

# Amoxicillin

## Antibiotic Class:

Penicillin (aminopenicillin)

## Antimicrobial Spectrum:

Gram-positive: *Streptococcus spp.*, *Enterococcus spp.*, *Listeria monocytogenes*

Gram-negative: *H. influenzae*, *E. coli*, *Proteus mirabilis*, *Salmonella spp.*, *Shigella spp.*

## Mechanism of Action:

Exerts bactericidal activity via inhibition of bacterial cell wall synthesis by binding one or more of the penicillin binding proteins (PBPs). Exerts bacterial autolytic effect by inhibition of certain PBPs related to the activation of a bacterial autolytic process.

## Pharmacodynamics:

Penicillins produce time-dependent killing

## Pharmacokinetics:

Cmax: 7.5mcg/ml; Oral bioavailability: 80%; Half-life: 1-1.3h; Table 6

## Adverse Effects:

Hematologic: anemia, thrombocytopenia, neutropenia, agranulocytosis

CNS: seizures

Renal: nephrotoxicity, interstitial nephritis

Hepatic: transient increases in transaminases

Other: Jarisch-Herxheimer Reaction (fever, chills, sweating, tachycardia, hyperventilation, flushing, and myalgia)

## Dosage:

Adult: 500mg po q12h or 250-500mg po q8h or 875mg po q12h

Pediatric: > 1 month and < 20 kg: 20-40 mg/kg/day in 3 divided doses

> 20 kg: usual adult dose

Disease state based dosing:

Renal failure: CrCL 10-50 mL/min: Consider extending dosing interval to q12h

CrCL < 10 mL/min: Extend dosing interval to q12-24h.

## Contraindications/Warnings/Precautions:

Contraindications: Anaphylaxis amoxicillin or other penicillins

Precautions:

- Cephalosporin hypersensitivity
- Patients with mononucleosis are more likely to develop a skin rash

## Drug Interactions:

Acenocoumarin – increased risk of bleeding; Allopurinol – higher probability of amoxicillin rash; Contraceptives - decreased contraceptive effectiveness; Live Typhoid Vaccine - decreased

immunological response to the typhoid vaccine; Methotrexate – methotrexate toxicity;  
Probenecid - increased amoxicillin levels; Warfarin – increased risk of bleeding

**Pregnancy:**

Category B: No evidence of risk in humans but studies inadequate.

**Monitoring Requirements:**

Therapeutic: Culture and sensitivities, signs and symptoms of infection

Toxic: Periodic CBC, urinalysis, BUN, Creatinine, AST and ALT, diarrhea, skin rash

**Brand names/Manufacturer:**

Available by many names and manufacturers