
Laurynas Mereckas/Unsplash

Outpatient Antibiotic Prescribing Varied Across the United States in 2018

Overview

The prescribing of antibiotics in outpatient health care facilities, such as primary care clinics and emergency rooms, represents a large proportion of antibiotic use in the United States. One study found that these settings accounted for over half of all dollars spent on antibiotics in the U.S. in 2015.[1] Because of this contribution to overall antibiotic prescribing, any efforts to minimize the threat of antibiotic resistance and improve patient safety must focus on improving antibiotic use in outpatient facilities.

One important aspect of outpatient antibiotic stewardship is understanding variations in antibiotic prescribing. For example, are patients in certain states prescribed antibiotics at a higher rate than those in other locations? What types of providers account for the largest amount of antibiotic prescribing among outpatients? This type of evaluation affords a better understanding of how antibiotics are prescribed in the U.S. and also allows for improved targeting of antibiotic stewardship efforts.

The Centers for Disease Control and Prevention examined 2018 IQVIA Xponent data on outpatient prescribing of oral antibiotics in the U.S.[2] Presented below are select results from this analysis, focusing on geographic variation in the rate of prescriptions and the types of providers ordering antibiotics in outpatient settings.[3] Additional analysis, supported by The Pew Charitable Trusts, is available on the agency's website.

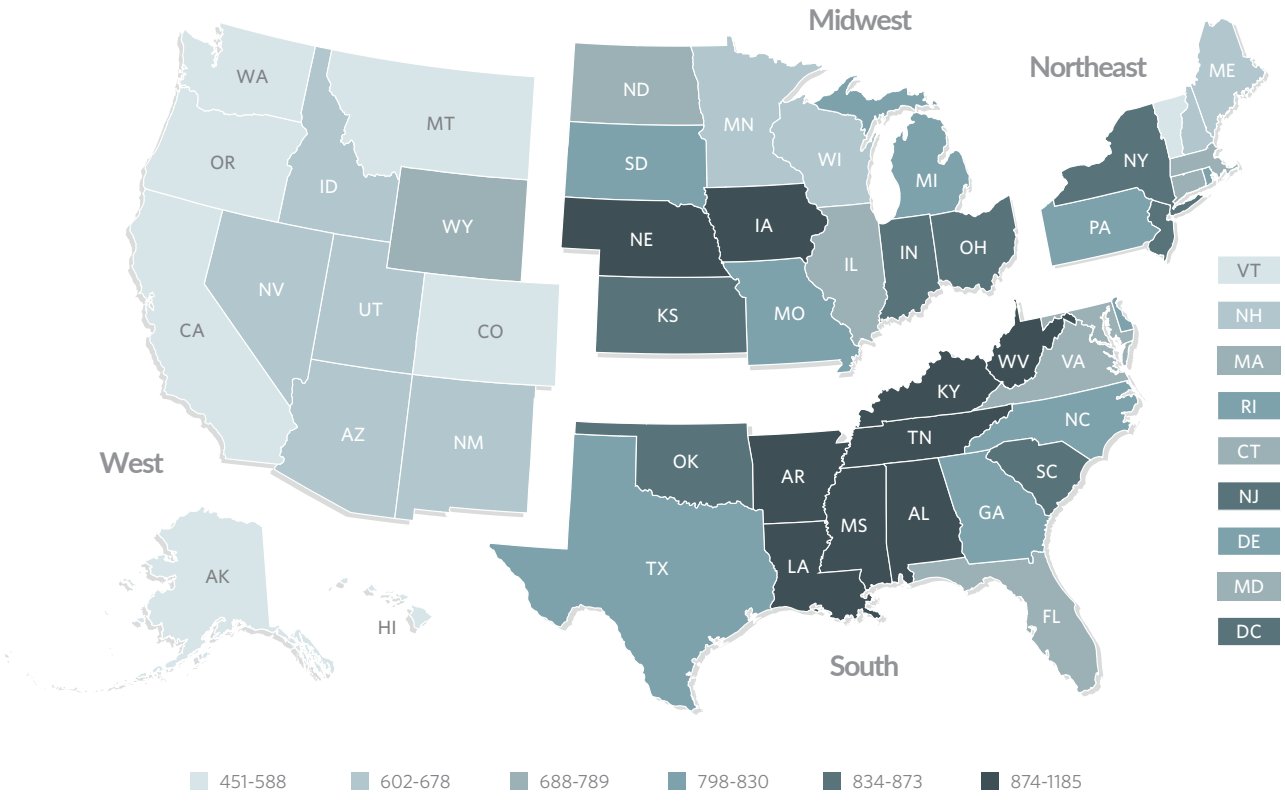
Geographic variation in outpatient prescribing

Clear geographic variation exists in the prescribing of outpatient antibiotics in the U.S. On average, individuals in Southern states are prescribed more antibiotics than those in any other part of the country.[4] In contrast, Western states had the lowest prescribing rates overall. For example, individuals in West Virginia, the state with the highest antibiotic prescribing rate, received over twice as many antibiotics in 2018 as those in Alaska, the state with the lowest prescribing rate (after adjusting for differences in population size). Seven states, all in the South, averaged one antibiotic prescription or more per person annually.

Figure 1

Outpatient Antibiotic Prescriptions by State, 2018

Antibiotic prescriptions per 1,000 persons



Although geographic variation alone does not indicate how much of these states' antibiotic prescribing is unnecessary or inappropriate, it highlights regions where targeted antibiotic stewardship efforts may prove useful.

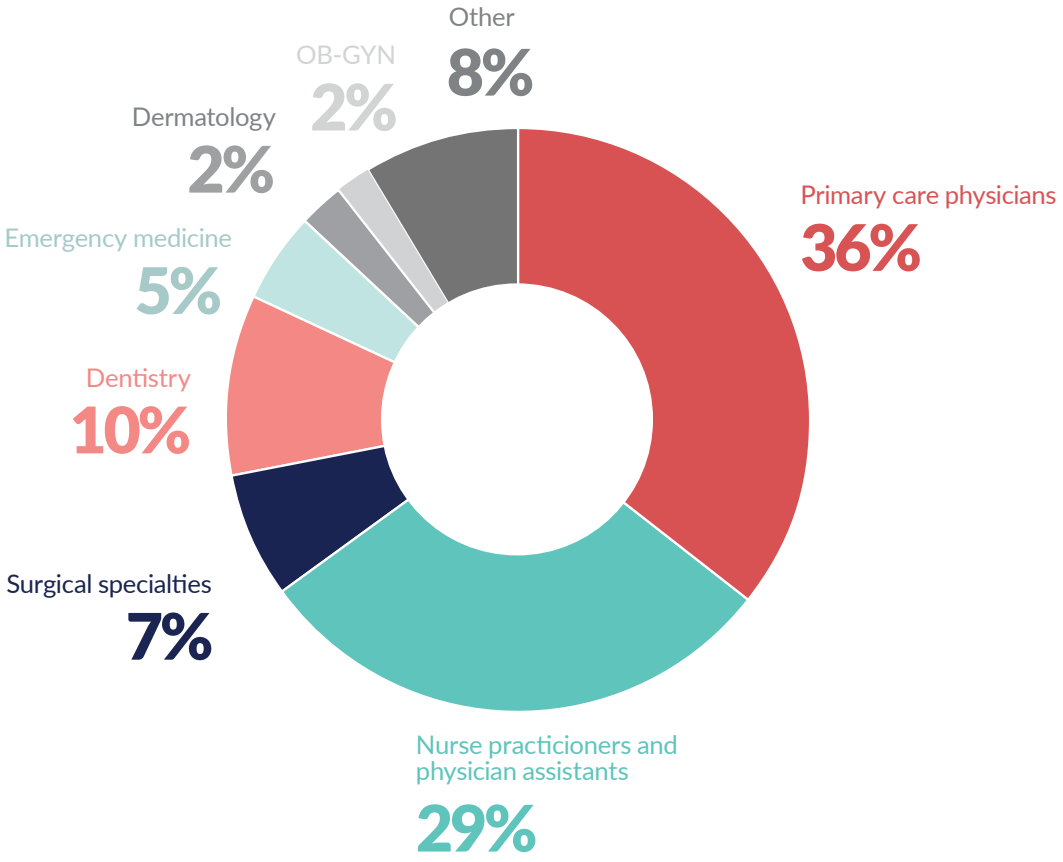
Outpatient prescribing by provider type

Understanding which types of health care practitioners most frequently prescribe outpatient antibiotics can help prioritize antibiotic stewardship efforts. Primary care physicians—including family practice doctors, pediatricians, and internal medicine physicians—are key providers of outpatient health care services in the U.S. Collectively, they accounted for 36% of all outpatient antibiotic prescriptions in 2018, or 376 prescriptions per provider. Nurse practitioners and physician assistants also play an important role in outpatient antibiotic prescribing, accounting for 29% of all outpatient prescriptions and prescribing at a rate of 423 prescriptions per provider in 2018. Engaging these practitioners will be essential to improving outpatient antibiotic stewardship.

Figure 2

Outpatient Oral Antibiotic Prescribing by Provider Specialty, 2018

Percentage of antibiotic prescriptions



Note: Due to rounding, percentages do not add up precisely to 100%

A wide range of other health care providers also regularly prescribes antibiotics in outpatient settings, such as dentists (10%), emergency medicine physicians (5%), and dermatologists (2%). Although the proportion of total antibiotic prescriptions is not indicative of the appropriateness of prescribing, targeted engagement of these and other outpatient providers in antibiotic stewardship efforts could have a meaningful impact on reducing unnecessary antibiotic use.

Figure 3

Outpatient Oral Antibiotic Prescribing Variation, 2018

Examples by provider specialties

Primary care physicians

- Accounted for **36%** of all antibiotics prescribed in outpatient settings.
- Prescribed over **89 million courses** of antibiotics.
- Wrote an average of **376 antibiotic prescriptions** each.

Physician assistants and nurse practitioners

- Accounted for **29%** of all antibiotics prescribed in outpatient settings.
- Prescribed over **73 million courses** of antibiotics.
- Wrote an average of **423 antibiotic prescriptions** each.

Emergency medicine providers

- Accounted for **5%** of all antibiotics prescribed in outpatient settings.
- Prescribed nearly **13 million courses** of antibiotics.
- Wrote an average of **392 antibiotic prescriptions** each.

Dentists

- Accounted for **10%** of all antibiotics prescribed in outpatient settings.
- Prescribed nearly **25 million courses** of antibiotics.
- Wrote an average of **201 antibiotic prescriptions** each.

Dermatologists

- Accounted for **2%** of all antibiotics prescribed in outpatient settings.
- Prescribed nearly **6 million courses** of antibiotics.
- Wrote an average of **525 antibiotic prescriptions** each.

Endnotes

1 K.J. Suda et al., "Antibiotic Expenditures by Medication, Class, and Healthcare Setting in the United States, 2010-2015," *Clinical Infectious Diseases* 66, no. 2 (2017): 185-90, https://doi.org/10.1093/cid/cix773.

2 Centers for Disease Control and Prevention, "Outpatient Antibiotic Prescriptions—United States, 2018," accessed July 7, 2020, https://www.cdc.gov/antibiotic-use/community/programs-measurement/state-local-activities/outpatient-antibiotic-prescriptions-US-2018.html.

3 Beginning in 2017, improvements to IQVIA's methodology began taking into account prescriptions that were ordered but ultimately not dispensed. This includes prescriptions that were filled but not picked up by the patient. This methodological change limits direct comparisons between analyses before and after 2017.

4 United States Census Bureau, "Census Regions and Divisions of the United States," accessed July 7, 2020, https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf. For this analysis, the four U.S. regions—Northeast, South, Midwest, and West—were based on U.S. census regions.

For further information, please visit:

pewtrusts.org/en/projects/antibiotic-resistance-project

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