

# Azlocillin

## Antibiotic Class:

Penicillin (ureidopenicillin)

## Antimicrobial Spectrum:

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

Distribution: Total protein binding: 30 to 40%;

Distribution sites: aqueous humor, bile, bone, CSF, lungs, urine

Volume of distribution: 14 L

Excretion: Renal excretion: 60 to 75%; elimination half-life: 1.53 hours

## Adverse Effects:

Hematologic: anemia, thrombocytopenia, neutropenia, agranulocytosis

Endocrine: hyperthermia

Renal: nephrotoxicity, interstitial nephritis

Hepatic: transient increases in transaminases

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

## Dosage:

Gram-negative infections: 2 to 5 grams every 8 hours IV

Serious infections: 225 to 300 mg/kg/day IV in 4 to 6 divided doses (usual IV doses 3g q4h or 4g q6h) (up to 18 g/day)

Disease state based dosing:

Renal failure: CrCl 30 to 50 mL/min: increase dosing interval to every 4 to 6 hours

CrCl between 10 to 30 mL/min: 2 g IV q8h

CrCl < 10 mL/min: 3 g IV q12h

Hepatic failure: No dosing changes recommended at this time.

## Contraindications/Warnings/Precautions:

Contraindications: Anaphylaxis to azlocillin or other penicillins

Precautions:

- Cephalosporin hypersensitivity

- Patients with mononucleosis are more likely to develop a skin rash
- Patients with restricted salt intake; each gram of azlocillin contains 2.17 mEq of sodium
- Renal insufficiency

**Drug Interactions:**

Ciprofloxacin – decreased clearance of ciprofloxacin

Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

Probenecid - increased azlocillin levels

**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, SCr, AST and ALT, diarrhea, skin rash

**Brand names/Manufacturer:**

Azlin (Miles -United States)

Securopen (Bayer – Italy, UK, France, Spain, Austria, Ireland, Norway, Germany, Australia)