teflaro)
- Dalbavancin (Dalvance)
- Fosfomycin (Monurol)
- Quinupristin-Dalfopristin (Synercid)
- Tigecycline (Tygacil)

Infectious Disease Consult Required

- Daptomycin (Cubicin)
- Ertapenem (Invanz)
- Fidaxomicin (Dificid) – or GI consult
- Linezolid (Zyvox)
- Meropenem (Merrem) – or Pulmonary consult
- Micafungin (Mycamine)
- Voriconazole (VFEND)

SUGGESTED DURATION OF ANTIBIOTIC THERAPY (IV + PO)

INFECTION	DAYS
Bone Osteomyelitis Septic Arthritis	42 (Seek ID Advice) 14-28 (Seek ID Advice)
C. difficile	10-14 (Consult ID if recurrent)
Endocarditis	Seek ID Advice
Meningitis N. meningitidis S. pneumoniae	7 10-14
Pulmonary Aspiration Pneumonia Bronchitis/COPD Exacerbation CAP HAP/VAP	7-10 7-10 5 8
Bacteremia/Septicemia Gram Negative	7-14 (7 days if uncomplicated, afebrile and hemodynamically stable x 48 hr) 10-14 (possibly longer if S. aureus)
Gram Positive	
Skin/Soft Tissue Cellulitis Diabetic Foot Infection	7 Seek ID Advice
Urinary Tract Uncomplicated Complicated Catheter-Associated Pyelonephritis	3-7 (depending on antibiotic) 7-14 7-14 10-14

2024 ANTIBIOGRAM

January - December 2023



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PERCENTAGE OF ISOLATES SUSCEPTIBLE TO ANTIMICROBIALS

gram **negative** organisms

	Enterobacter cloacae (122)	Escherichia coli* (1441) ◊	Klebsiella oxytoca* (73) α	Klebsiella pneumoniae* (366) ^	Proteus mirabilis (178)	Pseudomonas aeruginosa (244)	Haemophilus influenzae (43)#†
AMPICILLIN	-	54	-	-	72	-	74#
AMPICILLIN-SULBACTAM	-	65	66	85	92	-	-
PIPERACILLIN-TAZOBACTAM	81	95	88*	96	100	86	-
CEFAZOLIN	-	89	68	90	92	-	-
CEFTAZIDIME	-	-	-	-	-	92	-
CEFTRIAXONE	-	94	89	91	98	-	†
GENTAMICIN	93	92	99	95	92	93	-
MEROPENEM	97	100	100*	100	100	87	-
LEVOFLOXACIN	96	82	100	95	79	84	-
TRIMETHOPRIM/SULFAMETHOXAZOLE	93	80	97	87	70	-	-

◊ ESBL E. coli = 84 isolates (6%)

^ ESBL K. pneumoniae = 36 isolates (9%)

α ESBL K. oxytoca = 4 isolates (5%)

† H. influenzae is generally susceptible to ceftriaxone, but a third generation cephalosporin is only tested on specimens from normally sterile sites, such as CSF or blood, and not on respiratory specimens. Only 43 isolates.

* Data for fewer than 30 isolates per organism, per selected time frame is not statistically significant according to CLSI standards.

Used data from 2022-2023 to increase number of isolates

PERCENTAGE OF ISOLATES SUSCEPTIBLE TO ANTIMICROBIALS

gram **positive** organisms

	Enterococcus faecalis (282)Ω	Enterococcus faecium (91)X	All Staphylococcus aureus (561)	Methicillin Resistant S. aureus - MRSA (229)	Methicillin Sensitive S. aureus - MSSA (337)	Coagulase Negative Staph (323)θ	Streptococcus agalactiae, Group B (36)	Strep. pneumoniae, NonMeningitis Breakpoint (53)#	Strep. pneumoniae, Meningitis Breakpoint (53)#	Streptococcus viridans (86)#
PENICILLIN-G	99	18	-	-	-	100	79	78	89	
NAFCILLIN	-	-	60	-	100	48	-	-	-	
CEFAZOLIN ◊	-	-	60	-	100	48	-	-	-	
CEFTRIAXONE	-	-	-	-	-	100	100	98	100	
AZITHROMYCIN/ERYTHROMYCIN	-	-	-	-	-	-	78	-	-	
CLINDAMYCIN	-	-	68	57	76	66	-	-	-	
LEVOFLOXACIN	-	-	66	32	88	71	100	100	-	
TETRACYCLINE Δ	-	-	83	71	94	80	-	88	-	
TRIMETHOPRIM-SULFA	-	-	96	92	99	-	-	79	-	
VANCOMYCIN	93	42	100	100	100	99Σ	-	100	-	

◊ Testing and reporting of cefazolin for staphylococcus is no longer performed. Nafcillin results will always depict the staphylococcus results for cefazolin.

Δ Organisms that are sensitive to tetracycline are sensitive to doxycycline. If tetracycline is resistant, one must test for doxycycline to determine sensitivity or resistance.

* Data for fewer than 30 isolates per organism, per selected time frame is not statistically significant according to CLSI standards.

Used data from 2022-2023 to increase number of isolates

Ω VRE E. faecalis = 25 isolates (9%)

X VRE E. faecium = 56 isolates (62%)

Σ CoNS is 99% S to vancomycin because 1 isolate was Resistant and 1 isolate was Intermediate to vancomycin

USE ANTIMICROBIALS WISELY

- Treat infection, not contamination or colonization
- Treat the patient, not the lab report
- Take an "antimicrobial time-out" and re-evaluate therapy at 72 hours
- Consider duration when starting therapy and STOP antimicrobial treatment when:
 - Infection is cured
 - Cultures are negative and infection is viral or unlikely
- When cultures are positive, target definitive therapy with the narrowest spectrum agent possible
- Get the catheters OUT
- Access the Experts - Consult Infectious Disease for serious infections

WASH YOUR HANDS! The best method to prevent the spread of infections is GOOD HAND HYGIENE!

Anaerobic Bacterial Infections

For infections known or suspected to be associated with anaerobes (e.g. trauma and devitalized tissue, pelvic and peritoneal infections, lung abscess), consider the following:

- Community acquired infection: a single agent such as cefotetan is often clinically adequate to cover the most common bacterial flora.
- Hospital-acquired infection: a beta lactam/beta-lactamase inhibitor combination (e.g. ampicillin/sulbactam) or metronidazole combined with an antibiotic that does not have anaerobic coverage (e.g. ceftriaxone, levofloxacin).