

Class	mechanism	Oral	IV Workhorse	Spectrum	niche	toxicity
Penicillins	B-lactam inhibits transpeptidation	PCN V	PCN G	Strep(Pnemo resistant), mouth anerobes, No G-, no staph, syphilis CNS yes	syphilis	Allergic reactions, seizures in high doses with renal failure
Penicillinase resistant	B-lactam	dicloxacillin	nafcillin	staph aureus, less strep then pcn, group A still sensitive, loss anaerobic	non-MRSA	Allergic reactions, allergic interstitial nephritis
Aminopenicillins	B-lactam	amoxicillin	ampicillin	strep(drug of choice enterococci), mouth anerobes, haemophilus, moraxella, ecoli(50%), proteus(50%)	shigella(ampicillin), salmonela(much resistance to both) Listeria(ampicillin drug of choice), amox used in combo for h. pylori	Allergic reactions, highest rate of rash, if get rash not necessarily allergic to PCN
extended spectrum	B-lactam	carbenicillin (only cystitis)	piperacilin	strep, mouth anerobes, haemophilus, moraxella, e coli, proteus, klebsiella, serratia, enterobacter, pseudomonas	pseudomonas, synergy with aminoglycosides	same as pcn
beta lactamase inhibitors	suicide inhibitor	clavulinate	sulbactam, clavulinate	adds staph, gut anaerobes, and haemophilus to what it is added to either extended spectrum or amino		
1st gen Cephalosporins	B-lactam	cephalexin	cefazolin	staph, strep(except enterococci), e coli, proteus, klebsiella, no anerobes CNS no	staph and strep like a skin infection	8% chance of cross allergy with PCN
2nd gen Cephalosporins	B-lactam	cefaclor	cefuroxime	less gram + then 1st retains pneumo, haemophilus, moraxella, e coli, proteus, klebsiella, above/below diaphragm anerobes, B fragilis		8% chance of cross allergy with PCN
3rd gen Cephalosporins	B-lactam	cefepodoxime(-pseudo some staph)	ceftazadime(+pseudo), ceftriaxone(-pseudo some staph)	less gram + then 2nd retains pneumo, haemophilus, moraxella, e coli, proteus, klebsiella, all anerobes, gonorrhoea, serratia, enterobacter, pseudomonas(some) CNS yes	drug of choice for gonorrhoea, synergy with aminoglycosides	8% chance of cross allergy with PCN
4th gen Ceph	B-lactam		cefipime	3rd + staph and maybe some gram - resistant to 3rd		8% chance of cross allergy with PCN
carbapenems	B-lactam		meropenem	everything but MRSA		seizures
monobactams	B-lactam		aztreonam	gram negatives including pseudo		no cross allergies with PCN
vancomycin	binds d-alanyl-d alanine prevents chain extension	vancomycin (only for c dif)	vancomycin	gram + including MRSA	MRSA, enterococci, coag - staph	red man syndrome, oto/nephro toxic
fosfomycin	inhibits phosphoenolpyruvate			e coli, enterococcal UTIs, may work for MRSA and PCN resistant s pneumo	enterococcal UTIs	
Quinolones	inhibits DNA gyrase	ciprofloxacin(also IV) absorbed well orally 2nd gen: levofloxacin	norfloaxacin (only UTIs)	gram -, shigella, salmonella, some activity against chlamydia and mycobacteria newer agents good for s. pneumo	UTIs resistant to TMX/SUL and beta lactams	allergic reactions, CNS toxicity, bone and soft tissue abnormalities in kids, <b>not used in pregnancy</b>
Nitroimidazoles	free radical damage	metronidazole	metronidazole	all anaerobes, amoeba, giarda, trichomonas, h pylori	C Dif	CNS stimulation, <b>neurotoxic to fetus</b> , disulfuram like reaction with ETOH
Aminoglycosides	bind to 30 S and codon anticodon misreading	none	gentamycin, tobramycin, amikacin, streptomycin	gram -, no anerobes, gent and tobra with beta lactams for staph and enterococci, amik more active against gram -, strep TB CNS no	used in first day or two of suspected gram -	oto/nephrotoxic, neuromuscular block
Tetracycline	30S blocks tRNA binding	doxycycline	almost never used	broad spectrum but lots of resistance, good for mycoplasma, legionella, chlamydia, rickettsia, h pylori		allergic reactions, antibiotic associated diarrhea, candida, skin photosensitivity, hepatotoxic <b>do not use in pregnancy</b> deposits in bones and teeth, chelates with cations, renal effects
Clindamycin	50S blocks peptide bond formation	Clindamycin	Clindamycin	staph, strep, all anerobes(except c dif), toxoplasmosis no gram -	good for anerobes, aspiration pneumonia, gram + when PCN allergy	allergic, antibiotic associated diarrhea
Macrolides	50S interferes with tRNA release	erythromycin, clarithromycin, azithromycin	erythromycin, clarithromycin, azithromycin	strep, staph(except nosocomial), mycoplasma, legionella, clarith adds chlamydia and MAC, H pylori, Azithro adds haemophilus and moraxella but less against S pneumo	azithro- when spectrum gram neg pleomorphs and s pneumo like otitis media, outpatient pneumonia, bronchitis	GI distress, blocks cytochrome enzymes (theophylline, terfenadine, astemizole, cisapride)

Streptogramins A+B	50S two different sites		quinupristin/dalfopristin	like erythromycin with MRSA and VRSA, strep faecalis	MRSA VRSA	severe myalgias
Oxazolidinones	50S inhibition		Linezolid	VRSA and VR enterococcus		
Trimethoprim/sulfamethoxazole	inhibits 2 enzymes in folate synthesis synergy	TMP/SMX	TMP/SMX for parasites	staph(some MRSA), strep(variable entero), e coli, proteus, klebsiella, haemophilus, moraxella, pneumocystis and toxoplasmosis	UTIs	hypersensitivity->toxic epidermal necrolysis, hemolytic anemia with G6PD, displaces bilirubin from albumin, crystalluria, bone marrow use leucovorin, hyperkalemia
isoniazid	pyridoxine analog			TB	TB	hepatitis, neuro tox avoided with pyridoxine
rifampin	RNA polymerase inhibitor			TB	TB	hepatitis, flu like syndrom, <i>potent inducers of hepatic microsomal enzymes</i>
Pyrazinamide	pyridoxine analog			TB	TB	hepatitis, precipitates uric acid
ethambutol				TB	TB	optic neuritis, increases uric acid
Guanine analogues	inhibits DNA synthesis	acyclovir, famcyclovir, valacyclovir, ganciclovir	acyclovir	HSV, VZV ganciclovir only CMV		ganciclovir - neutro/thrombocytopenia
pyridamine analog	inhibits DNA synthesis	sorivudine		more active against VZV than acyclovir		
foscarnet	pyrophosphate congener	foscarnet		broad DNA viruses and RNA including HIV		renal, CNS
influenza drugs	neuraminidase inhibitors	oseltamvir, zanamivir(inhaled)		influenza A+B		
NRTI	nucleoside analogs	Zidovudine, didanosine, zalcitabine, stavudine, lamivudine	Zidovudine	HIV	HIV	Zidovudine- granulocytopenia, NV, anemia didanosine, zalcitabine, stavudine- pancreatitis, peripheral neuritis, lamivudine- NV rash neutropenia, pancreatitis
NNRTI	NNRTI	Delavirdine, Efavirenz, Nevirapine, Emivirine		HIV	HIV	skin rashes
protease inhibitors	protease inhibitors	Amprenavir, indinavir, ritonavir, saquinavir		HIV	HIV	lipodystrophy syndrome looks like cushings
azoles	ergosterol inhibitors	ketoconazole, fluconazole, itraconazole	topical: miconazole, clotrimazole	triazoles: systemic infections imidazoles topical fungus only except ketoconazole CNS:fluc + itra -		hepatotoxicity CYP3A4 interactions ketoconazole- inhibits steroid production
allylamines	ergosterol inhibitors	terbinafine(usually topical)	tolnaftate(only topical)	topical dermatophytes not candida		hepatitis
polyenes	insert in fungal membrane	amphotericin B	topical: nystatin	ampho B deep fungal, nystatin- candida not dermatophytes CNS-no		fever chills hypotension, renal, MG K wasting, bone marrow normo anemia
Echinocandins	inhibits glucan		Caspofungin	azole resistant candida and aspergillus		less toxic than ampho