

Antibiotic Resistance Patient Safety Atlas

Outpatient Antibiotic Prescription Data

Antibiotic Class Definitions

The Outpatient Antibiotic Prescription data section of the Patient Safety Atlas provides data on oral antibiotic prescriptions dispensed to outpatients in U.S. community pharmacies.

Antibiotics are usually classified or grouped by their chemical structure. Some antibiotic classes work by killing bacteria and others work by preventing the ability of bacteria to multiply.

All of these antibiotics are currently included in the AR Patient Safety Atlas national data, but not all are available in the map format of state data.

Class	Examples	How They Work
Penicillins	penicillin, amoxicillin	Penicillins kill bacteria by preventing formation of the bacterial cell wall.
Macrolides	azithromycin, erythromycin	Macrolides prevent bacteria from multiplying by keeping bacteria from making proteins.
Cephalosporins	cephalexin, cefdinir	Cephalosporins kill bacteria by preventing formation of the bacterial cell wall.
Fluoroquinolones	ciprofloxacin, levofloxacin	Fluoroquinolones kill bacteria by keeping bacteria from making DNA.
Beta-lactams with increased activity	amoxicillin/clavulanate, ceftazidime/avibactam	Beta-lactams with increased activity are combinations that consist of two different drugs: a penicillin or cephalosporin and a beta-lactamase inhibitor. The penicillin or cephalosporin kills bacteria by preventing formation of the bacterial cell wall. The beta-lactamase inhibitor has little antibiotic activity on its own. Its job is to protect the penicillin or cephalosporin from being destroyed by an enzyme some bacteria produce. This protection increases the activity of the penicillin or cephalosporin.
Tetracyclines	tetracycline, doxycycline	Tetracyclines prevent bacteria from multiplying by keeping bacteria from making proteins.
Trimethoprim-sulfamethoxazole	trimethoprim-sulfamethoxazole	Trimethoprim and sulfamethoxazole work together to inhibit the ability of bacteria to make folic acid, which is necessary to make DNA and proteins. This prevents bacteria from multiplying.
Urinary anti-infectives	nitrofurantoin	Depends of the specific drug. For nitrofurantoin, depending on the concentration, it either kills bacteria or prevents them from multiplying by keeping bacteria from making DNA, proteins, and the bacterial cell wall.
Lincosamides	clindamycin	Lincosamides prevent bacteria from multiplying by keeping bacteria from making proteins.

