

summary
of antibacterials

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Cephalexin [†] Cephazolin [†] Cephialothin [†]	First-generation cephalosporins	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Beta-lactamase resistant with Gram-positive cover and some activity against Gram-negative bacilli	3-6% cross-reactivity of cephalosporins with penicillin
			All are inducible, extended-spectrum beta-lactamase (ESBL) producers Cephalosporins all ineffective against <i>Listeria</i> and <i>Enterococcus</i>	Disulfiram-like reaction with cephazolin

Drug(s)	Class	Mechanism	Spectrum
Cefaclor [†] Cefuroxime [†]	Second-generation cephalosporins with anti- <i>Haemophilus</i> cover	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Improved Gram-negative cover, including against <i>Haemophilus</i>

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Cefotetan [†] Cefoxitin [†]	Second-generation cephalosporins	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Additional anaerobic activity	Coagulopathy and disulfiram-like reaction with cefotetan [†]

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Ceftriaxone Cefotaxime [†] Ceftazidime [†]	Third-generation cephalosporins	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Reduced Gram-positive but improved Gram-negative activity with good CSF penetration Ceftazidime has good <i>Pseudomonas</i> cover	Disulfiram-like reaction with ceftriaxone

Drug(s)	Class	Mechanism	Spectrum
Cefepime [†] Cefpirome [†]	Fourth-generation cephalosporins	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Improved Gram-positive cover Reliable <i>Pseudomonas</i> activity

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Phenoxymethyl penicillin Benzyl penicillin [†]	Narrow-spectrum penicillin	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Inactivated by beta-lactamases, thus most staphylococci are resistant Mainly Gram-positive cover <i>Streptococcus pneumoniae</i> resistance increasing Penicillins are active against <i>Listeria</i>	Pseudomembranous colitis Leukopaenia CNS stimulation—seizures, especially in renal failure Interstitial nephritis

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Flucloxacillin [†] Dicloxacillin [†]	Narrow-spectrum penicillin with anti-staphylococcal cover	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Beta-lactamase resistant, thus improved staphylococcal cover	Flucloxacillin (more than dicloxacillin) causes cholestatic jaundice

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Ampicillin [†] Amoxycillin [†]	Moderate-spectrum penicillin	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Improved activity against aerobic Gram-negative bacilli Beta-lactamase sensitive, thus poor staphylococcal cover and increasing Gram-negative resistance	Rash if acute Epstein-Barr virus infection

Drug(s)	Class	Mechanism	Spectrum	Specific side effects*
Amoxycillin-clavulanate [†] Ticarcillin-clavulanate [†] Piperacillin-tazobactam [†]	Broad-spectrum penicillin	Bacterial cell wall inhibitor via impaired transpeptidase cross-linking	Combination with beta-lactamase inhibitors confers broad activity against Gram-positives, including staphylococci and streptococci, anaerobes and aerobic Gram-negative bacilli Ticarcillin-clavulanate and piperacillin-tazobactam have good <i>Pseudomonas</i> cover Piperacillin-tazobactam has superior enterococcal cover	Platelet dysfunction and salt loading with ticarcillin-clavulanate

* All antibacterial agents may cause allergic and anaphylactic reactions, fever and gastrointestinal intolerance, and predispose to candidiasis and pseudomembranous colitis.
[†] Designates drugs requiring dose adjustments in patients with impaired renal function.
[‡] Designates recommendation for routine monitoring of drug levels.