Outpatient Antibiotic Prescriptions

United States, 2012

Introduction

Tracking national antibiotic use is an essential public health surveillance activity that allows CDC and its partners to identify opportunities to improve prescribing practices. CDC monitors outpatient antibiotic prescription data to inform antibiotic stewardship priorities and measure progress over time to promote equitable access to quality healthcare and optimize patient safety.

Data Sources

Systemic oral antibiotics were extracted from the IQVIA Xponent® database.[1] IQVIA captured an estimated 74% of outpatient prescriptions dispensed from retail pharmacies for any medication nationally, reconciled them to wholesale deliveries to these pharmacies, and projected to 100% coverage. These data represent all outpatient antibiotic prescriptions from community pharmacies from all payers but exclude federal facilities. Healthcare provider specialties are based on the American Medical Association (AMA) self-designated practice specialties, Drug Enforcement Administration (DEA), and National Provider Identifier (NPI) sources and categorized into one of 17 groups. Provider specialty denominators are estimated by extracting the total number of providers in each provider specialty from the IQVIA Xponent® prescription database. Rates are calculated using provider specialty denominators for 2011 aggregated by IQVIA. Yearly antibiotic prescription rates per 1,000 persons by age, sex, and region are calculated using annual U.S. Census files.

Note: Methodology for estimating prescriptions for years 2011-2016 does not account for the return or restocking of prescriptions filled, but not picked up by patients. These situations can lead to overstated prescriptions. Starting in 2017, enhancements to IQVIA's methodology also take into account that some prescriptions which are ordered may not be picked up by the patient and that patients may not pay for their prescriptions in the way that the pharmacy expects, leading to prescriptions that are ultimately not dispensed.

TOTAL OUTPATIENT ORAL ANTIBIOTIC PRESCRIPTIONS IN 2012

272.3 million total oral antibiotic prescriptions, at a rate of 867 prescriptions per 1,000 persons

Table 1. Oral antibiotic prescriptions by age, sex, and region – United States, 2012

Characteristics	Number of Antibiotic Prescriptions (Millions)[a]	Antibiotic Prescriptions Per 1,000 Persons, Rate[b]
Age Group		
<20 years	70.8	858
≥20 years	197.0	851
Sex		
Female	164.7	1,033
Male	106.5	689
Region		
Northeast	49.5	887
Midwest	61.3	910
South	114.4	976
West	47.1	640

a. Totals may not add to all oral prescriptions (272.3 million) due to missing data.

b. Rates were calculated using population data obtained from the 2012 U.S. Census.

Table 2. Top oral antibiotic classes and agents – United States, 2012

Characteristics	Number of Antibiotic Prescriptions (Millions)	Antibiotic Prescriptions Per 1,000 Persons, Rate[a]
Antibiotic Class		
Penicillins	59.6	190
Macrolides	57.1	182
Cephalosporins	36.2	115
Fluoroquinolones	32.7	104
B-lactams, increased activity	21.8	69
Tetracycline	21.8	69
Antibiotic Agent		
Azithromycin	53.0	169
Amoxicillin	51.9	165
Amoxicillin-clavulanic avid	21.8	69
Ciprofloxacin	21.4	68
Trimethoprim-sulfamethoxazole	20.9	67

a. Rates were calculated using population data obtained from the 2012 U.S. Census.

Table 3. Oral antibiotic prescribing by specialty – United States, 2012

Specialty	Number of Antibiotic Prescriptions (Millions)	Antibiotic Prescriptions Per Provider, Rate[a]
Primary Care Physicians	129.0	543
Physician Assistants & Nurse Practitioners	43.2	249
Surgical Specialties	20.5	230
Dentistry	23.4	191
Emergency Medicine	15.0	462
Dermatology	8.1	719
Obstetrics/Gynecology	7.0	187
Other	26.0	125
All Healthcare Professionals	272.3	299

a. Rates were calculated using provider specialty denominators for 2011 aggregated by IQVIA.

Figure 1. Antibiotic prescriptions per 1,000 persons by state (sextiles) for all ages – United States, 2012

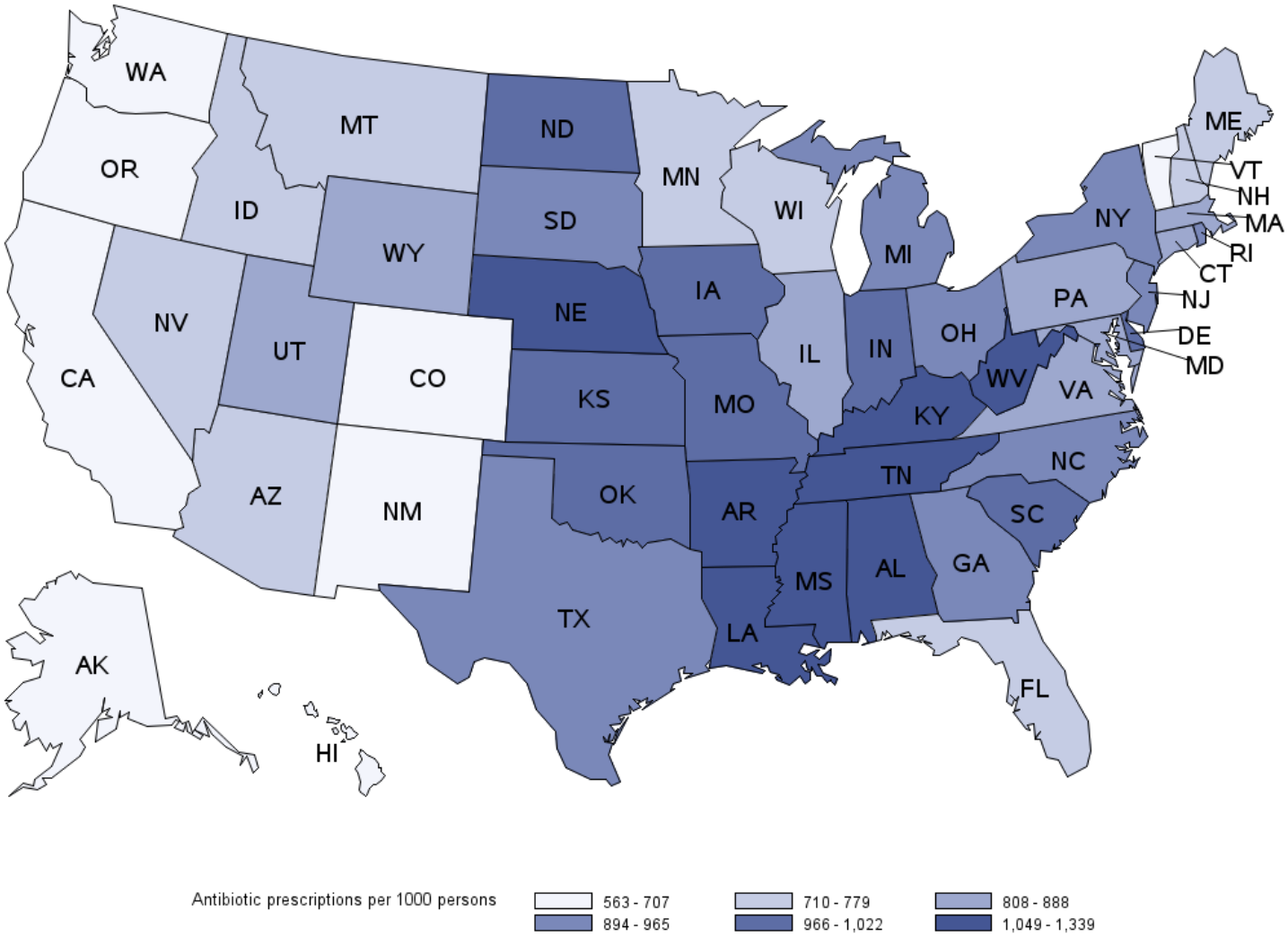

Table 4. Oral antibiotic prescribing by state – United States, 2012

State	Antibiotic Prescriptions Per 1,000 Persons, Rate[a]
Alabama	1206
Alaska	563
Arizona	779
Arkansas	1125
California	588
Colorado	643
Connecticut	880
Delaware	997
District of Columbia	1069
Florida	751
Georgia	895
Hawaii	681

Idaho	728
Illinois	888
Indiana	1006
Iowa	1019
Kansas	1022
Kentucky	1301
Louisiana	1206
Maine	764
Maryland	842
Massachusetts	825
Michigan	894
Minnesota	710
Mississippi	1251
Missouri	966
Montana	717
Nebraska	1049
Nevada	722
New Hampshire	741
New Jersey	946
New Mexico	707
New York	915
North Carolina	950
North Dakota	966
Ohio	939
Oklahoma	993
Oregon	600
Pennsylvania	869
Rhode Island	962
South Carolina	992
South Dakota	965
Tennessee	1249
Texas	958
Utah	838
Vermont	704
Virginia	870
Washington	633
West Virginia	1339
Wisconsin	775
Wyoming	808

a. Rates were calculated using population data obtained from the 2012 U.S. Census.

Suggested Citation: Centers for Disease Control and Prevention. Outpatient antibiotic prescriptions — United States, 2012.

References

1. Hicks LA, Bartoces MG, Roberts RM, Suda KJ, Hunkler RJ, Taylor TH Jr, Schrag SJ. US outpatient antibiotic prescribing variation according to geography, patient population, and provider specialty in 2011. Clin Infect Dis. 2015 May 1;60(9):1308-16. doi: 10.1093/cid/civ076. Epub 2015 Mar 5. PMID: 25747410.