

## Aminopenicillin Uses

Aminopenicillins are antibiotics that belong to the penicillin family. Like penicillins, aminopenicillins are beta lactam antibiotics, which work by inhibiting bacterial cell wall synthesis. They are classified as bactericidal agents. Aminopenicillins have a broader spectrum of activity than penicillin and are not degraded by acid hydrolysis and can therefore be administered orally. Aminopenicillins are susceptible to beta lactamase, which is why they are often given with beta-lactamase inhibitors like clavulanic acid. Aminopenicillins are used to treat most gram positive infections and some gram negative infections such as E coli and H influenza. Common aminopenicillins include ampicillin and amoxicillin. Adverse reactions include hypersensitivity reactions, ampicillin rash when given to patients with Epstein barr mononucleosis, and pseudomembranous colitis.



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### Drug Names

#### Ampicillin

[Amp-pencil](#)

Ampicillin is a beta lactam antibiotic in the aminopenicillin family. It can be used for gram positive organisms and limited gram negative bacteria. It can sometimes cause a rash if accidentally used for patients with mononucleosis.

#### Amoxicillin

[Armor-ox-pencil](#)

This is a popular beta lactam antibiotic used for infections such as otitis media, skin infections, and strep throat. It is susceptible to degradation by beta lactamase producing bacteria, and is therefore combined with beta lactamase inhibitors like clavulanic acid and given orally.

### Indications

#### Shigella

[She-Jello](#)

Aminopenicillins are useful against shigella, which is a common cause of bacterial diarrhea worldwide. Transmission is via contaminated food and water, but also via direct person-to-person contact. Shigella has a high virulence; as few as 10-100 bacteria can cause disease because the organism can survive the stomach's acidic environment. Administration of antibiotics can prolong the duration of excretion of non-typhoidal salmonella.

#### Haemophilus Influenzae

[Heme-man in Flute](#)

Haemophilus influenzae is a gram negative coccobacilli that can cause several diseases including meningitis, pneumonia, otitis media, and epiglottitis.

#### Salmonella

[Salmon](#)

Salmonella are classified within the Enterobacteriaceae family of the Gram negative bacilli. Salmonella is often classified into Salmonella typhi and nontyphoid Salmonella, mostly commonly Salmonella enteritidis. Salmonella enteritidis is a common cause of gastrointestinal disease in the US although antibiotics are preferably not given for this type of infection.

## Listeria

### Listeria Lizard

*Listeria monocytogenes* is a gram positive bacilli that causes the infection listeriosis, which occurs primarily in newborns, the elderly, and the immunocompromised. Individuals commonly have flu like symptoms and if the organism spreads to the nervous system, can cause meningitis. Pregnant women are especially susceptible to disease and can cause intrauterine or cervical infections that cause spontaneous abortion or granulomatosis infantiseptica. *Listeria* is also the third most common cause of meningitis in newborns as the infants are exposed to the bacteria during transvaginal delivery.

## Enterococci

### Intestines-cock-eyed

Enterococci are gram positive cocci that were previously classified as Group D streptococcus due to Lancefield group D classification. Important clinical infections caused by *Enterococcus* species include urinary tract infections and subacute endocarditis. An important feature of this genus is a high level of antibiotic resistance. Many enterococci are intrinsically resistant to beta lactam antibiotics and resistance to vancomycin (VRE) has been increasing in the last few decades.

## Proteus Mirabilis

### Prometheus

A gram negative bacilli that is facultative anaerobic with swarming motility and urease presence. It cannot metabolize lactose on MacConkey agar. It is most commonly known for causing nosocomial infections. It can alkalize urine and lead to struvite crystal formation in the urine and lead to large kidney stones. It can also cause other infections of the skin and lungs.

## E. Coli

### E-coal-eye

*Escherichia coli*, commonly abbreviated *E. coli*, is a gram negative bacilli often found as normal flora in the intestines. Most *E. coli* strains are harmless but pathogenic strains can cause disease including food poisoning, neonatal pneumonia and meningitis, septic shock, and UTIs.