CEPHALOSPORINS

Indications	Respiratory, UTI, skin/bone infections, septicemia, gonorrhea, bacterial meningitis
AE	Hypersensitivity, NVD, pain at IM injection site

1st GENERATION CEPHALOSPORINS

CEPHALEXIN	
CEFAZOLIN	Only 1st gen parenteral still used Long T½ Surgical prophylaxis, UTI, SSTI

Act as penicillin G substitutes and have activity against Proteus mirabilis, E. coli, and Klebsiella pneumoniae (PEcK)

2ND GENENRATION CEPHALOSPORINS

CEFUROXIME	
CEFOXITIN	
CEFOTETAN	AE: hypoprothrominemia, disulfiram-like rxns with ethanol
CEFONICID	
CEFAMANDOLE	AE: hypoprothrominemia, disulfiram-like rxns with ethanol

Indication: community-acquired infections of the respiratory tract (H. influenzae, Moraxella catarrhalis, S. pneumoniae) and UTI (Escherichia coli)

3RD GENERATION CEPHALOSPORINI

CEFIXIME	Useful activity against B. fragilis
CEFDINIR	Useful activity against B. fragilis
CEFTAZIDIME	
CEFOXATIME	
CEFTRIAXONE	Penetrate CNS and used to treat meningitis caused by gram-negative rods except L. monocytogenes **Indication:** Useful activity genital, anal, and pharyngeal penicillin-resistant N. gonorrhoeae
CEFOTAXIME	Penetrate CNS and used to treat meningitis caused by gram-negative rods except L. monocytogenes
CEFOPERAZONE	AE: hypoprothrominemia, disulfiram-like rxns with ethanol

Indications: Hospital-acquired gram-negative bacteremia

4TH GENERATION CEPHALOSPORIN

CEFIPIME	Only one in the US, penetrates CNS

5TH GENERATION CEPHALOSPORIN

CEFTAROLINE	
CEFTOBIPROLE	metabolized in plasma, majority excreted in urine

CARBAPENEMS

DORIPENEM	
IMIPINEM-CILASTIN	Inactivated by dehydropeptidases in renal tubes
MEROPENEM	Greater activity against gram negative aerobes and less activity against gram positives compared to imipenem
ERTAPENEM	

Indications : infections resistant to other drugs, enterbacter infections, extended spectrum B lactam producing gram negatives

PK: penetrates CNS, cleared by kidney

MONOBACTAMS

AZTREONAM	**Indications:** pts allergic to penicillins and/or cephalosporins to treat pneumonia, meningitis, and sepsis, penetrates CNS

No activity against gram-positive organisms

BACITRACIN (topical)

MOA	Inhibits cell wall formation by interference with the dephosphorylation of the C55-isoprenyl pyrophosphate, a molecule that carries the building-blocks of the peptidoglycan bacterial cell wall
Indications	Highly nephrotoxic when administered systemically and is thus used topically for gram positive cocci and bacilli skin infections

CYCLOSERINE

MOA	Structural analog of D-alanine and inhibits the incorporation of D-alanine into peptidoglycan pentapeptide chain
Indications	Treats tuberculosis
Toxicity	Serious dose-related CNS toxicity

GLYCOPEPTIDES	
VANCOMYCIN	Resistance in enterococci develops due to modification in binding site (D-ala-D-ala D-lactate) and increased numbers of D-ala-D-ala residues (S. aureus) Effective against gram positive producing lactamases and those resistant to nafcillin and methacillin (MRSA, MRSE) or allergic to penicillin or cephalosporin **Indications:** infections caused by MRSA (sepsis, endocarditis), penicillin-resistant enterococci, individuals with prosthetic heart valve, oral administration of antibiotic induced colitis due to C. diff SE: fever, chills, phlebitis
VANCO + GENT	Use: enterococcal endocarditis (penicillin allergy)
VANCO + CEFTRIAXONE VANCO + CEFOTAXIME VANCO + RIFAMPIN	Use: meningitis (penicillin-resistant strain of pneuomococcus
TELAVANCIN	Two mechanisms of action; first is the same as vancomycin and the second is it disrupts the bacterial cell membrane potential and increases membrane permeability t1/2 is 8 hours allowing for daily dosing Teratogenic

GLYCOPEPTIDES (cont)	
DAPTOMYCIN	Long half life of 6-11 days allows for weekly dosing Methicillin-susceptible and methicillin-resistant Streptococcus pneumoniae, Streptococcus pyogenes, Corynebacterium jeikeium, E. faecalis and E. faecium (including VRE) **Indications:** skin infections and bacteremia caused by S. aureus **AE:** constipation, nausea, HA, insomnia
FOSFOMYCIN	MOA: inhibits UDP-N acetylglucosamine 3-Enolpyruvte transferase Indications: UTI

By **olkimmilo**
cheatography.com/olkimmilo/

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