Antimicrobial Overview

By drug class (* indicates either non-formulary or restricted item)

Medication	Spectrum	Does not Cover	Misc/comments
Antifungals			
Amphotericin	Most *Candida, Aspergillosis, Mucorales, Cryptococcus, Blastomyces, Histoplasma, Coccidioides*		ADR: infusion-related, nephrotoxicity, hypoK/Mg, cardiomyopathy
Flucytosine	*Candida, Cryptococcus, dematiaceous molds*		Not as monotherapy, bone marrow suppression, TDM Monitor RFP and CBC
Azoles (many drug interactions)			
Fluconazole	*Candida, Cryptococcus, Blastomyces, Coccidiodes*	*Candida krusei, glabrata, Aspergillus*	QT prolong, LFTs – DOES NOT COVER MOLD IV dose = PO dose
Voriconazole	Same as fluconazole + *C. glabrata, C. krusei, Aspergillus, fusarium, molds*	*Mucorales*	Visual disturbances, LFTs **Check levels** (~ 20% have subtherapeutic levels)
Posaconazole*	Same as voriconazole + *Mucorales*		Solution only- take with high fat meal for max absorption
Isavuconium Sulfate	Same as Posaconazole, better zygomyces	Less active vs. candida	IV and capsule only
Echinocandins			
Micafungin, Anidulafungin*, Caspofungin*	*Candida, Aspergillus*	*C. parapsilosis, C. guielliermondii*	Micafungin and Anidulafungin- no hepatic adjustment

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Penicillins: as a class, do not cover atypicals			
PenG	Strep, Enterococci, G(+) anaerobes, Treponema	Simple/complex gram(-) staph	Can give continuous infusion
Nafcillin	Staph (MSSA, epi), strep	MRSA, Enterococci, listeria, gram (-)	IV only, can give continuous infusion
Amoxicillin/Ampicillin	PenG + Simple G(-), anaerobes	complex gram (-)	BL inhib ↑ coverage, diarrhea
Piperacillin/Tazobactam	**+** Complex G(+), Pseudomonas	ESBL producers	neutropenia
Ampicillin/sulbactam	G (-), Complex G(+)	Pseudomonas, GN bacilli	
Cephalosporins: as a class, do not cover atypical, enterococci, or MRSA (except			
1st gen: cefazolin, cephalexin	Staph (MSSA), strep (>2nd/3rd), simple g(-)	MRSA, Complex gram(-),	Post-op prophylaxis
2nd gen: cefuroxime, cefoxitin*	+ more simple G(-), cefoxitin= **anaerobes**	Complex gram (-)	Great sinus drugs
3rd gen: ceftriaxone, cefotaxime, cefdinir	+ complex gram-	anaerobes	Use cefotaxime in neonates (biliary concerns), cefdinir is po (red/orange stools), ceftriaxone-Ca++ interact
4th gen: cefepime, ceftazidime	**+** Pseudomonas	anaerobes	Cefepime preferred with organisms that produce AmpC mutation (resistance)
4th gen combos: ceftazidime/avibactam (Avycaz)* ceftolozane/tazobactam (Zerbaxa)*	CRE, KPC, *Pseudomonas*		Dose limiting N/V/D
	ESBL, AmpC producers, *Pseudomonas*		
5th gen: ceftaroline*	MRSA	*Pseudomonas*	Use for SSTI – NO peds data, no bacteremia

Prepared by: Natalie Gist-Tapley, PharmD; April Yarbrough, PharmD, BCPS; Andrew Smelser, PharmD - Updated: June 2018

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Aztreonam	Gram(-), including *Pseudomonas*	Gram (+), anaerobes	Pen-allergic ok
Carbapenems			
Ertapenem*	Gram(+), simple/complex gram(-), anaerobes, ESBL producers	***MRSA, Pseudomonas (Ertapenem)***	
Meropenem			
Imipenem/cilastatin (primaxin)*			seizures
Meropenem/vaborbactam* (Vabomere)	Above + CRE & KPC		Not approved in < 18 years old, dose adjust in renal failure
Aminoglycosides: as a class, G(-)			
Gentamicin	Complex gram(-)	Anaerobes	Synergy with BL/vanc, nephrotoxic, ototoxic Peak = efficacy Trough = toxicity
Tobramycin			
Amikacin	Nosocomial gram(-), mycobacteria		
Fluoroquinolones: as a class, G(-), atypical (FMT = atypicals)			
Ciprofloxacin	*Pseudomonas (po/iv)*	*Enterococci, Campylobacter, Stenotrophomonas*	Tendon rupture, restricted to patients > 16 years old due to joint/cartilage damage except CF, complicated UTI, or pyelonephritis
Levofloxacin	Maybe strep, *Pseudomonas (po/iv)*		
Moxifloxacin*	Anaerobes		
Delafloxacin (Baxdela)*	MRSA, G (-), *Pseudomonas (po/iv), enterococcus faecalis*	*Stenotrophomonas*	
Macrolides: as a class G(+), atypicals			
Clarithromycin	*H. pylori,* MAC	Complex G(-), enterococci	QT prolong, CYP interactions < azithromycin
Azithromycin	*N. gonorrhea*		
Fidaxomycin*	*C. difficile*		
Clindamycin	Anaerobes, MRSA, SSTI		Cdiff, not for bacteremia
Tetracyclines: atypical, some G(-)			
Doxycycline	Ricketssial, Lyme, *Legionella*, *H. pylori,* acne, CA-MRSA		Phototoxicity, no longer believed to cause tooth discoloration
Minocycline			

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Others			
Vancomycin	Gram(+), MRSA	Gram(-)	Red-man, Renal toxicity Use PO for C. diff (first line tx)
Daptomycin*	G(+), MRSA, enterococcus	VRE, gram(-)	↑CK (get baseline), , will not work for pneumonia
Linezolid*	G(+), MRSA, VRE		IV/PO, neutropenia, MAOi, neuropathy (irreversible)
Metronidazole	Anaerobes, giardia, entamoeba, trichomonas (GET)		Disulfiram-reaction (no EtOH), urine color changes
Bactrim	G(+), MRSA, Stenotrophomonas Pneumocystis		Skin reactions; neutropenia DOC for PCP, Steno (when susceptible)
Tigecycline*	Almost everything	*Pseudomonas*	Increased mortality, bad ADRs overall
Rifampin	G(+), little G(-)		Not as monotherapy, orange urine/contacts
Quinupristin/Dalfopristin (Synercid)*	G(+), e. faecium		LFTs