B-LACTAMS

PENICILLINS
CARBAPENEMS
CEPHALOSPORINS
MONOBACTAMS
GLYCOPEPTIDES

Tetracyclines – impairs the bactericidal effects of B-lactams

PENICILLINS

MOA	Bind to transpeptidases and block cross-linking of peptidoglycan residues resulting in weak cell walls and bacterial lysis in bacteria that are actively growing
PK	Excreted really Penetration into the eye, prostate, and CNS is poor, **Absorption impaired by food**-take 1-2 hrs before or after meal to prevent protein binding, acid inactivation
AE	Hypersensitivity, anaphylaxis, super infections, diarrhea, convulsions (high dose, renal failure, epileptic pts) , hematolgic toxicities, nephritis, cation toxicity

PENICILLINS

PENICILLIN G	Unstable in acidic pH, given IV over IM More active against gram-negative organisms (i.e., Neisseria) than penicillin V.
PENICILLIN V	More resistant to acid

Penicillin G procaine and **Penicillin G benzathine** (i.m.) - formulated to delay absorption, resulting in prolonged blood and tissue concentrations.

ANTI-STAPHYLOCOCCAL PENICILLINS

METHICILLIN	No longer used in US
NAFCILLIN	Excreted biliary
OXACILLIN	Excreted by kidney and biliary
DICLOXACILLIN	Excreted by kidney and biliary
CLOXACILLIN	Excreted by kidney and biliary

Indications: MSSA, MSSE, Bone, joint, urinary tract, skin, endocarditis, meningitis

AMINOPENICILLIN (EXTENDED-SPECTRUM)

AMPICILLIN	UTI, sinusitis, otitis, lower respiratory tract infections
AMOXICILLIN	

Indications: Respiratory infections, UTI, skin, bacterial meningitis, septicemia, endocarditis, GI infections (**typhoid fever**, dysentery)

More expensive

ANTI-PSEUDOMONAL (UREIDO-PENICILLIN)

CARBENICILLIN	No longer used in US
PIPERACILLIN	Most potent
TICARCILLIN	
PIPERACILLIN-TAZOBACTAM	
TICARCILLIN-CLAVULANIC ACID	

Indications: Folliculitis, osteomyelitis, endocarditis, UTI, respiratory tract, wounds, bacteremia, CNS

Formulation of ticarcillin and piperacillin with β-lactamase inhibitors (formulation with clavulanic acid or tazobactum, respectively), extends the antimicrobial spectrum to include penicillinase-producing organisms

NOTES PENICILLINS

PROBENICID	Increases serum levels of penicillins
NAFCILLIN	Only one not excreted renally
AMOXICILLIN	Only one that doesn't undergo acid inactivation (absorption not impaired by food)