



HHS Public Access

Author manuscript

Am J Prev Med. Author manuscript; available in PMC 2019 November 01.

Published in final edited form as:

Am J Prev Med. 2018 November ; 55(5): e153–e155. doi:10.1016/j.amepre.2018.06.008.

Opioid Prescribing by Specialty and Volume in the U.S.

Gery P. Guy Jr., PhD, MPH and Kun Zhang, PhD

Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia

INTRODUCTION

Prescription opioids were involved in 17,087 deaths in 2016.¹ Despite recent declines, opioid prescribing remains high and varies substantially across the country,² and by specialty.^{3,4} However, little is known about current prescribing patterns across specialty groups. This study analyzes opioid prescribing by specialty and volume using the most recent national-level data.

METHODS

Data from the IQVIA^a Prescriber Profile was used, which contains the number of opioids dispensed from July 1, 2016, to June 30, 2017, at the prescriber level. The data represent nationally projected estimates of opioids filled in >59,000 pharmacies, representing 90% of retail prescriptions in the U.S. Veterinarians and buprenorphine products typically prescribed for opioid use disorder treatment were excluded. The final sample consisted of 970,902 prescribers with at least one opioid prescription during the 12-month period.

Specialties were grouped by similarity of practice to improve data interpretation (Table 1). The number and distribution of prescribers and opioid prescriptions were examined by specialty. The mean, median, and inter-quartile range of prescriptions per prescriber were examined within each specialty. Analyses were performed in Stata, version 14.2. All analyses were conducted in 2018.

RESULTS

Between July 1, 2016, and June 30, 2017, a total of 209.5 million opioid prescriptions were dispensed in the U.S. (Table 1). The most common specialty groups among opioid prescribers were internal medicine (16.4%); dentists (15.8%); nurse practitioners (12.3%); and family medicine (10.3%).

The specialty groups accounting for the greatest proportion of dispensed opioid prescriptions were family medicine (20.5%); internal medicine (15.7%); nurse practitioners (9.9%);

Address correspondence to: Gery P. Guy Jr., PhD, MPH, Division of Unintentional Injury Prevention, Centers for Disease Control and Prevention, 4770 Buford Highway, NE, MS F-62, Atlanta GA 30341. irm2@cdc.gov.

No financial disclosures were reported by the authors of this paper.

^aIQVIA, formerly Quintiles IMS Holdings, Inc., is a company serving the combined industries of health information technologies and clinical research.

physician assistants (9.3%); pain medicine (8.9%); and dentists (8.6%). The average number of opioid prescriptions per prescriber was 215.8, with the highest among pain medicine (1,314.9) and physical medicine and rehabilitation (1,023.1) specialty groups, followed by orthopedics (438.7) and family medicine (428.4).

DISCUSSION

Opioid prescribing remains high and varies widely by prescriber specialty. Primary care physicians (family medicine, internal medicine, general practice) accounted for 37.1% of all prescriptions; non-physician prescribers (physician assistant, nurse practitioner) accounted for 19.2%; and pain medicine specialists accounted for 8.9%. Compared with previous research, the results suggest decreases in the share among primary care physicians and increases among non-physician prescribers and pain medicine specialists.⁴

The variation in opioid prescribing across specialties warrants further exploration. For example, the average number of prescriptions among nurse practitioners, internal medicine, physician assistants, and family medicine specialists varied considerably. A number of factors could explain these differences, including differences in education, training, professional practices, and patient characteristics. A large share of opioid prescriptions were prescribed by specialties more likely to manage chronic pain (family practice, internal medicine, pain medicine, and physical medicine and rehabilitation). The Centers for Disease Control and Prevention's *Guideline for Prescribing Opioids for Chronic Pain*⁵ can help prescribers and patients weigh benefits and risks of opioids for chronic pain, improve safety and effectiveness of pain treatment, and reduce risk associated with long-term opioid therapy. The proportion of opioids prescribed by nurse practitioners and physician assistants is likely to continue growing given their increased role in the healthcare system.⁶ It is important that prescribing guidelines and education efforts specifically address this population,⁷ as they may have differences in training and practice in pain management.

Limitations of this study include its reliance on self-reported data for prescriber specialty, and the inability to determine the specialty of non-physician prescribers, although research suggests a substantial proportion work in primary care.⁶ Although prescription volume is an important measure, the quantity of opioids dispensed with each prescription could not be determined. As a result, converting opioid prescriptions to a standardized measure, such as morphine milligram equivalents, was not possible. Lastly, the number of patients seen by providers was not available so these data are not able to show whether prescription volume is due to the number of patients seen by a provider. Despite these limitations, this study provides important insights into opioid prescribing by specialty in the U.S.

ACKNOWLEDGMENTS

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

REFERENCES

1. Seth P, Scholl L, Rudd RA, Bacon S. Overdose deaths involving opioids, cocaine, and psychostimulants—United States, 2015–2016. *MMWR Morb Mortal Wkly Rep.* 2018;67(12):349–358. 10.15585/mmwr.mm6712a1. [PubMed: 29596405]
2. Guy G, Zhang K, Bohm M, et al. Vital signs: changes in opioid prescribing in the United States, 2006–2015. *MMWR Morb Mortal Wkly Rep.* 2017;66(26):697–704. 10.15585/mmwr.mm6626a4. [PubMed: 28683056]
3. Chen JH, Humphreys K, Shah NH, Lembke A. Distribution of opioids by different types of Medicare prescribers. *JAMA Intern Med.* 2016;176 (2):259–261. 10.1001/jamainternmed.2015.6662.
4. Levy B, Paulozzi L, Mack KA, Jones CM. Trends in opioid prescribing rates by specialty, U.S., 2007–2012. *Am J Prev Med.* 2015;49(3):409–413. 10.1016/j.amepre.2015.02.020. [PubMed: 25896191]
5. Dowell D, Haegerich TM, Chou R. CDC guideline for prescribing opioids for chronic pain—United States, 2016. *JAMA.* 2016;315 (15):1624–1645. 10.1001/jama.2016.1464. [PubMed: 26977696]
6. Hooker RS, Brock DM, Cook ML. Characteristics of nurse practitioners and physician assistants in the United States. *J Am Assoc Nurse Pract.* 2015;28(1):39–46. 10.1002/2327-6924.12293. [PubMed: 26331690]
7. Guy G, Shults R. Opioid prescribing in the United States. *Am J Nurs.* 2018;118(2):19–20. 10.1097/01.NAJ.0000530238.99144.e8.

Table 1.

Opioid Prescribing by Specialty and Volume, July 1, 2016–June 30, 2017

Specialty	Prescribers, n (%)	Opioid prescriptions, n (%)	Average per prescriber	Median (IQR)
Total	970,902	209,498,112	215.8	42.7 (6.7, 185.5)
Internal medicine ^a	159,183 (16.4)	32,964,516 (15.7)	207.1	31.6 (5.2, 167.5)
Dentist ^b	153,647 (15.8)	18,091,864 (8.6)	117.7	33.8 (8.7, 111.5)
Nurse practitioner	119,599 (12.3)	20,773,394 (9.9)	173.7	29.6 (5.2, 126.6)
Family medicine	100,173 (10.3)	42,914,316 (20.5)	428.4	174.6 (39.5, 521.8)
Physician assistant	82,412 (8.5)	19,513,698 (9.3)	236.8	73.7 (14.8, 234.1)
Surgery ^c	70,321 (7.2)	10,441,677 (5.0)	148.5	73.0 (13.1, 204.6)
Emergency medicine	44,755 (4.6)	10,118,569 (4.8)	226.1	136.9 (35.2, 312.5)
Obstetrics and gynecology ^d	38,811 (4.0)	4,004,591 (1.9)	103.2	56.1 (12.3, 137.2)
Pediatrics	31,670 (3.3)	442,151 (0.2)	14.0	3.0 (1.1, 7.2)
Orthopedics ^e	27,882 (2.9)	12,231,363 (5.8)	438.7	267.9 (55.6, 607.9)
Oncology	19,093 (2.0)	2,762,328 (1.3)	144.7	60.6 (14.7, 183.5)
Psychiatry	17,280 (1.8)	469,718 (0.2)	27.2	3.1 (1.1, 10.9)
Pain medicine ^f	14,245 (1.5)	18,731,444 (8.9)	1,314.9	18.8 (2.0, 1106.0)
Neurology	10,896 (1.1)	2,482,777 (1.2)	227.9	26.7 (4.1, 135.3)
Physical medicine and rehab	7,642 (0.8)	7,818,609 (3.7)	1,023.1	137.9 (18.4, 869.2)
Radiology ^g	7,524 (0.8)	175,945 (0.1)	23.4	3.2 (1.1, 10.7)
General practice ^h	5,465 (0.6)	1,797,229 (0.9)	328.9	61.6 (8.4, 282.9)
Hospitalist	4,757 (0.5)	388,910 (0.2)	81.8	40.3 (15.8, 80.8)
Palliative care ⁱ	852 (0.1)	185,210 (0.1)	217.4	45.4 (9.2, 201.5)
All others ^j	54,695 (5.6)	3,189,806 (1.5)	58.3	9.0 (2.1, 46.2)

^aInternal medicine: internal medicine, cardiovascular, gastroenterology, nephrology, pulmonary, infectious disease, endocrinology, diabetes, cardiology, allergy, immunology, hematology, rheumatology, and hepatology.

^bDentist: dentistry, oral and maxillofacial surgery.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

^cSurgery: general, urology, otolaryngology, female pelvic medicine and reconstruction, pediatric cardiothoracic, plastic, neurological, thoracic, colon and rectal, transplant, trauma, dermatologic, abdominal, and cardiovascular.

^dObstetrics and gynecology: obstetrics, gynecology, nurse midwife, and maternal and fetal medicine.

^eOrthopedics: orthopedic surgery, orthopedics, hand surgery.

^fPain medicine: anesthesiology and pain medicine.

^gRadiology: radiology and nuclear medicine.

^hGeneral practice: general practice, general preventive medicine, and osteopathic medicine.

ⁱPalliative care: hospice and palliative medicine.

^jAll others: pathology, neurophysiology, podiatry, occupational medicine, ophthalmology, optometrist, dermatology, student health care, addiction medicine, unspecified, and other.