

Ampicillin:

Class: Antibiotic

Indications: treatment of susceptible bacterial infections (nonbeta-lactamase-producing organisms); treatment or prophylaxis of infective endocarditis; susceptible bacterial infections caused by streptococci, pneumococci, nonpenicillinase-producing staphylococci, *Listeria*, meningococci; some strains of *H. influenzae*, *Salmonella*, *Shigella*, *E. coli*, *Enterobacter*, and *Klebsiella*.

Available dosage form in the hospital: 1GM VIAL, 250MG VIAL, 500MG VIAL.

Trade Names:

Dosage:

-Usual dosage range:

Oral: 250-500 mg every 6 hours

I.M., I.V.: 1-2 g every 4-6 hours or 50-250 mg/kg/day in divided doses (maximum: 12 g/day)

-Cholangitis (acute): I.V.: 2 g every 4 hours with gentamicin

-Diverticulitis: I.M., I.V.: 2 g every 6 hours with metronidazole

-Endocarditis:

-*Infective:* I.V.: 12 g/day via continuous infusion or divided every 4 hours

-*Prophylaxis: Dental, oral, or respiratory tract procedures:* I.M., I.V.: 2 g within 30-60 minutes prior to procedure in patients not allergic to penicillin and unable to take oral amoxicillin. Intramuscular injections should be avoided in patients who are receiving anticoagulant therapy. In these circumstances, orally administered regimens should be given whenever possible. Intravenously administered antibiotics should be used for patients who are unable to tolerate or absorb oral medications. **Note:** American Heart Association (AHA) guidelines now recommend prophylaxis only in patients undergoing invasive procedures and in whom underlying cardiac conditions may predispose to a higher risk of adverse outcomes should infection occur.

-*Prophylaxis in total joint replacement patient:* I.M., I.V.: 2 g 1 hour prior to the procedure

-*Genitourinary and gastrointestinal tract procedures:* I.M., I.V.:

High-risk patients: 2 g within 30 minutes prior to procedure, followed by ampicillin 1 g (or amoxicillin 1 g orally) 6 hours later; must be used in combination with gentamicin. **Note:** As of April 2007, routine prophylaxis for GI/GU procedures is no longer recommended by the AHA.

Moderate-risk patients: 2 g within 30 minutes prior to procedure

-Group B streptococcus (neonatal prophylaxis): I.V.: 2 g initial dose, then 1 g every 4 hours until delivery (CDC, 2010)

- Listeria* infections: I.V.: 2 g every 4 hours (consider addition of aminoglycoside)
- Mild-to-moderate infections: Oral: 250-500 mg every 6 hours
- Prosthetic joint infection, *Enterococcus* spp (penicillin-susceptible): I.V.: 12 g continuous infusion every 24 hours **or** 2 g every 4 hours for 4-6 weeks; consider addition of aminoglycoside (Osmon, 2013)
- Sepsis/meningitis: I.M., I.V.: 150-250 mg/kg/day divided every 3-4 hours (range: 6-12 g/day)
- Urinary tract infections (*Enterococcus* suspected): I.V.: 1-2 g every 6 hours with gentamicin

Renal Impairment:

$Cl_{cr} > 50$ mL/minute: Administer every 6 hours

Cl_{cr} 10-50 mL/minute: Administer every 6-12 hours

$Cl_{cr} < 10$ mL/minute: Administer every 12-24 hours

Intermittent hemodialysis (IHD) (administer after hemodialysis on dialysis days): Dialyzable (20% to 50%): I.V.: 1-2 g every 12-24 hours (Heintz, 2009). **Note:** Dosing dependent on the assumption of 3 times/week, complete IHD sessions.

Peritoneal dialysis (PD): 250 mg every 12 hours

Continuous renal replacement therapy (CRRT) (Heintz, 2009): Drug clearance is highly dependent on the method of renal replacement, filter type, and flow rate. Appropriate dosing requires close monitoring of pharmacologic response, signs of adverse reactions due to drug accumulation, as well as drug concentrations in relation to target trough (if appropriate). The following are general recommendations only (based on dialysate flow/ultrafiltration rates of 1-2 L/hour and minimal residual renal function) and should not supersede clinical judgment:

CVVH: Loading dose of 2 g followed by 1-2 g every 8-12 hours

CVVHD: Loading dose of 2 g followed by 1-2 g every 8 hours

CVVHDF: Loading dose of 2 g followed by 1-2 g every 6-8 hours

Common side effect: Fever, penicillin encephalopathy, seizure, Erythema multiforme, exfoliative dermatitis, rash, urticarial, Black hairy tongue, diarrhea, pseudomembranous colitis, sore mouth or tongue, stomatitis, vomiting.

Pregnancy Risk Factor: B