

**amoxicillin** (a-mox-i-sill-in)Amoxil, Moxatag,  Novamoxin, Trimox**Classification****Therapeutic:** anti-infectives, antiulcer agents**Pharmacologic:** aminopenicillins**Pregnancy Category B****Indications**

Treatment of: Skin and skin structure infections, Otitis media, Sinusitis, Respiratory infections, Genitourinary infections. Endocarditis prophylaxis. Postexposure inhalational anthrax prophylaxis. Management of ulcer disease due to *Helicobacter pylori*.

**Unlabeled Use:** Lyme disease in children <8 yr.

**Action**

Binds to bacterial cell wall, causing cell death. **Therapeutic Effects:** Bactericidal action; spectrum is broader than penicillins. **Spectrum:** Active against: Streptococci, Pneumococci, Enterococci, *Haemophilus influenzae*, *Escherichia coli*, *Proteus mirabilis*, *Neisseria meningitidis*, *N. gonorrhoeae*, *Sbigella*, *Chlamydia trachomatis*, *Salmonella*, *Borrelia burgdorferi*, *H. pylori*.

**Pharmacokinetics**

**Absorption:** Well absorbed from duodenum (75–90%). More resistant to acid inactivation than other penicillins.

**Distribution:** Diffuses readily into most body tissues and fluids. CSF penetration increased when meninges are inflamed. Crosses placenta; enters breast milk in small amounts.

**Metabolism and Excretion:** 70% excreted unchanged in the urine; 30% metabolized by the liver.

**Half-life:** Neonates: 3.7 hr; Infants and Children: 1–2 hr; Adults: 0.7–1.4 hr.

TIME/ACTION PROFILE (blood levels)

ROUTE	ONSET	PEAK	DURATION
PO	30 min	1–2 hr	8–12 hr

 = Canadian drug name.

 = Genetic Implication.

CAPITALS indicate life-threatening, underlines indicate most frequent.

~~Strikethrough~~ = Discontinued.

**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity to penicillins (cross-sensitivity exists to cephalosporins and other beta-lactams);.

**Use Cautiously in:** Severe renal insufficiency (↓ dose if CCr <30 mL/min); Infectious mononucleosis, acute lymphocytic leukemia, or cytomegalovirus infection (↑ risk of rash); **OB, Lactation:** Has been used safely.

**Adverse Reactions/Side Effects**

**CNS:** SEIZURES (high doses). **GI:** PSEUDOMEMBRANOUS COLITIS, diarrhea, nausea, vomiting, ↑ liver enzymes. **Derm:** rash, urticaria. **Hemat:** blood dyscrasias. **Misc:** allergic reactions including ANAPHYLAXIS, SERUM SICKNESS, superinfection.

**Interactions**

**Drug-Drug:** Probenecid ↓ renal excretion and ↑ blood levels of amoxicillin—therapy may be combined for this purpose. May ↑ effect of warfarin. May ↓ effectiveness of oral contraceptives. Allopurinol may ↑ frequency of rash.

**Route/Dosage****Most Infections**

**PO (Adults):** 250–500 mg q 8 hr or 500–875 mg q 12 hr (not to exceed 2–3 g/day).

**PO (Adults and Children ≥12 yr):** Extended-release tablets (for Strep throat)—775 mg once daily for 10 days.

**PO (Children >3 mo):** 25–50 mg/kg/day in divided doses q 8 hr or 25–50 mg/kg/day individual doses q 12 hr; *Acute otitis media due to highly resistant strains of S. pneumoniae*—80–90 mg/kg/day divided q 12 hr; *Postexposure inhaled anthrax prophylaxis*—<40 kg: 45 mg/kg/day in divided doses q 8 hr; >40 kg: 500 mg q 8 hr.

**PO (Infants ≤3 mo and neonates):** 20–30 mg/kg/day in divided doses q 12 hr.

**H. Pylori**

**PO (Adults):** Triple therapy—1000 mg amoxicillin twice daily with lansoprazole 30 mg twice daily and clarithromycin 500 mg twice daily for 14 days or 1000 mg amoxicillin twice daily with omeprazole 20 mg twice daily and clarithromycin 500 mg twice daily for 14 days or amoxicillin 1000 mg twice daily with esomeprazole 40 mg daily and clarithromycin 500 mg twice daily for 10 days. Dual therapy—1000 mg amoxicillin three times daily with lansoprazole 30 mg three times daily for 14 days.

## Endocarditis Prophylaxis

**PO (Adults):** 2 g 1 hr prior to procedure.

**PO (Children):** 50 mg/kg 1 hr prior to procedure (not to exceed adult dose).

## Gonorrhea

**PO (Adults and Children  $\geq 40$  kg):** single 3 g dose.

**PO (Children  $> 2$  yr and  $< 40$  kg):** 50 mg/kg with probenecid 25 mg/kg as a single dose.

## Renal Impairment

**PO (Adults CCr 10–30 mL/min):** 250–500 mg q 12 hr.

## Renal Impairment

**PO (Adults CCr  $< 10$  mL/min):** 250–500 mg q 24 hr.

## NURSING IMPLICATIONS

### Assessment

- Assess for infection (vital signs; appearance of wound, sputum, urine, and stool; WBC) at beginning of and throughout therapy.
- Obtain a history before initiating therapy to determine previous use of and reactions to penicillins or cephalosporins. Persons with a negative history of penicillin sensitivity may still have an allergic response.
- **Observe for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing). Notify health care professional immediately if these occur.**
- Obtain specimens for culture and sensitivity prior to therapy. First dose may be given before receiving results.
- **Monitor bowel function. Diarrhea, abdominal cramping, fever, and bloody stools should be reported to health care professional promptly as a sign of pseudomembranous colitis. May begin up to several weeks following cessation of therapy.**
- **Lab Test Considerations:** May cause  $\uparrow$  serum alkaline phosphatase, LDH, AST, and ALT concentrations.
- May cause false-positive direct Coombs' test result.

### Potential Nursing Diagnoses

Risk for infection (Indications) (Side Effects)

Noncompliance (Patient/Family Teaching)

## Implementation

- **PO:** Administer around the clock. May be given without regard to meals or with meals to decrease GI side effects. Capsule contents may be emptied and swallowed with liquids. Extended-release tablets should be swallowed whole; do not crush, break, or chew. Chewable tablets should be crushed or chewed before swallowing with liquids.
- Shake oral suspension before administering. Suspension may be given straight or mixed in formula, milk, fruit juice, water, or ginger ale. Administer immediately after mixing. Discard refrigerated reconstituted suspension after 10 days.

## Patient/Family Teaching

- Instruct patients to take medication around the clock and to finish the drug completely as directed, even if feeling better. Advise patients that sharing of this medication may be dangerous.
- **Pedi:** Teach parents or caregivers to calculate and measure doses accurately. Reinforce importance of using measuring device supplied by pharmacy or with product, not household items.
- Advise patient to report the signs of superinfection (furry overgrowth on the tongue, vaginal itching or discharge, loose or foul-smelling stools) and allergy.
- **Instruct patient to notify health care professional immediately if diarrhea, abdominal cramping, fever, or bloody stools occur and not to treat with antidiarrheals without consulting health care professional.**
- Instruct the patient to notify health care professional if symptoms do not improve.
- Teach patients with a history of rheumatic heart disease or valve replacement the importance of using antimicrobial prophylaxis before invasive medical or dental procedures.
- Instruct female patients taking oral contraceptives to use an alternate or additional nonhormonal method of contraception during therapy with amoxicillin and until next menstrual period.

## Evaluation/Desired Outcomes

- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.
- Endocarditis prophylaxis.
- Eradication of *H. pylori* with resolution of ulcer symptoms.
- Prevention of inhalational anthrax (postexposure).

## Why was this drug prescribed for your patient?